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Food Systems Transformation: an introduction

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1. Why do we talk about food system transformation?

There is broad scientific consensus about the negative impacts that most food systems are having on climate change, biodiversity, healthy diets, and livelihoods for smallholder farmers and the urban poor (EAT Lancet 2019; CFS-HLPE 2020; GLOPAN 2020). Policymakers recognise this, and argue that the policies that fed the world in the twentieth century are no longer fit for purpose (this is reflected in statements and commitments from the UN Food Systems Summit (UNFSS),[1] Nutrition For Growth (N4G)[2], and the Climate Change COP26[3] meetings in 2021). In other words, the call for food system transformation has never been stronger.

This briefing note outlines four different views on food system transformation and provides insights on the extent to which these processes can be steered, and what stakeholders can do to accelerate change.

The term 'food system transformation' refers to how to change food systems. It is important to note that transformation is a radical idea. It is not a tweak, but a complete rethink of the attributes of a food system, including its purpose, rules, and power structures. It is about reshaping the so-called 'normal'. Whether deliberately steered, or occurring autonomously, there will be will transformation winners and losers.

Food system transformation includes rethinking the key outcomes of food systems. Until about 20 years ago, the main expectation of food systems was that they produced enough food to feed the world. When increasing production did not solve global hunger and health problems, food systems were expected to provide food and nutrition security.

1 https://foodsystems.community/food-systems-summit-compendium/
2 https://nutritionforgrowth.org/tokyo-n4g-summit-2021-press-release/
3 https://unfccc.int/process-and-meetings/conferences/glasgow-climate-change-conference-october-november-2021/outcomes-of-the-glasgow-climate-change-conference

Today, as the world becomes increasingly aware of the environmental and social costs of focusing solely on food security, much more is envisaged. Food system transformation is about raising the bar, anticipating that food systems must, in some way, generate healthy diets, living incomes for everyone involved in food value chains, and achieve this simultaneously and in an environmentally beneficial manner.

There is much debate and contestation around the best direction for food systems transformation: should healthy diets get priority over livelihoods or environmental objectives? And where is the necessary innovation going to originate from? Will it come from technological innovation, which will require specific investments, regulations, and enabling of specific actors in the food system, such as large agribusiness and knowledge centres? Or, will the transformation come from social innovation, which would emphasise building trust between actors, changing mindsets, and strengthening governance arrangements?

2. Examples of food system transformation

Food system transformation processes ideally reshape the way our food system is organised in a way that helps to better address desired food system outcomes including:

- Food security: providing all people with access to sufficient food;
- Healthy diets: making sure people have access to diets that deliver good health;
- Economic wellbeing: assuring food systems contribute to a living income for all;
- Social wellbeing: ensuring that food systems contribute to all people leading a safe, flourishing life;
- Environmental sustainability: making sure food systems do not harm our natural environment.

Three examples of food system transformation processes that were intended to address a different combination of food system outcomes are outlined below.

The Green Revolution

The Green Revolution was a food system transformation that aimed to increase agricultural productivity worldwide to meet the demands of a growing global population. During the 1950s and 1960s, the United States government, the Ford and Rockefeller Foundations, and United Nations organisations such as the Food and Agriculture Organization (FAO), and CGIAR centres, including the International Maize and Wheat Improvement Center (CIMMYT) and International Rice Research Institute (IRRI), engaged in large-scale technology transfer projects in India, Mexico, and the Philippines to increase adoption of modern farming methods, using high yielding seed varieties, chemical fertilisers, and mechanical machinery. These technology transfer projects were replicated in other countries in the Global South.

While the Green Revolution did contribute to increased productivity of cereal crops such as wheat, rice and maize, it had several adverse side effects (Gollin et al., 2021). While leading to a reduction in hunger and starvation, the Green Revolution's focus on a limited number of cereal crops led to less diverse diets and more prominent malnutrition. Consolidation of landholdings and mechanisation of farming also threatened the livelihoods of smallholder farmers and removed a large source of employment from the rural economy. Finally, use of chemical fertilisers and pesticides resulted in a number of environmental issues.

Regreening the Sahel

In the 1990s and 2000s, a food system transformation took place in Burkina Faso and Niger. Sahelian farmers responded to severe droughts in the 1970s and 1980s by modifying traditional agroforestry, water, and soil management practices. Moreover, they developed ways to regenerate and multiply valuable trees whose roots already lay under their land. As a result, parts of the Sahel's arid landscape have been turned into productive agricultural land, which has improved food security for three million people, increased farming income, and reversed environmental degradation and desertification (Sendzimir et al., 2011). Nevertheless, recent evidence shows that there is large variation in the effectiveness of these practices in 'regreening' the landscape (West et al., 2020).

This 'farmer-managed natural regeneration' (FMNR) in Burkina Faso and Niger has been actively supported by its governments, the World Bank, bilateral donors, and NGOs. More recently, this approach has spread to other African countries under the African Forest Landscape Restoration Initiative, launched in 2015 by NEPAD, the World Bank, World Resources Institute (WRI) and Germany's Federal Ministry of Economic Cooperation and Development (BMZ). Under this AFR100 initiative, 32 African countries have committed to regenerate 128 million hectares by 2030, backed by US$1 billion in development finance and US$481 million in private sector commitment.

The protein transition

The protein transition is a food system transformation in its early stages, which aims to shift consumption of animal proteins to consumption of new protein sources, including plant-based proteins, insects, seaweed, and algae. This shift would increase protein availability for a growing world population, contribute to healthier diets, and reduce the impact of livestock protein production on the environment (Pyett et al., 2019).

Plant-based meat substitutes are currently at the centre of food research and innovation. There is a growing market for these products: plant-based food sales are expected to increase fivefold by 2030.[4] However, this growth has not yet translated into a significant global shift in the composition of diets. Meat remains an important part of European and North-American diets, while meat consumption in South America, Africa and Asia is expected to rise significantly over the coming decades.[5]

Photo: Roger Reuver

[4] https://www.bloomberg.com/news/articles/2021-08-11/plant-based-food-sales-to-increase-fivefold-by-2030-bi-says
[5] https://www.fao.org/3/CB5332EN/Meat.pdf

3. Different views on food system transformation

Food systems are continuously changing and transforming. Thus, food system transformation is not about seeking change per se, but about influencing the direction in which food systems evolve, and the pace at which this happens. Views on how this occurs vary. We have collated four different views, which reflect how people perceive the ability, or inability, to steer food systems in a desired direction.

View A: *food system transformations can be engineered*. This view is based on the assumption that we can analyse food systems, understand their features, modes of organisation and ways they can be influenced, and steer them through well-designed government policies in the desired direction. Within this view, public laws, regulations, incentives, and other economic measures are seen to be able to influence stakeholders in the food system to effectively enhance food system outcomes. Steering of the food system should therefore emerge from public institutions, which have the legitimacy, power, and resources to set into motion, monitor and evaluate food system transformations. Examples of such transformations are government programmes in Sub-Saharan Africa to modernise agriculture, and the recently-adopted Green Deal policy, which is aiming to make agriculture in the European Union more sustainable.

View B: *food system transformations cannot be engineered*. This view argues that changing food systems properties is a complex, multi-dimensional socio-political challenge affected by competing views and interests. The possibilities for centrally steering and controlling food systems are therefore limited (Leeuwis et al., 2021) and alternative approaches to system change, which anticipate and accommodate inherent social tensions and struggles in changing food system dynamics, must therefore be found. Strategies to support food system transformation should be steered towards changing food systems governance, such as by empowering consumer associations or advocating for more rights for women workers, thus enabling such stakeholders to defend their interests and steer food systems away from the directions sought by ruling powers. Such governance interventions imply a rethinking of the role that policymakers may play in food systems transformation. An example of such a transformation is the emergence and influence of the La Via Campesina movement of peasant organisations across Latin America.

View C: *private interests steer food system transformations*. In this view, governments provide an enabling environment for food system transformations, but powerful private companies steer them in the directions that best serve their own interests. It is questionable whether such transformations are engineered and coordinated by a complex group of private companies, or whether such transformations instead emerge by default when such companies lobby for government support, influence policies and impose their standards on other actors in the food system. There are multiple examples of food system transformations that have been successfully initiated and supported by private companies, including the introduction and expansion of supermarkets and the international concentration of agribusinesses, which has contributed to further globalisation of food systems.

Photo: WCDI

View D: *food system transformations can be negotiated*. Like View A, this view is also based on food system analysis and the assumption that rational, engineered strategies can steer food systems. However, View D differs by arguing that a political-economic analysis will shed light on multiple stakeholders' interests which may be in conflict with each other. It is suggested that a mediating party, independent from government and other interest groups, can assume the role of process coordinator and secure stakeholders' participation. Food system analysis provides foresight and scenarios of plausible transformation pathways, including synergies and trade-offs between parts of the food system and different actors. While such multi-stakeholder processes were initially designed as a platform for joint programming and action, more recently, attention has been given to using these processes to enhance the transparency of (vested) interests between stakeholders, creating a more level playing field and empowering those who historically were excluded. Examples of food system transformations designed through multi-stakeholder processes are the recently-organised national dialogues on the future of food systems, which served as an input to the UNFSS held in September 2021.

4. How to make food system transformation happen?

Food system transformation is fundamentally dynamic and unpredictable since food systems are understandably complex and are exposed to a variety of short- and long-term drivers (Berkum et al., 2018). Nonetheless, particular conditions and approaches do seem to have an influence over the direction and pace of transformational change.

Ensuring the right conditions for transformation

Herrero et al. (2020) identified eight food system transformation accelerators: 1) building trust amongst food system actors; 2) 'learning' mindsets amongst all food system actors; 3) enabling 'social license' (social backing) and stakeholder dialogue; 4) guaranteeing changes in policies and regulations; 5) designing market incentives; 6) safeguarding against indirect, undesirable effects; 7) ensuring stable finance; and 8) developing 'transition pathways' to detail how food system change will be achieved. Strikingly, none of these are technical solutions, which often receive priority funding, but are instead involve policy, regulatory and collaboration aspects of food systems.

While a variety of conditions may help to accelerate transformation, the 2021 IFAD Rural Development Report, *Transforming food systems for rural prosperity*, highlights that the failure of

food systems is, ultimately, a failure in governance. It is vital, therefore, to address governance weaknesses, so that the necessary production, distribution and consumption changes can work together to transform a food system. To strengthen governance systems, we need to invest in four priorities:

1. Collective food system agendas at all levels need to be formulated, reflecting and amplifying the urgency for global, national, and local change.
2. Investing in the capacities of all stakeholders, including both individuals and institutional public, civil society and private actors, and ensuring their freedom of voice and self-expression.
3. Encouraging experimentation in governance models, while ensuring that they align with local and national historical and cultural governance contexts.
4. Assuring adaptive and transparent governance processes.

Context matters

The food system context will impact the desired transformation process outcomes: for example, the desired outcomes of transforming Brazil's food system will be substantially different to the desired outcomes in Burundi or Thailand. The global consensus of seeking improved health, biodiversity and inclusion must therefore be translated into specific system outcomes, and these specific contexts will also impact the level or scale for which transformation is sought. We therefore need to speak of food systems (plural). A food system can be determined geographically (e.g., landscape), by sectors (e.g., value chains and products), thematically (e.g., agri-finance or informal markets) or politically.

Scales of change

National food systems are increasingly being prioritised as a recognisable systems level at which food systems can be understood, agenda's agreed on, and where there is the potential to act in a deliberate manner. In preparation for the UNFSS, over 800 national food system dialogues were organised,[6] while post-UNFSS efforts have focused on creating national agendas for change. Recently, urban and municipal levels have also been strongly emerging as natural geographic and administrative contexts in which efforts are occurring to actively transform (peri)urban food systems (European Commission, 2020).

Achieving impact at scale within national food systems is possible, with multiple examples of transformation happening within less than a decade. For example, the N2Africa bean programme noted that a more nutrient-dense, easier to cook and tastier soybean variety spontaneously spread across Tanzania within three years despite not having government variety recognition.[7]

Being intentional

Contextual circumstances, combined with deliberate transformation strategies, can also create the right combination of drivers, urgency, and action to bring about transformational change (Mayne and Guijt, 2021). In 17 out of 18 cases of transformational change researched by the authors, intentional strategies were essential to bring about desired change. These then needed conducive political and policy drivers to allow these strategies to have systemic impact.

Depth of transformation

Policymakers, researchers, and practitioners have been adopting the language of food systems transformation at a fast pace. It is a convenient one-size-fits-all frame which, however, can become problematic. When reading recommendations or calls to action, it is advisable to critically question and unpack what is meant by 'transformation'. An analysis of 42 major food systems reports, published between 2016 and 2020, revealed a disconnect between the stated goal of food system transformation and the potential of their recommendations to achieve truly transformative change (Slater et al., 2022). In other words, much of the discourse about transformation is really about adjusting and reforming food systems, rather than transforming. Therefore, while initiatives to adjust and reform food systems can complement a transformative approach, by themselves they are not enough to address the primary political and economic drivers of the current food system.

5. Concluding remarks

With growing recognition of the impact that food systems have on diets, livelihoods, climate change and biodiversity, the call to transform food systems has never been stronger. While policymakers recognise the need for change, there is much debate about which food system outcomes should be prioritised, as well as the extent to which transformation can be steered and what stakeholders can do to accelerate change.

When it comes to transforming food systems, particular conditions and approaches make change more likely. These include building trust among all food system actors, and a learning mindset to overcome deeply engrained relationships to food that could hold back social acceptance of new technologies or policies. Stakeholder engagement and backing is vital, both to create pressure from consumers for change, and to increase uptake and support for new policies and technologies.

Strong governance is also key. Collective agendas – in which all actors have been able to equally contribute – need to be formulated. Governance processes need to be adaptive and transparent, and encourage experimentation. Ensuring stable finance mechanisms, designing market incentives, and guaranteeing changes in policies and regulations will also accelerate transformation.

While food system transformation has become a convenient one-size-fits-all frame, it is important that global consensus on the desired outcomes of food systems is translated into specific systems outcomes. National and regional food systems, for example, are being increasingly prioritised as a level at which food systems can be analysed and understood, agendas agreed on, and that have the ability and drive to act in a deliberate matter to achieve the end goals.

While technical solutions are important, and need to be adequately funded, the often-overlooked policy, regulatory and collaboration aspects of food systems are critical if food systems are going to be transformed at pace.

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6 https://summitdialogues.org/overview/member-state-food-systems-summit-dialogues/

7 https://www.n2africa.org/sites/default/files/Tanzania%20Annual%20Country%20Report%202018.pdf

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This report can be downloaded for free at https://doi.org/10.18174/566868 or at www.wur.eu/cdi (under publications).

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