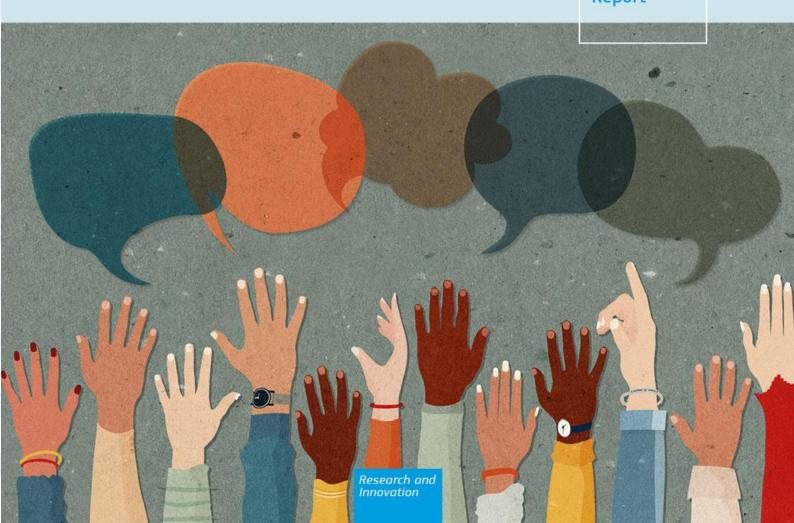


Everyone at the Table

Co-creating Knowledge for Food Systems
Transformation

Independent Expert Report



Everyone at the Table: Co-creating Knowledge for Food Systems Transformation

European Commission

Directorate-General for Research and Innovation

Directorate C- Healthy Planet

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Transformation

Edited by

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Table of Contents

FULL LIST OF THE HLEG MEMBERS	3
STATEMENT FROM THE EUROPEAN COMMISSION	4
STATEMENT FROM THE EXPERT GROUP	5
SUMMARY	6
BACKGROUND	7
TODAY'S PRESSING CHALLENGES	8
ASSESSING AND RECOMMENDING OPTIONS	8
MAPPING THE LANDSCAPE OF SCIENCE-POLICY INTERFACES	9
NEEDS ASSESSMENT FOR SCIENCE-POLICY INTERFACES	10
A SET OF POSSIBLE PATHWAYS	14
PRINCIPLES FOR EFFECTIVE SCIENCE-POLICY INTERFACES	18
PRELIMINARY CONCLUSIONS	18
Annex 1 – Examples of science-policy interface mechanisms reviewed	20

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STATEMENT FROM THE EUROPEAN COMMISSION

The European Commission's (EC) Directorate-General for Research and Innovation established a 19-member High-Level Expert Group (HLEG) to explore options to strengthen the international science-policy interface for food systems transformation, thus making a tangible contribution to the 2021 United Nations Food Systems Summit (UNFSS).

The HLEG was launched in February 2021 and is expected to complete its work by May 2022, after an 18-month duration. The HLEG's terms of reference¹ outline the following as key objectives of the group:

- <u>Advise</u> the European Commission on the need, gaps and options to strengthen the international science-policy interface to improve food systems governance.
- <u>Assess</u> the potential impacts of options on informing food system governance and policy development (including for R&I) at multiple scales, and on engaging stakeholders.
- <u>Foster</u> Food Systems Science Diplomacy and Dialogue towards EU being a global leader in the transformation towards sustainability.
- <u>Support</u> the EU Green Deal policy priorities, including the EU Farm to Fork Strategy.

The selection of the group's members was carried out through a call for expressions of interest issued on 22 November 2013². The group is composed of 19 individuals appointed in a personal capacity, who shall act independently and in the public interest. They were selected based on their professional background and achievements, areas of work, gender, and geographical coverage.

The outputs of the HLEG are meant to both inspire and inform the debate on how to strengthen the governance of food systems in the EU and globally, during and as a follow-up to the UNFSS process, and in alignment with EU policy priorities that rely on science and knowledge to support effective policy-making. This report is the second output of the HLEG and builds on the Concept Note³ submitted to the UN FSS Scientific Group on 6th May.

The views expressed herein represent those of the HLEG members, and not the EC. The EC has no pre-conceived nor preferred option(s) in terms of possible next steps towards strengthening the science-policy interface.

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¹ https://ec.europa.eu/transparency/expert-groupsregister/core/api/front/expertGroupAddtitionalInfo/41382/download

² OJ 2013/C 342/03

³ https://ec.europa.eu/info/news/recommendations-international-science-policy-interface-food-systems-governance-2021-jul-06 en

STATEMENT FROM THE EXPERT GROUP

The High-Level Expert Group is an independent and diverse group of leading researchers with policy-relevant experiences from around the world. They are committed to complete apolitical independence and fulfilling their role with the highest ethical standards, professionalism, and rigour. The experts are part of this group in their individual capacity and hence their views do not represent the views of the organisations of which they are employed. The views expressed in this publication are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission. Moreover, the experts acknowledge the valuable contributions of Marta Hugas who, in her personal capacity, is involved as an 'observer' within the group.

SUMMARY

The urgency of food systems transformation is widely agreed. The UN Food Systems Summit (UNFSS), in September 2021, presents the opportunity to develop political momentum behind food system transformation at national and international levels. Given the scale and ambition of this vision, and that many countries are at an early stage in working towards a transformation, the UNFSS should assist in clarifying priority objectives on this journey. A broad consensus on pathways to transformation will have obvious consequences for the nature and number of Science-Policy Interfaces (SPIs) needed to support the process.

This report reflects the work of a high level expert group (HLEG) assembled by the European Commission (EC) in early 2021 to explore needs, feasibility, and potential options for enhancing SPIs to underpin substantive food systems transformation. The HLEG has focused on assessing: i) how to generate actionable evidence from science and knowledge from other sources (including incorporating a political economy lens to overcoming transactional obstacles), ii) how to articulate actionable knowledge that builds on cutting-edge science while recognizing the additional value of experiential, indigenous and traditional knowledge, and iii) how to better connect/network relevant expertise across all scales.

Appropriate SPIs must also go beyond producing and disseminating information. They must also be platforms that facilitate networking, transparency, and equity in access to data and act as a voice in terms of setting priorities. The legitimacy, and hence value, of SPIs require a commitment to scientific independence (avoiding bias and capture), transparency of process, relevance and validation of findings, and full engagement of all stakeholders. While numerous panels, bodies and platforms exist today, generating valuable data, insights and dialogues, rigorous and relevant evidence relating to scalable actions at local and national levels remains limited, and transformative policies and investments at all scales of action are in short supply.

The HLEG has reviewed past and present SPI mechanisms and modalities, identified domains of activity that could be strengthened, and assessed the transformative potential of existing producers and users of knowledge. The conclusion is that while what exists does exemplary work, the current landscape is not sufficient. Adapting existing institutional functions or networks offers one pathway to create a more inter-connected, coherent activity. Another approach is to enhance capacities of existing SPIs through broader mandates, higher levels of funding, and engagement with non-traditional and under-represented stakeholders. A third path would be to build on the first two by establishing new capacities to support transformative action. There is scope for sets of options to be blended.

The pros and cons, challenges and barriers, and costs and benefits, of alternative options will be explored in phase II of the HLEG's work. In the meantime, the expert group recommends that the UN Food Systems Summit, upcoming climate meetings, the UN Biodiversity Conference in China, and Nutrition for Growth in Tokyo seize the opportunity to catalyse dialogue and commitments to support a process for enhancing SPIs towards food system transformation.

BACKGROUND

There have been six global food summits over the past 80 years: 1943, 1963, 1974, 1996, 2002 and 2009. Each represented a moment framed by serious concerns about the world's food systems. Each resulted in decisions promoting change and established institutions to deliver that change.

The 1943 Summit created the Food and Agriculture Organization of the United Nations (FAO) in anticipation of the great food challenges post-World War II. In 1963, the Freedom from Hunger campaign was launched, and new investments were made to kick-start the Green Revolution that promised to end hunger. The 1974 Summit occurred at a time of famine, when the spectre of mass starvation loomed large. It created the UN Committee on World Food Security (CFS) and the International Fund for Agricultural Development (IFAD) and stimulated the Consultative Group on International Agriculture Research (CGIAR) to increase the capacity of international agricultural and policy research. The 2009 Summit responded to the 2007/8 food price crisis, which saw food riots in over 30 countries and pushed millions into poverty and undernutrition, leading to a reform of the CFS, including the establishment of the High-Level Panel of Experts (HLPE) on food security and nutrition in 2009, and to the 2010 launch of the Scaling Up Nutrition (SUN) movement.

The 2021 UN Food Systems Summit (UNFSS) marks another key moment; a critical opportunity for positive change. Its foundations are three major international agreements reached in 2015/16; namely, the 2030 Agenda for Sustainable Development, which translated into the Sustainable Development Goals (SDGs); the Paris Climate Agreement and the UN Decade of Action on Nutrition. The UN Secretary General's decision to call for the 2021 summit recognised that optimally functioning food systems are fundamental to achieving all SDGs, the Climate Agreement, and global targets for nutrition and that this raises the need for an urgent and concerted action by all stakeholders, rather than just those involved with the production of food. Meanwhile, the COVID-19 pandemic has introduced more uncertainty, exposing the fragility of global food systems when placed under stress. Although some local food systems proved to be responsive to new-found opportunities, in many cases supply chains were disrupted, labour markets and retail systems curtailed and exporters, as well as food service businesses worldwide, reeled from the sudden change of demand. The connections between food systems, human health, the environment, gender, climate change and food markets were exposed for all to see.

Today, there is wide acknowledgement that our food systems⁴ drive significant planetary challenges, including climate change, soil degradation, water depletion, loss of biodiversity and harvest failures, leading to a spiral of negative interactions that contribute to income and gender inequalities, health inequities and social unrest and make healthy diets unaffordable. Today's dietary patterns are unhealthy, unsustainable, and inequitable. Suboptimal diets, underpinned by unsustainable food systems, are now one of the leading global drivers of disease. They also contribute a large share of food systems' greenhouse gas emissions, while half the planet cannot afford even the most basic of healthy diets, and they lead to a loss or depletion of natural resources that undermines food systems globally.

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Based on the HLPE report on food systems (2017), we adopt the following definition: "A food system gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socioeconomic and environmental outcomes". This relates to all terrestrial and aquatic food systems.

TODAY'S PRESSING CHALLENGES

Against this backdrop, the 2021 UN Food Systems Summit has a critically important role to play in helping politicians and policy makers prioritise actions to promote more sustainable, healthy, and equitable food systems. It is vital to remember that the food systems we have today are not eternal, nor are they accidental. They are shaped by investment decisions, economic incentives and societal goals, patterns of consumer demand and by business and governmental actions (or inactions). Past decisions can be reconsidered, and new choices can be adopted. As such, the upcoming Summit offers huge promise. Acknowledgment by world leaders, businesses, and civil society of the imperative for change will open a new chapter in the world's understanding and management of food-related issues.

These steps must, of course, be informed by the best science, by evidence of likely benefits and costs (including in the context of risk assessments and analyses) and by a knowledge of what can work (and how) in different contexts. But action must also right historic wrongs that have kept key groups marginalised. These voices must be incorporated into policy making processes. In other words, the next steps must be business not as usual. To support this aspiration, science must have appropriate two-way interfaces with the designers and implementers of policy as well as civil society and business stakeholders who use, and should also inform, science. Simultaneously, the right kinds of institutions or networks, mandates and responsibilities, funding and governance need to be in place. Many key pieces exist today. A range of science-policy interfaces, affinity networks, and intergovernmental platforms already support engagement and dialogue on various facets of food systems. But, while keeping in mind that knowledge is not the only ingredient required for generating change, most food system stakeholders share the view that the knowledge we have now is not sufficient to support the transformation required to meet today's grave challenges.

ASSESSING AND RECOMMENDING OPTIONS

To support these important issues at the UNFSS and beyond, the European Commission (EC) established an Expert Group (HLEG) in February 2021 to advise on the need, potential, feasibility, options, and appropriate approaches for science-policy interface(s) (SPIs) to support food systems transformation. The group is tasked with assessing evidence and knowledge, examining the potential for enhancing existing institutions and/or networks, and determining the kinds of funding and governance structures required to ensure legitimacy and impact. The HLEG does not promote any political agenda or researchers' self-interest.

This report describes six months of the HLEG's work, during which experts examined existing SPIs, identified strengths and weaknesses as well as the potential for enhanced functionality and the main political and funding challenges. The goal of the first phase was not to define a single recommendation but to line up options. Many possibilities were examined -- from supporting the status quo to creating new intergovernmental mechanisms. Each was assessed in terms of cost, timeframe, legitimacy and its ability to support the urgent reforms needed.

This report was prepared for the EC, but also for the attention of the Science Group of the UNFSS. The second phase of the HLEG's work, starting in September 2021, will build on discussions and recommendations emerging from pre-Summit activities. The aim is to contribute substantively to dialogues during and post-Summit, paving the way for informed choices on how to create change that supports each of the SDGs. Commitments made at the UNFSS and at the subsequent Nutrition for Growth event (in Tokyo, December 2021) will guide the HLEG in its final phase of work (ending in 2022), which will focus on developing detailed recommendations.

The following sections elaborate on principles, pathways and issues to be tackled going forward. The final part of the report sets out conclusions drawn from this stage of the expert group's work.

MAPPING THE LANDSCAPE OF SCIENCE-POLICY INTERFACES

There are numerous platforms/networks/institutions, working on different aspects of food system transformation, that could be coordinated at both global and national levels to improve efficiency. Many of these have a segmented, sometimes siloed, focus on various constituencies of the food system while others have important elements of mandate and activity that cut across sectors, constituencies, and approaches.

The examples listed in Annex 1 represent just a sample of SPIs considered by the HLEG in its deliberation. This review included historical attempts to influence food-related policy that did not survive (such as the Millennium Ecosystem Assessment, which in 2005 proposed a new framework for ecosystem services that included nutritious food as an outcome, and the International Assessment of Agricultural Knowledge, Science and Technology for Development, which produced its global assessment in 2008). Gaining an understanding of the strengths and weakness of a wide landscape of activities is important before suggesting improvements.

Each of the examples shown in Annex 1 has a relationship with food systems through topic focus and/or roles of members. These include the HPLE, which facilitates policy debates and informs policy through independent evidence-based analyses and advice at the request of CFS members. Another example is the Intergovernmental Panel on Climate Change (IPCC), one of the most influential of global SPIs, whose assessment reports now include socio-economic aspects and agricultural risk (but only has limited tailoring of activities to national and sub-national concerns). The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) provides assessments on topics like pollination and food production as well as land degradation and biodiversity. The Economics of Ecosystems and Biodiversity of AgriFood activity (TEEB AgriFood) is an initiative that assesses the economics and stocks and flows of natural, human, social and productive capitals in delivering food.

This brief overview of some of the international landscape of food related SPIs is not comprehensive, but it illustrates how different SPIs play different roles in generating and/or distilling scientific outputs, promoting better understanding of the current/future food system conditions, catalysing dialogue among stakeholders, and setting priorities for national and global research. Each has a different topical/sectoral focus, varied membership models, diverse modalities of governance and work, a range of outputs and activities, a range of relationships with UN, EU or other agencies offering secretariat support, and a variety of funding sources. All of them offer valuable contributions such as reports, discussion fora, evidence prioritisation, scenario building and policy applications, etc. Some support global scientific endeavours, others catalyse regional dialogues across multiple constituency platforms, and still others focus on harmonizing sub-regional (inter-governmental) strategies, policies, and research programmes. The individual and collective work of such SPIs is significant, often gold standard.

Yet there are gaps in terms of addressing evolving food systems topics (such as local variability in food system drivers and outcomes, and social justice dimensions of value chain, such as fair wages, and work safety). Similarly, there are challenges linking or integrating multiple food system concerns/topics (enabling the integration of global climate models with sub-national food trade models, and better understanding time constraints and convenience as drivers of household food choice). Similarly, there are major gaps among many current food related SPIS in how they engage with relevant stakeholders (public, private, civil) and there are major gaps in terms of translating appropriate evidence and knowledge into actionable guidance for public and private sector actions (the 'how' not just the 'what'). Finally, there is little consistency across SPIs with regard to promoting full transparency and ensuring all stakeholders have

access to the information and insight needed for informed decision making. In other words, the call for fundamental transformation requires support that at present is not currently widely available.

NEEDS ASSESSMENT FOR SCIENCE-POLICY INTERFACES

While many existing initiatives and networks contribute excellent work at the interfaces between producers and users of various kinds of knowledge, and although considerable resources on relevant food systems topics do exist, there are several key dimensions that need to be enhanced to ensure society has the SPI it needs to effect food system transformation:

- i. **Enhanced connectivity** across types and sources of information and potential users. There is a significant need to better integrate evidence from local to global scales and vice versa, linking food production all the way to post-consumption, covering relevant natural sciences, social sciences and humanities (including agriculture and food sciences, economics, political and behavioural sciences, nutritional and health sciences, climate and planetary systems sciences).
- ii. **Better coherence** and integration across and among government policies, problem analyses and investment strategies at national and global levels. Systemic approaches are too often hampered by siloed thinking and practice that is, limited capacity. A tighter integration is a fundamental step towards a clear and targeted communication around the outputs produced with policymakers and stakeholders at global, national, regional and local (including urban) scales.
- iii. **A sharper focus of research** on the underlying drivers of (un)sustainability and on the innovation options available or needed to realise food system transformation. To support transformation, science and other forms of knowledge must be transformative in nature and approach. This means embracing transdisciplinary, cross-sectoral, mixed-methods and modelling innovations, on the one hand, and bringing research and experimentation to bear on the evidence needed to overcome policy and political hurdles, on the other hand.
- iv. **Linking evidence-building to evidence of action.** Making information available is not enough to ensure its use. It is well understood that the very best of science and other forms of evidence can be distorted, challenged or ignored. In the food systems realm, actions that would support the public interest may be derailed or blocked where decision-makers are beholden to vested interests, be they political, business lobbies, personal or transactional. Stronger incorporation of actionfocused stakeholders in the evidence-building agenda is one approach to building buy-in. Others may include an institutional commitment by governments to actively take science and other key knowledge into account in shaping food systems policies. Researchers should bring the political economy of policy (in)action into the research agenda itself alongside economic trade-offs, the scalability of actions on the ground, calculus of costs and benefits and an assessment of winners and losers. For their part, government institutions could report on how evidence is considered in deciding among alternative strategic policy or regulatory measures. An SPI which has formalised institutional links to policy-makers would be able to build such reporting into ongoing interactions.
- v. **Greater institutional interoperability** affecting the work of the many bodies and networks that currently generate and use evidence. Enhancing the interoperability of the activities and outputs of scientific panels, intergovernmental networks and impactful institutions is key to supporting food system transformation.

- vi. **More deliberate ground-truthing of global analyses** to local levels in ways that incorporate the needs, values and evidence associated with diverse food systems. The need is for stronger and more precise guidance to national and subnational stakeholders on how exactly to shift towards environmentally sustainable and healthy diets that take local and regional specificities into account.
- vii. **Greater inclusivity in the scientific process** to prevent conflicts of interests, biases and narrow views of what is considered 'evidence'. Science and evidence-building in the service of transformative action must be rigorous, independent, unbiased and transparently conducted (including avoiding capture through funding sources, peer-review, lack of attention to failures in the pursuit of successes, etc.).
- viii. **Disaggregation of data** of all kinds is needed to overcome constraints to understanding what innovations work for whom and under what circumstances. Improved granularity, frequency and quality of data should be provided by, for example, in relation to gender, rural-urban linkages and agro-ecology.

The above needs must be urgently addressed if interfaces between generators and users of relevant information are to engage effectively with each other. Importantly, information does not only mean scientific output. There are multiple kinds of information to be synthesised, compared, integrated and assessed, including:

- Rigorous outputs of scientific endeavour research, statistical modelling, compilation of data relating to public goods (e.g., climate, environment, public health);
- ii. **Evidence of 'what works'** from a policy and programmatic perspective; that is, deep empirical understanding of impacts of strategic choices, investment and running costs, benefits versus costs differentiated by a wider range of stakeholder categories and in both a short-term and a long-term time frame, 'best bets' among alternatives, winners and losers where trade-offs are involved;
- iii. **Knowledge of 'why things work'** (or not) from an experiential perspective; that is, insight from communities, people of different genders, indigenous groups, small and medium-sized businesses, local government, finance providers, etc.;
- iv. **Individual and institutional capacities** to generate, disseminate, analyse and use evidence and knowledge of all kinds to support effective policy decisions, business strategies and civil society engagement in governance and advocacy (especially in the global South, where capacity-building needs urgent attention); and
- v. **Business data** (on private goods), requiring an enhanced dialogue between private firms, civil society and institutions to increase the transparency of outputs from market research, corporate strategies, product line development and private sector R&D. Novel foresight and scenario-building activities framed by possible future trends can play an important role here.

Some of this information exists and is available, but much is either not existing or not available to users in ways that they can make effective use of it. As a result, the HLEG concludes that the following priorities should be addressed as the foundation of an effective SPI that will support food system transformation.

The first of these is **full and open access to trusted information** on the nature and scale of food system challenges. Most people cannot access empirical information relevant to their lives due to a lack of open access data globally, limited 'translation' of science for multiple audiences, language constraints, lack of dissemination platforms, etc.

Transformation of food systems requires stakeholders having access to (and, in many cases, taking responsibility for generating) evidence and knowledge. Without integrated (or at least comparable) evidence and datasets that are interpretable for local contexts, for many decision-makers 'transformation' remains an abstract concept that does not lead to concrete actions. Addressing this gap will not be easy. It requires: i) credible, relevant, specific data, findings, results of surveys, modelling exercises, scenario building and local knowledge and experience; ii) making evidence openly available and digestible (translated, for example, from scientific jargon into actionable language); and iii) housing such evidence in long-term platforms that become integrated datasets at levels of granularity to be useful at national and sub-national levels. Users should be able to understand how different components of food systems interact with each other, the patterns and trends that speak to potential future outcomes and the priority challenges that need to be addressed in one location, economic context or political and institutional setups.

The second need is for rigorous and relevant information and insights. This means curated and standardised data with appropriate quality control that are interoperable across sectors (e.g., climate, trade, food and natural resource depletion models) and geographies and directly speak to the concerns of different users. This would entail the involvement of (i) policymakers, who need to understand costs and benefits, policy trade-offs and divergent economic interests; (ii) business leaders, who estimate shifts in consumer demand and output prices relative to future input costs; (iii) workers' organisations, who engage with labour issues across the food system); and (iv) consumers, who make food choices constrained by purchasing power and knowledge. Policy, behavioural and technology innovation pathways supporting change require 'the right' information to be generated, made available and trusted -- not just 'data' in general. That said, there are significant gaps in basic knowledge of food system functions that hinder effective understanding of current conditions and the potential for change, including: i) what people actually eat, ii) on what basis consumers make dietary choices, iii) how safe diets are in relation to food-borne diseases, iv) what "diet quality", "healthy diet", "sustainable diet" or "nutritious diet" actually mean in a validated and measurable way by context; v) relative prices of foods over time, vi) costed policy options for addressing multiple food system goals simultaneously, vii) the (measurable) effects of national food system policy options at the international and global level; viii) policy trade-offs and co-benefits, viii) the availability of foods able to meet dietary needs across different geographies, and x) drivers of economic power at different segments in food value chains.

The third need is for forward-looking perspectives that resonate locally as well as globally. Scenario and projection-building based on anticipated outcomes of dynamic systems interactions is important at local and global levels, and complex futures must be spelled out, rather than continuing to focus on simple linear trends that are extrapolated from the past. Open multistakeholder discussion of a range of potential outcomes and timeframes is essential. Indeed, the winners and losers of policy action versus inaction, as well as specific pathways to mitigate the impact on the 'losers', become more transparent when the outcomes of trade-offs are fully articulated and there is a full understanding of the ways in which vested interested may capture the benefits of science-policy processes. Part of this need relates to metrics and methods. Moving beyond business as usual requires appropriate measures of cross-sectoral activity, net progress on multiple fronts, net gains across a wider range of related food system outcomes (not simple output indicators) and more. For example, 'sustainability' will need to be measured as a composite of concerns -- including climate change, pressure on environmental resources, biodiversity, public health, gender, social justice, income quality, systems resilience and more. While not a glamorous task, establishing appropriate metrics for harmonised and relevant data collection, collation and interpretation at the global scale is fundamental to success. Both generic and specific data and information systems are needed to stimulate and support decision-making, as is guidance on appropriate ways to integrate multidimensional, multiscale, multidisciplinary data into meaningful results that can inform policy actions and stakeholder practices.

A fourth need relates to **traceability and accountability in how new knowledge, information and data used**. A major challenge facing today's SPIs is the weak link between large investments made in generating and disseminating credible new knowledge and its uptake. Bringing new science and other forms of evidence to the table does little to promote innovation in policy or practice. Stronger connections must be built among providers and users of information, potentially including more formal mechanisms for policymakers to react to new knowledge (including with questions), and ways to map the adoption of new ideas via policies, investments, or multi-stakeholder strategies. Accountability mechanisms can also be considered to highlight how new information has been used in public or private sectors (or why knowledge has not been used).

Therefore, the HLEG has determined that while today's SPIs provide much, the current landscape is not sufficiently funded, integrated or multi-sectoral to suffice. Given the complexity, scale and urgency of work that needs to be done, food systems transformation must be guided by SPI options that are able to provide the following functions:

- i. Facilitate the generation, curation and integration of many forms of information that can be shared through tailored platforms open to all. This must include many kinds of data, including about the true costs of food (building in negative environmental and health externalities simultaneously), appropriate metrics of food system sustainability, food safety, gendered impacts ns and clearer measures of the 'healthiness' of a range of local diets.
- ii. Support forward-looking efforts focused on forecasting, modelling and scenario-building aimed at supporting visions of the future, dialogue on likely trade-offs and constituency conflicts and understandings of the risks and opportunities, costs and benefits associated with pursuing one scenario versus others. Improved approaches to the assessment of bias, rigour and conflicts of interest in data generation and interpretation are also needed, alongside enhanced approaches to the peer-review of findings and outputs of science, the compilation and distillation of experience-based 'knowledge' and the assessment of the generalisability of locally-based wisdom.
- iii. Convene, support and derive transferable lessons from multi-stakeholder networking and dialogue at multiple levels of engagement in food systems, from local to global and across sectors in the value chain. Leadership is needed at all scales of activity but facilitated engagement of all stakeholders is equally important and the role of multidirectional dialogue to achieve this goal cannot be underestimated.
- iv. **Catalyse to build institutional capabilities globally and locally** to ensure that the generation of knowledge supports informed decisions, better practices, and gauges progress.

These functions are prerequisites for success. Some are currently addressed today, but in piecemeal fashion. That said, there is no single solution to this challenge; a range of potential solutions must be carefully considered. This must be done urgently; time is running out.

A SET OF POSSIBLE PATHWAYS

Many national and city governments, businesses and donors already acknowledge that transformative action is needed. Science-based contribution to 'what' must be done is important, as are translating science findings into policy-relevant recommendations, assessments of trade-offs among alternative actions measurements of progress and net impact. The institutions generating today's body of scientific outputs are hugely important and valuable, but what exists is not supporting transformative action at scale. There is considerable expressed demand for actionable, trustworthy, evidence-based ideas on how to engage in a transformative process. What exactly must be done, and by what stakeholders, how, in collaboration with whom and funded by whose resources? Transformation will not happen unless it emerges through coherent engagement among stakeholders across the world's food systems - not just governments, but also industry, farmers, consumers and everyone in between. Indeed, the biggest danger of doing nothing, or too little, is increased fragmentation of initiatives that drives policies and investments toward cross-purposes and net effects that cancel out or negate positive actions.

Thus, the HLEG has put aside 'do nothing' as an option. Something positive must be done. This does not imply ignoring or dismissing existing institutional mandates, initiatives and networks. On the contrary, the goal must be to enhance and accelerate what is being done well, regardless of who is doing it, while identifying gaps (in evidence and interface functions) and how they might best be addressed. There is no single solution but desirable sets of actions that allow what exists to be adapted or enhanced to achieve gains, possibly catalysed via initiatives that add value by introducing new capacities, activities, responsibilities or resources.

In this context, the HLEG has explored sets of potential pathways, framed around options that cluster around: 1) **Adapting** what already exists, possibly by realigning topical foci and activities and establishing better collaboration by linking initiatives and connecting relevant networks; 2) **enhancing** what exists by pursuing improved or expanded mandates for key institutions, mechanisms for sharing work and resources around common goals and improved levels and stability of funding; 3) **innovating** on what does not yet exist to provide activities or coordination mechanisms to support options 1) and 2) above. Each of these *possible pathways* is explored briefly below.

1 Adapt What Exists

Numerous food systems-related initiatives have emerged in recent years, such as the *Global Panel on Agriculture and Food Systems for Nutrition* (GLOPAN) in 2012, the *Global Alliance for Climate Smart Agriculture* (GACSA) in 2014 and the *Food and Land-Use Coalition* (FOLU) in 2017. At the same time, many pre-existing bodies have incorporated more explicit food systems foci in their work (such as the many HLPE reports, including the food systems and nutrition report of 2017, and IPCC reports on global warming of 1.5C and climate change and land in 2018 and 2019, respectively). Some initiatives and institutions have overlapping membership (at government or individual scientist levels) and cooperate to the extent permitted by prevailing mandates, funding, timelines, and interests. Thus, the existing landscape offers potential for aligning activities, sharing workloads and resources, and better integrating scientific outputs.

The lowest hanging fruit in this regard would be to formalise institutional collaboration, based on regular outputs (such as the annual UNICEF/World Health Organization/World Bank joint malnutrition estimates, which are based on collaborative work around modelling, data harmonisation and interpretation in ways that enhance the global acceptability of one main source of such datapoints). Thus, one option would be to enhance more formal institutional collaborations among, for example, the HLPE, IPCC, IPBES, One Health, GSDR, FAO, the World Bank, One CGIAR and more.

Increasing collaboration among existing networks/platforms/panels could result in enhanced representation of stakeholders covering all important food systems sectors. For example, connecting the dots between many expert panels working on related but relevant issues represents a significant burden of work, especially since it must go beyond preparing a 'report of reports'. New mechanisms and spaces for engagement must be created if different sectors and disciplines are to productively interact. And the scientists or politicians involved in various food systems-oriented panels (such as the International Panel of Experts on Sustainable Food Systems, the Malabo-Montpellier Panel, the Global Panel on Agriculture and Food Systems for Nutrition, etc.) would need to focus on collective wins.

Even achieving this would not be without challenges, given that different bodies focused on health and nutrition, as well as biodiversity and sustainability, and private sector food and beverage industries and supply chains would need to be included. Also, collaboration is not cost-free, so the internal resources would be needed to make efforts tangible and The latter could include inter alia resources that allow governments, businesses, and civil society to collect, analyse and disseminate comprehensive food systems data, and for global bodies to aggregate such data in ways that they can be readily accessed and cross-referenced through dedicated online portals (building on, and Systems with, existina sites such as the Food collaborating (https://foodsystemsdashboard.org/) and the Countdown on Health and Climate Change (https://www.lancetcountdown.org/data-platform).

At a minimum, building greater collaboration within the existing landscape requires active political engagement with governments and food corporations that have yet to commit to collecting and disseminating metrics and indicators relevant to understanding the problems and solutions across food systems in different geographies operating at different scales. Countries are at different stages on the way towards transforming food systems and have very different resource, information and capacity constraints. This means that clusters of country governments would collaborate on regional processes and that the food system transformation agenda would be better integrated with existing SDG commitments.

Adapting what exists will require goodwill and a willingness to broaden mandates and responsibilities, expand membership, trade off some activities to fund others, and give up institutional or political turf to be part of a wider coalition of partners working to common goals. At the same time, realigning the work and resources of existing SPIs (and other mechanisms for cooperation and networking) would not necessarily require expanded budgets, nor new institutions, and would require the least amount of time to bring into effect.

2 Enhance What Exists

Many organisations and bodies already undertake important research, multistakeholder engagement and/or advocacy relevant to food systems but many do not yet have a seat at the table. In addition to aligning current mandates, resources and practices towards common ends, there is likely the need to increase resources, expand mandates and achieve better interconnectedness of activity. The goal would be a 'light-touch' reorganisation of the global architecture that supports science and policy activities, as well as spaces for discussion of options and concerns and exploration of ideas from all stakeholders. Multi-scale engagement would be key here. For instance, it may be possible to facilitate global modelling activity to be linked to (and informed by) national government policy concerns, and the latter to be linked to (and informed by) local (including indigenous) concerns, solutions and innovations. At the same time, greater autonomy of 'science' would be needed to open the box of potential issues to be explored (freedom from flavour-of-the-month donor interests, vested political and business interests and the boom-and-bust of donor agency funding). A trust fund dedicated to supporting SPI activities underpinning food system transformation may be appropriate.

The various enhancements over today's arrangements could be focused in three main areas:

- i. Enhanced integration of research frameworks, priorities, activities and outputs across science-focused institutions. The goal would be a more coherent and widely agreed framework shaping research on key topics that would include more diverse inputs, address a wide set of concerns and bring best science to bear on the search for cost-effective solutions to clearly defined challenges across food systems, globally and locally. This would involve actualizing collaborations among public (and appropriate private) sector research and R&D activities, enhanced coordination of scientific activities around common goals and improved sharing of datasets, research resources and involvement of a wider range of scientists from typically under-represented geographies and disciplinary perspectives. This would also involve greater integration of agendas across important SPIs (such as the HLPE, the IPCC, relevant UN agencies, One CGIAR, the Global Research Alliance on Agricultural Greenhouse Gases and the Alliance for Food and Climate Systems Transformation)⁵ and mechanisms to foster appropriate methodological innovations.
- ii. **Enhanced coordination and sharing of policy-relevant data**, analyses and other information flows, including, for example, the *European Food Safety Authority*, which is a source of data and analyses on food consumption in relation to food safety across the European Union; *Africa's Regional Strategic Analysis and Knowledge Sharing Support System* (ReSAKSS), which promotes data provision and use to support innovation in African economies (including data support for Africa's continent-wide *Comprehensive African Agriculture Development Programme*); the *ASIA-ASEAN Data Strategy Research Consortium* (which brings together several dozens of Asia's leading universities); *Global Open Data for Agriculture and Nutrition*; the *World Health Organization's Global Health Observatory*; and the *Global Dietary Database*.
- iii. **Enhanced integration of networks** of institutions (globally, regionally and nationally) to ensure the 'voice' of under-represented stakeholders and geographies is heard and to catalyse focused dialogues on food systems problems and solutions. There would be value to develop formal integration of idea-sharing fora as a way of generating spaces for structured dialogues among governments, inter-governmental panels, expert bodies, initiatives, business interests and advocacy groups. Building up regional networks of interests and actors is an important priority for coming years, since these offer potentials to fill gaps that persist in linking global knowledge, interests and actions with local experience, concerns and solutions. There are many existing networks of networks that promote multi-constituency engagement in food systems problems at multiple scales. These could be enhanced, better supported and structurally linked to providers and users of information of all kinds.

Examples of networking initiatives include the *GrowAsia Forum*, which supports national policy dialogues and learning through multilevel networks involving over 500 member institutions across Asia; the *Sustainable Agriculture Initiative Platform* – a non-profit network of 130 food and beverage industry members promoting sustainable agriculture; *India's Agricultural Value System Partnership Platform*, which connects government, private companies, farm organisations, academia and civil society to catalyse market-led food solutions; the *Food Action Alliance* (supported by the World Economic Forum), which is a multi-stakeholder platform focused on thought-leadership and the incubation of innovation to achieve the common goal of making food systems more inclusive, efficient,

The examples given here are merely illustrative of the kinds of networks, collaborations and institutions that would be considered in building improved SPI activities around existing mechanisms.

sustainable and nutritious; the *Food and Land Use Coalition's* (FOLU) community of organisations and individuals that supports science-based solutions to transform the ways in which food is produced and consumed; and the *Global Forum on Agricultural Research and Innovation* (GFAR), which is a networks of networks that connects a wide range of alliances, member-based organisations and groups of individual and institutional members at local, national, regional and international levels – all aimed at making agrifood research, policies and technologies more effective, equitable and sustainable.

3 Innovate Beyond What Currently Exists

Creating entirely new institutions, approved mandates or even novel multi-scale scientific agendas is typically time-consuming, politically uncertain and resource intensive. To achieve the goal of a sustainable food system transformation, time is limited, political appetite for creating entirely new bodies not universal. At the same time, fiscal resources post-Covid-19 are constrained among donor countries as well as in low- and middle-income settings. In other words, the context for radical change in the global architecture for research, development financing priorities, and giving voice to the world's underrepresented, is not auspicious; unless, that is, the crisis be deemed an opportunity for thinking differently. Indeed, the UNFSS 2021 provides an opportunity for the world to review food system governance, and to define the role of evidence-based knowledge in the transition towards sustainable, resilient, healthy, and equitable food systems.

To complement the creation of the HLPE on food security and nutrition by the CFS in 2010, there have been calls over several years for the creation of a new institution along the lines of an inter-governmental panel on food systems or of a group of experts that could be envisaged as an international panel on food systems science – the first largely driven by, and primarily meeting the needs, of governments; the second driven by researchers and meeting a range of stakeholder needs revolving around unanswered scientific questions on food systems functions.

While these options are being discussed alongside above, it is widely understood that scientific panels created by intergovernmental bodies take many years to become established, funded and operational. Similarly, international science panels often do not adequately incorporate the voice of under-represented nations, genders and ethnicities and do not valorise experiential lessons or indigenous and traditional knowledge. This does not mean that things cannot be different in future, but the track record to date suggests that major institutional innovation will be challenging to achieve in just a few years, at a time when the SDGs should be achieved within the space of the next nine harvests, and when most countries are off track.

The HLEG believes that novel bodies, mechanisms, and platforms should be explored and discussed in the context of the UNFSS, but that the political, resource and timing realities must be at the forefront of assessing relative benefits. There is potential for novel interfaces to be established (building on models like GFAR and FOLU) that pursue networking, enhanced access to data, and cross-constituency discussion on lessons from local experimentation. Trust funds supporting multi-stakeholder secretariat funding, new online platforms and data access could well represent a forward step in thinking that policymakers could reasonably support.

PRINCIPLES FOR EFFECTIVE SCIENCE-POLICY INTERFACES

In determining appropriate pathways or option(s) to be pursued in defining SPIs that are fit-for-purpose, some additional key principles must be kept front-and-centre of the dialogue. These go beyond the content of activities or institutional mandates and relate instead to processes and ways of working. While all work done must be credible and relevant – demonstrably unbiased and of genuine value to users - any solution must put legitimacy at the heart of the design process. That is, it should ensure the participation and meaningful inclusion of all stakeholders, incorporate knowledge pluralism, value different perspectives and concerns relating to evidence and encourage debates around alternative solutions while paying explicit attention to the voice and needs of different genders and marginalised groups.

In this, the HLEG's assessment is that the legitimacy of future SPI functions must derive from **transparency and independence of process**, a mandate that is widely supported by governments, civil society, UN mechanisms and private sector, open participation that includes voices that have traditionally been marginalised. Effective SPIs must safeguard against 'capture' of the agenda, priorities, and the kinds of outputs used. Vested interests of many kinds, including political and funder groups, can inhibit the independence of knowledge generation and inject bias into research findings, policy initiatives and investment decisions. Full openness of processes and clearly articulated firewalls are essential for legitimacy.

Finally, transformative science is needed to support food system transformation. While existing streams of research and other approaches to evidence building are important, they are limited by disciplinary or contextual siloes or are funded to answer questions that are not always relevant to food system transformation. Donor commitment (of all kinds) is needed to facilitate, integrate and sustain new forms of transdisciplinary science, real-world experimentation, living labs and the appropriate contextualisation of information, and ways to integrate each of the above.

PRELIMINARY CONCLUSIONS

The expert group's deliberations so far lead to the following preliminary conclusions:

- i. There is **urgency to foster critical but constructive debates on food system transformation**. Challenges are already significant and require rapid action. While there remains a need for new integrative science and lessons learned from experience, action cannot wait. Enhancing the focus of existing bodies/networks, while realigning resources towards robust government, private sector, and civil society engagement with today's problems, are key to transitioning from the status quo to a sustainable transformation.
- ii. A much better (and deeper) **understanding of the interactions among the many components of today's food systems** is urgently needed to accelerate system-wide transformation. An effective SPI must define and respond to the needs of policymakers and other decision makers (at national and local government levels, including city and regional authority levels).
- iii. Food system investments for transformative change must be based on rigorous evidence, and this requires not only traditional scientific evidence but also a deep understanding of both local and global challenges. Innovative, multiscale and multi-sectoral approaches are vital to deliver transdisciplinary science, distil actionable recommendations, implement viable solutions, and assess their cost-effectiveness so as to minimise trade-offs and maximise co-benefits.

- iv. Implementing a food systems approach requires political leadership and commitment, cross-ministerial working arrangements, multistakeholder consultation and capacity-building. A realistic analysis of where a country, region or city is starting from is essential to determine what the kinds of SPI necessary to support transformative activities and determine priorities for capacity-building and investment across all stakeholder groups.
- v. There should be **serious and objective discussions of the need for, and viability of, enhanced options to support SPI(s)**. While important functions and institutions exist today, none has the full scope, mandate, resourcing, transdisciplinary expertise, or national and local engagement to support the data, evidence, knowledge, and information resources that are necessary to support successful actions. There are options to be elaborated, with a coherent mix of actions likely to be best placed to deliver on the high ambitions that underpin food system transformation.

The expert group will continue its work until May 2022. Next steps involve active engagement with the UNFSS and other relevant events and platforms to promote further dialogue, engagement with other experts and institutions around options and pathways, leading to final recommendations to the EC on appropriate sets of actions to consider.

Annex 1- Examples of Science-Policy Interface mechanisms reviewed

Name	Thematic Domains	Mandate	Modality	Outputs	Funding Sources
Historical Mechanisms					
Millennium Ecosystem Assessment	Food provisioning	Inter- governmental	Multistakeholder	Multi-Volume Assessments	UNEP Secretariat, funding from multiple donor countries, foundations. Time-bound activity.
International Assessment of Agricultural Agric. Knowledge, Science Systems and Tech. for Development	Agricultural Systems	Inter- governmental	Multistakeholder	Multi-volume Assessments	FAO Secretariat – time-bound activity.
Existing Mechanisms					
ial Resources	Natural resource	Inter-	Scientific Experts; research	Research, Syntheses, Assessments, SPMs; Multiple	UNEP Secretariat, funding from
Panel (IRP)	use for food	governmental	and reviews.	outputs per year	multiple donor countries.
Intergovernmental Panel on Climate & Food	Climate & Food	Inter-		Multi-Volume Assessments, SPMs based on peer-reviewed WMO/UNEP Secretariat, funding	WMO/UNEP Secretariat, funding
Climate Change (IPCC)	Systems	governmental	Nominated Scientific Expertise.	literature, data, and model archive. Regular cycle (5 years) from multiple donor countries. with special reports interspersed	from multiple donor countries.
Intergovernmental Science-Biodiversity &		Inter-	Multistakeholder Plenary;	sments based on peer-	UN Secretariat, funding from
Policy Platform on		governmental &	ific	reviewed liter ature and ITK; multi-year plan for delivery	multiple donor countries,
Biodiversity and Ecosystem Services (IPBES)		Communities	Expertise & ISUs;		toundations.
High-Level Panel of Experts	Food Security	Inter-	Steering Committee of	Analyses of state of food security and nutrition; scientific-	FAO Secretariat, funding from
of the Committee on World		governmental &	Nominated Experts; Teams of nominated experts: EAD	based advice on policy-issues, using existing high-quality	multiple donor countries.
Group on Farth	Environment 8.	July 1	$\overline{}$	Leseal dry, Identifies enter ging Issues, Multi Molimo Accordments CDMs hand on poor routoused INED Corretariat funding from	IINED Corretariat funding from
Observations (OFO)	בוואוו סווווופוור פא		uvisoi y	Multi-Voldine Assessments, Shins based on peer 4 eviewed	ONLY Secretariat, Idriding Home
Observations (GEO)	rood systems	governmental & Stakeholders	board; Experts and Practitioners; UNEP	interature, data, and model archive. Regular cycle (5 years) multiple donor countries; with special reports (e.g., GEO for Business) interspersed.	multiple donor countries;
Standing Committee on Agriculture, Agricultural Research SCAR) bioeconomy, systems, resi	Agriculture, bioeconomy, food systems, resilience	Established by Regulation of EU Council: inter-	Plenary governing body; Steering Group; national delegates, FC experts:	Periodic technical and strategy reports. Source of advice on European agricultural and bioeconomy research; catalyst for coordination of national research: For exight	ECSecretariat, funding from EC and national governance of EU.
		_	orces	meta-analyses.	
Global Forum on Agricultural Research	Food systems	International, networks of	Regional platforms in Asia, S Africa, Latin America, and	Supports development of a strategic agenda for agri-food research and innovation; catalyses dialogue among all	FAO secretariat, funding from FAO, IFAD, EU, other donor countries.
and Innovation (GFAR)		partners	Europe. Scientists, business, i policymakers, farmers.		
The Economics of	Agr iFood Systems	International,		Periodic Scientific reports; National Assessments	UNEP Secretariat; funding from
Ecosystems and Biodiversity & Capitals (TEEB)	& Capitals	National	stakeholders and UNEP		donor countries, foundations.
Global Panel on Agriculture Food Systems,	Food Systems,	International	arch,	Using existing high-quality research, data and technical	Multiple donor agencies,
& Food Systems for Nutrition (GLOPAN)	diets, nutrition		foresight, policymaker engagement	studies and new modelling for policy briefs, Foresight reports, analytical tools, policy dialogue convening.	foundations.
European Food Safety	Food and Feed	EU; inter-	Board; Nominated Scientific	Board; Nominated Scientific Regular Reports, Policy Briefs, Statutory Analyses	EFSA Secretariat; funding from EU
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International Panel of Experts on Sustainable Food	Food Systems	Independent panel of experts	Multistakeholder; co- creation of solutions based	Kegular assessments produced with a wide range of food system actors, democratic approach, cutting-edge science	Multiple foundations, IPES-Food does not accept funding from
Systems (IPES-Food)					governments or corporations.

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The High-Level Expert Group (HLEG), assembled by the European Commission in 2021, is tasked to explore the needs, feasibility and options for enhancing science-policy interfaces (SPIs) that could kick start and substantially support the ambitious goal of food systems transformation in the coming decades. Based on their analysis of a sample of existing SPIs, the HLEG concludes that, while a number of them do exemplary work, an additional framework linking local, national, regional and international levels, as well as different facets of the food system, is required to sustain food system transformation. The HLEG will draw on the outcome of the UN Food System Summit and Pre-Summit to elaborate a more detailed proposal during the second phase of its work, due for completion in May 2022.

Studies and reports

