



Wageningen Economic Research | Key messages

# Transforming Food Systems

## Key messages

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During 2019 and 2020 Wageningen University & Research coordinated and implemented background research that informed IFAD's 2021 Rural Development Report. 23 background papers, a modelling paper, a regional consultation report and four supporting papers were prepared. This paper provides the key messages from Wageningen University & Research on the need for change, and particularly priorities for deliberately working on essential transformations in food systems at all levels, all over the world. These priorities are based on the current state of robust evidence, peer-reviewed information and modelling.

Around the world, many if not most food systems result in undesirable outcomes and trade-offs between the nutrition of people, their livelihoods, and the environment. Low

purchasing power prevents poor people from securing safe and healthy diets. Low farm revenues, limited and irregular rural employment opportunities, and minimal wages keep household incomes too low for the large majority of agricultural producers. For over 80% of farmers and their families – two to three billion people – primary agricultural production is not providing sustainable livelihoods.

There are three major constraints that severely impede the transformation of food systems towards more desired outcomes: unequal food market competition; heavy dependency on food imports; and high rates of food loss and waste in value chains for staples and perishable crops. This calls for governance reforms and coordinated, well-targeted investments in these areas.

**Food system transformation can only happen as part of several simultaneous change processes that are deliberately prioritised** and include concrete pathways towards better links among food system components – food production, value chains, and consumption – that can deliver desired results for the economic, social, and ecological dimensions of the system. Policy pathways should focus on the change processes necessary for desired transformations within the food system. These are:

- **Systemic change through rural transformation:** the creation of productive, rewarding employment – both on and off farms – by increasing the value of agricultural produce.
- **Improvements in the nutrient composition of diets through changes in products and consumer behaviours:** a shift from prioritising food access and availability (the quantity of food produced) to the affordability and desirability of healthier diets (the quality of food consumed).
- **Changes in production through sustainable intensification and diversification:** a shift in farming systems' priorities, from high use of external, industrial inputs to more circular resources, and moving away from producing cheap calories towards more nutrient-dense products.
- **Changes in markets through integration and trade reform:** new policies for midstream partners in the food value chain that enable competitive market opportunities alongside fair and true pricing (to reflect decent farm incomes, living wages, and environmental externalities).
- **Changes in production and consumption through a commitment to circularity and planetary boundaries:** the re-use and recycling of food, feed, and waste throughout the food system, shifting away from linear and moving towards circular and bio-based changes in production and processing.
- **Changes in governance structures and processes:** the shift from single topic, blueprint interventions to cross-sectoral policy experiments, with broader stakeholder engagement in both the negotiation and the implementation of governance measures.

We point to six key messages (in bold) and narratives that are considered the most critical in supporting and facilitating the indicated required change processes.



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**Rural and agrarian changes shape the potential for inclusive transformation pathways.** Data analyses suggest a strong positive correlation between food system performance and progress in structural agrarian transformation (exploiting the potential agricultural productivity). This relationship is even stronger if non-agricultural employment is created (structural transformation). However, because different countries are at varying stages of rural and structural transformation and face assorted policy challenges for guaranteeing healthy, affordable, safe, and sustainable diets, they present various specific food system transformation opportunities. In addition, several pathways may co-exist within a country, and their evolution is not linear. No single approach will work everywhere, meaning portfolios of policies, technologies, and incentives must be tailored to address each food system's enabling and constraining factors.

In both rural and urban areas, poor people bear a triple burden of malnutrition – undernourishment, micronutrient deficiencies, and overweight prevalence. For the poor to consume more nutrient-dense foods, they must be able to make healthier choices – ones based on better information and greater access to affordably nutritious diets. **Because food systems respond to consumer demand, demand-led incentives must be the main levers for food system transformation, and shaping these incentives should be a central focus of policy-making.** Key areas to emphasise are targeted social safety nets and cash transfers to poor people; support for women's empowerment and gender equality to level access to resources and widen choices; promotion of better food preparation practices; and behavioural change communication. Other incentives with potential benefits include food quality labelling and marketing, and promoting ICT-based market information systems and product imaging. Changing consumer behaviour can only be achieved with full and committed private sector involvement (marketing and campaigns), which will need to be enforced through targeted public regulation.

**To produce more nutrient-dense foods, agricultural production systems must become more diversified.** This involves a move from mono-cropping to more integrated production systems, and from agricultural systems reliant on high external input use to ones that are knowledge-intensive – in which farmers make decisions based on market conditions, agro-ecology, and climate-related risks. These shifts will foster productivity gains through sustainable production systems and create greater resilience to climate change and the other stresses that threaten food and nutrition security. However, policies which enable smallholders to diversify production into high-value and diversified crops will not work for all due to

the constraints of quality standards, capital requirements, and market arrangements. As such, diversifying and developing off-farm opportunities becomes critical to achieve inclusivity.

Small- and medium-sized enterprises (SMEs) and farmers involved in food trading and processing face many difficulties in reaping the benefits from participating in (international) markets and food value chains. **Market and trade policies drive improvements in domestic agriculture and food security, and can be powerful creators of inclusive and sustainable livelihood opportunities in the primary and midstream sectors of the food system.** Farmers and midstream SMEs need better governance structures to support infrastructure development, and public and private investment in training, support services, and technical innovations – especially to meet standards for safety, quality, sustainability, and social responsibility. Current trading systems – focused on market values and economic efficiency – fail to integrate externalities into market prices. The inclusion of sustainability criteria in trade agreements, and translation of environmental costs into prices, requires collective action on a global scale. Essential to success is domestic food systems incorporating contracts and regulations that protect non-market values. True pricing of food may have negative trade-offs with regards to poor people's access to food, and should be addressed by improved livelihood opportunities, social safety nets, and targeted food programs.

Food loss and waste occurs throughout food systems, spoiling valuable resources, increasing environmental harm, and endangering future food security. There is increasing evidence that **circular principles will make food systems more sustainable and efficient**, by increasing agricultural yields and food production, reducing production costs, and creating added value within agri-food chains. Farm animals are most effectively used to convert biomass (that is inedible for humans) into valuable food, manure, and other ecosystem services. Certain farm animals, fish, and animal-sourced food (ASF) – including novel proteins – show great promise as drivers of circular food systems. In particular, developing and scaling novel proteins can help meet increasing global ASF demand. Moreover, household waste and human excreta can be important sources of nutrients and energy for improving food systems, and are recoverable through community organisation. Interventions to reduce food losses and waste at different stages of the food value chain vary by region, food group, and value chain component – yet they generally combine new technologies, better handling practices, and supportive market incentives to improve productivity and food quality while reducing externalities.



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The failure of food systems to deliver on our overall and longer-term needs is, fundamentally, a governance failure. Therefore, **transforming food systems for improved nutrition and health, inclusive livelihoods, and environmental sustainability will require substantial reforms of governance and decision-making mechanisms.** Governance structures must become much more inclusive and cross-cutting, with improved coordination across sectors, stakeholder interests, and geographic scales, and sufficient societal understanding and political will to enable change. We identify four priority actions for reforming governance processes. Firstly, collective agendas need to be formulated, reflecting recognition and amplifying the sense of urgency for global, national, and local change. Secondly, investing in capacities and ensuring freedom of voice and self-expression for individual and institutional public, private, and civil society actors. Thirdly, encouraging experimentation and searching for governance models that align with historical and cultural contexts. And, finally, assuring adaptive and transparent processes through monitoring by independent bodies which have credible assessment approaches and access to sufficient and reliable data, to execute objective and unbiased conclusions.

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The mission of Wageningen University & Research is “To explore the potential of nature to improve the quality of life”. Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 6,500 employees (5,500 fte) and 12,500 students, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.

