



Food Systems Assessment

WORKING TOWARDS THE SDGs

INTERIM SYNTHESIS BRIEF – SEPTEMBER 2021

Introduction

Food systems are intimately linked to our lives – through the food we eat, our nutrition and health, our livelihoods, jobs and to the environment and natural resources of the planet. Food systems represent the common threads that weave the interdependency between our lives and between all the Sustainable Development Goals. They are critical to achieving these goals. Although food systems have contributed to improved availability and access to food for many people over recent decades, today our food systems are not able to deliver these various critical outcomes on which we depend: in most countries they fail to provide nutritious and healthy food for all, or decent livelihoods and jobs while preserving natural resources and the environment.

Finding sustainable solutions to our various food systems problems depends on improved knowledge and evidence, and greater understanding of the views and insights of the diverse actors involved. This provides a foundation for countries and food system actors to find a common vision and identify the

strategic food systems issues affecting future sustainability, ultimately guiding the drafting of a capacity development, policy and investment agenda in support of the sustainable transformation of our food systems.

Towards this goal, National Governments, food system stakeholders in the public and private sector, and civil society, together with the European Union (EU), the Food and Agriculture Organization of the United Nations (FAO) and the French Agricultural Research Centre for International Development (CIRAD) are carrying out participatory food systems assessments in 50 countries throughout the world. Implemented through stakeholder consultations and focused analysis to complement and inform national food systems dialogues to prepare for the United Nations Food System Summit (UNFSS), these ongoing assessments seek (i) to develop a shared understanding and evidence on key food systems challenges and opportunities, and (ii) to agree to a set of strategic food systems issues, key sustainability questions and potential leverage points for future action

that can advance the sustainable and inclusive transformation of food systems.

This synthesis report presents some of the initial findings on strategic food system sustainability issues that are emerging from the food systems assessments and stakeholder consultations underway in over 50 countries around the world, including the eight pilot countries which were first to complete

the process. After a succinct description of the approach and method, this report focuses on results emerging from a sample of those pilot countries that have concluded the assessments (Bhutan, Nepal, Senegal and Madagascar), highlighting both national and sub-national findings. It then presents some of the emerging strategic or key sustainability issues that are being analyzed and discussed in the ongoing food system assessments.

Approach and method

The food systems assessments and stakeholder consultations are based on a systemic approach centered on reaching four interlinked goals: food security, nutrition and health; inclusive economic growth; equity and territorial balance; and environmental sustainability. Based on a rigorous methodology, the approach recognizes the critical contributions of numerous sectors, diverse actors, and multiple levels of government in achieving these goals.

The proposed approach combines the benefits of two existing types of methodologies: action-oriented methodologies that aim to create pathways towards more sustainable food systems with the participation of stakeholders and using mostly qualitative analyses; and methodologies used to exogenously assess the performance of food systems at national level using secondary quantitative data. It builds on existing data and evidence, fusing quantitative data with qualitative stakeholder insights, implemented in an iterative, cumulative learning process by a team of national and international experts and institutions.

Together this process and the information it generates help to identify relationships between drivers, actors and activities of food systems and the impacts made at national and sub-national levels. This analysis

provides the basis for an integrated set of key questions about the sustainability of the current system and identifying leverage points with a view to transforming the food systems. Public sector, private sector and civil society actors engaged in the food system can use this evidence and stakeholder-guided knowledge as the foundation for developing priorities, plans and actions that address their multiple – and often competing – food system goals in a programmatic policy and investment agenda.

The experiences from these participatory food systems assessments highlight several emerging lessons. First, implementing a systemic, multi-dimensional and territorial approach is a challenging task, requiring investment and time to gradually improve the ‘food systems literacy’ of stakeholders. Bringing public, private sector and civil society actors together in dialogue to discuss food system challenges and different sector perspectives helps create a shared understanding and vision for the country. Complementing quantitative data with qualitative appraisal and stakeholder consultation allows actors to gradually understand and identify linkages between diverse food system components and dimensions (e.g., nutrition and jobs), including those that are not well documented by standard indicators. Consideration of sub-national or territorial diversity, while more



time-intensive, complements a national perspective by identifying context-specific levers for future action by local actors.

A country team comprising representatives of national governments, EU Delegations and FAO Representations serves as an informal advisory committee to provide strategic guidance and ensure adaptation to local contexts and priorities, complementarity, and synergy with the national dialogues

for the UNFSS. Teams in the initial eight countries used a six-month assessment process including territorial analysis and two workshops, while those currently underway in the additional 44 countries are using a streamlined process completed in two months, a series of stakeholder interviews that culminate in a stakeholder consultation at the end of the process. The food systems assessment and stakeholder consultation process has been largely virtual.

A synthesis of early assessment insights

This section presents some of the key findings from the food systems assessments and stakeholder consultations in Bhutan, Nepal, Senegal and Madagascar. They highlight how food systems sustainability issues and potential leverage points for action include both national and sub-national scale, characterized by significant diversity at territorial level and substantial interaction and trade-offs between various components and goals in the food systems.

Bhutan. With its landlocked position on the steep and arid foothills of the Himalayas, sharing borders with giant China and India, the Kingdom of Bhutan is facing the great challenge of increasing the availability and affordability of locally produced food without compromising

its environmental commitments. Bhutan has a historic pledge, set out in its Constitution, to preserve its pristine and diverse environment, particularly its forest, stipulated in the founding text to be kept at 60 percent of area coverage.

In Agriculture, the Ministry translated the country's resolute defense of its environment and natural resources into policies and programmes to promote and develop organic agriculture. Food systems in Bhutan are also driven by urbanization (characterized by limited industrialization), high climate-related risks and dynamic internal migration. Assessment results highlighted that despite limited arable land (3 percent of total area) and while Bhutan achieves only 37 percent self-sufficiency in rice production, one quarter of land is left fallow. Farmers lack access to



relevant support services and landholdings are small, fragmented and not well connected to the market in some areas. This means that Bhutan imports large quantities of food which represent 17 percent of the total import bill. Growing imports of processed food items (a six-fold increase between 2005 and 2019) raise serious health concerns. In addition, while average caloric intake exceeds the recommendations, one out of five children under the age of five suffers from stunting. Determining how to strengthen Bhutan's food system to respond to rising demand and changing diets while respecting its environmental values and health represents a strategic food system sustainability issue for the country. Important differences within the country call for identifying context-specific leverage points to make the food systems more sustainable, as illustrated by two examples.

The **High North** region of Bhutan is characterized by high elevations, steep slopes, and a large protected area. Except for yak herding and non-timber forest products such as Cordyceps and natural remedies, this area is dominated by subsistence agriculture. Poor access to extension services, a unique biophysical environment, and limited market connectivity challenge food production in this region. Food insecurity is driven by seasonality in production, remoteness, and the low purchasing power of the population. On average, only 35 percent of farming households sell more than 10 percent of their production; however important alternative income-generating activities include the collection of non-timber forest products for high-end niche markets. This area benefits from a positive image and high capacity to produce high-value-added food products. Potential levers for sustainable transformation of the food system in this area include strengthening this sector as well as structuring yak value chains so that the population can increase their incomes. Investing in basic infrastructure such as roads has also been identified as a lever to

the development of the agri-food sector and agri-tourism.

By contrast, the **lowlands of Southern Bhutan** enjoy a good level of basic services and infrastructure, including abundant and affordable power sources and roads. This area serves as Bhutan's link to international trade through its land border with India, driving significant economic activity. The area also benefits from a wide range of commercial crops dedicated to export markets (such as cardamom, mandarin, areca nut, ginger), with production reliant on the availability of a large, low-cost labour force from neighboring countries. Although these crops have high productivity per acre relative to those in other areas, the risks related to pests and diseases are likely to increase due to climate change. In addition, poor access to modern technology is slowing the full development of the agri-food sector. Enhancing exports of food products such as cardamom and areca nut has been identified as a relevant opportunity for this zone. To support this, proposed levers include promoting access to extension services both at production, post-production (e.g. storage practices, quality standards) and marketing stages, as well as investing in infrastructure (e.g. cold storage, packaging).

Nepal. Like Bhutan, Nepal is a landlocked country bordered by India and Tibet with rugged topography in the north and a flatter topography in the southern part of the country, called Terai. Rice is the primary crop produced and consumed in the country, although maize, millet, wheat, barley, and buckwheat also account for a sizeable production. The country remains mainly rural with only 20 percent of the population living in cities. The agricultural sector is the main source of employment, accounting for 70 percent of jobs.

Nepal faces several important issues related to its food system. First, because of low productivity the agricultural sector is unable





to compete with products from neighbouring India. In addition, inadequate infrastructure in the country makes it difficult for inputs to reach producers and for harvested products to reach markets. The relationship with India is double-edged: seasonal migration causes labour shortages and feminization of agriculture, but also provides vital remittance income to families in rural areas. India is also the main business partner of Nepal, providing 67 percent of Nepal's imports and receiving 96 percent of agriculture exports. The growing negative trade balance between Nepal and India is a worrying trend for the sustainability of the Nepalese food system.

From a food security perspective, the situation in Nepal has improved in recent years but there are still high rates of stunting (40 percent in rural areas), while anaemia and food-borne diseases such as diabetes, obesity and hypertension are increasing rapidly. Anaemia levels rose from 46 to 53 percent between 2011 and 2016 among children under the age of five, while at the same time, one in five adult women suffers from overweight or obesity. The West Mountain and East Terai regions of Nepal exemplify the diversity of Nepal's food systems.

The isolated **West Mountain** region is characterized by a rugged topography, a

challenging climate, and difficult economic and livelihood conditions, that are particularly unfavourable to mechanization. This region is poorly endowed with roads and other infrastructure, and farming is mainly at subsistence level. People face chronic food insecurity, which leads to seasonal urban and international migration in search of work. The small, scattered plots of land become difficult and too expensive to cultivate for the remaining farmers (mainly women). At the same time land is often left fallow because farmers are not confident in the application of the leasing provisions of the Land Act to protect their interests, leading to fears that tenants would claim ownership of their land. To tackle these problems, some levers could be to stimulate agricultural productivity through land consolidation using farmers' cooperatives or to reinforce the Land Act in order to allow people to lease their land without the risk of losing it.

In contrast, the **East Terai** region is an area of predominantly flat and fertile land that benefits from high rainfall, an improving road network, better infrastructure and a medium level of urbanization. Most of the country's production comes from this area, but crop-damaging floods are common in the rainy season. While food



insecurity is relatively low compared to other regions of the country, stunting, wasting, underweight and anaemia are still prevalent. However, having optimal conditions for both commercial and subsistence farming, this area shows the potential to be the food basket of the country. Nevertheless, agricultural productivity remains low and is unable to compete with the subsidized production of neighbouring India, leading to food imports and to urban and international migration, mainly to India. While the Terai region remains mostly rural, another key challenge is the disappearance of agricultural land because of urbanization. In just over a quarter of a century, between 1989 and 2016, urban land area increased by 320 percent, and of the newly urbanized land 90 percent had been previously used for agriculture. Several levers were identified, amongst which were improving competitiveness by strengthening storage capacity and improving market connectivity associated with the negotiation of import barriers with India.

Senegal. Senegal enjoys economic growth driven by services and investments, with a significant contribution from food systems, which represent 37 percent of GDP and include dynamic food exports in fisheries, groundnuts, horticulture, and processed food. Agriculture is mainly rain-fed, labour-

intensive, and diversified with a strong rainfall gradient from north to south. Food systems are affected by climate change and driven by demographic trends, with a growing, and largely young, urban population. This demographic growth and urbanization create opportunities and challenges for youth employment, with the food systems currently generating nearly half of Senegal's jobs.

Assessment results point to several key sustainability questions. The quantity and quality of natural resources have been continuously deteriorating: one third of the land is degraded, deforestation is increasing, salinization of productive land is expanding, and surface water is becoming scarce as a result of decreasing rainfall and greater competition between agriculture and other domestic uses.

A key question is how to feed the Senegalese population while limiting dependence on imports and providing attractive jobs for young people. Despite recent improvements in yields and production, two thirds of Senegal's rice, the main staple food, is imported. Given the deterioration of the environment, high post-harvest losses (rice, vegetables, milk), and demographic growth, imports are likely to keep increasing. This will enhance the vulnerability of consumers,



especially for the poorest who represent more than one third of the population. An associated challenge is to try to limit the reliance on imports, while preserving the livelihoods of small family farmers and existing micro-small agribusinesses. While food insecurity is no longer considered a major issue at national scale, obesity rates have now caught up with undernourishment rates (around 10 percent). While urbanization may offer an opportunity for diet diversification, it comes with risks for nutrition. In Senegal, key sustainability issues and associated levers for transforming the food system are very different in the various regions of the country, as shown by two following examples.

The **south-eastern** part of the country is a relatively landlocked area, bordering Guinea and Mali, with a high rate of forest cover, although suffering from deforestation and significant losses of biodiversity. Poor access to basic services and infrastructure (limited road infrastructure, very low literacy rates, rural electrification below 10 percent) prevents the development of the agri-food sector. Agriculture is rain-fed and mostly for self-consumption, and agribusinesses are limited. Market connectivity is poor since there are no secondary cities and few rural weekly markets. Food insecurity exceeds 30 percent, well above the national level, and the prevalence of child malnutrition is high owing to inadequate food practices, a lack of basic social services, and very high poverty (over half of the population). The expansion of the mining sector also attracts young people away from agriculture and has introduced a range of health and environmental problems.

Several levers were identified during the food system assessment, primarily securing social services and basic infrastructure for all (health, education, electricity, roads) as a prerequisite for fighting malnutrition, poverty and for economic development. Subsequently, other levers could be implemented to generate and maintain added value in the territory, such

as investment in improving market access, storage infrastructure and better water management to diversify activities (livestock).

In contrast, thanks to favourable agroclimatic conditions, significant water resources, proximity to the country's largest cities and Dakar's maritime port, the **Niayes region** is a very dynamic horticulture zone. It provides nearly 80 percent of the country's horticultural production and exports high-value products such as mangoes and green beans. Artisanal fisheries and intensive cattle and poultry breeding are also practised. Although producers have little autonomy over access to inputs, the Niayes area is one of the richest rural areas in the country and food systems provide livelihoods, jobs and income. A major sustainability issue is the degradation in quality and quantity of available water caused by inappropriate production practices in a context of climate change, as well as competing urban use of land and water in the south of the region and overfishing in pelagic zones that threatens marine ecosystems. In this context, the main risks of unsustainability are the deteriorating and uneven access to water, rapid urbanization, soil and water pollution and the inconsistent implementation of some public policies (such as the expansion of mining to the detriment of agriculture). These risks threaten the long-term viability of the horticulture sector to meet growing consumer and export demand. Proposed levers for transformation include local (community-level), multi-actor and multi-sectoral planning (land use planning, resource management, organization of actors, etc) for food system development. Promotion of direct local marketing arrangements between producers and consumers and other urban food systems actors represents another opportunity. Stakeholders identified the need for support systems and service delivery to producers (by access to information, credit, organic inputs, etc.) to facilitate sustainable agroecological intensification in the Niayes areas.



Madagascar. Madagascar is characterized by a great diversity of food production, thanks to its varied agroclimatic conditions, which include temperate highlands, tropical-humid coasts, and arid areas. The agriculture sector generates 68 percent of livelihoods and employment but, together with fisheries and forestry, it only accounts for 24 percent of Madagascar's GDP. Although once known as the rice granary of the Indian Ocean, Madagascar now imports almost one quarter of the cereal it consumes.

At national scale, the main sustainability questions cover different dimensions. Undernourishment affects 44 percent of the population, owing to a combination of poverty, food production that is not keeping pace with population growth, and eating habits that do not favour dietary diversity. The viability of small-scale family farms (the predominant type of farm) is threatened by small land holdings, low productivity, and minimal added value. Land degradation and steady deforestation exacerbate productivity challenges. However, this overall picture conceals significant regional differences.

The **Central highlands**, characterized by a temperate climate, lie at the heart of an exceptional diversity of crop and animal production (rice, maize, cassava, tens of different tropical and temperate fruits and vegetables, spices, poultry, pork, beef, milk...), produced primarily for the domestic market. This zone benefits from its proximity to urban consumption centres and the development of some agro-industries. But the viability of production is hindered by the small size of cultivated plots (less than 0,5 ha/farm on average), concentrated mostly in lowlands and lower slopes. With very little access to inputs, credit or technical services, productivity is low, in both vegetable and animal production. Owing to the fragmentation of production, their lack of financial and physical capacity for storage, and their limited negotiating power with market traders, farmers often sell a significant amount of their production at very low prices and face high seasonal fluctuation. Despite the diversity of production, the nutritional status of children is alarming, with the incidence of stunting at 42 percent. In this context,



stakeholders identified the following levers: strengthening the organization and coordination between the actors of the food system, mostly between farmers, to reinforce their negotiating capacity and their access to services; investment in storage and processing in rural areas to increase value added at this level; promoting agroecology and organic farming to limit land degradation; and encouraging nutritional education and promoting a more diversified diet.

The **southern zone** is characterized by a very low density of population and frequent droughts, exacerbated by climate change. Production systems are based on extensive livestock breeding, as well as fisheries on the south-western coast. Cultivated areas are scarce, mainly because of limited access to water. Staple crops (cassava,

maize, and to a lesser extent rice) are not sufficient to cover the needs of the population. Poor transport infrastructure hinders inter-regional transport of food. Moreover, insecurity prevails over a large proportion of this territory, related to both large-scale cattle theft and socio-political conflicts exacerbated by poverty which affects a large share of the population. The region has suffered from recurrent food insecurity crises. Stakeholders identified several priority levers to address these issues: developing small-scale irrigation and improving access to water and land management to fight against drought; diversifying income-generating activities to strengthen household resilience; improving coordination among the multiplicity of humanitarian interventions; updating basic infrastructure, social services and agriculture services; and strengthening security.

Strategic food systems sustainability issues

The results emerging from the preliminary analysis and the stakeholder consultations already carried out point to several strategic food systems issues or key questions affecting the future sustainability of food systems. As a way of approaching the subject, in each country, analysts and stakeholders are asked to identify four to five issues or questions related to the food system.

The key sustainability questions are framed around **“key food systems dynamics”** and **“strategic challenges”** facing the food system in the country. These questions focus on identifying the key challenges which pose a binding constraint to achieving the sustainability and inclusiveness of the food system. They include but are not limited to the following:

1. How can countries transition from mono-crop production systems (e.g., maize, banana) aimed at covering energy needs to a more diversified food base (e.g., vegetables, dairy, indigenous

grains) to improve nutrition and compete against growing food imports, while keeping high-value production?

2. How can countries strengthen decentralization processes and local government capacities to reinforce governance structure and better address multiple challenges of land tenure and insecurity, while ensuring provision of critical services and infrastructure required for dynamic territorial food systems?
3. What measures can be taken to promote agro-ecological transition and effectively limit environmental degradation, including deforestation, overgrazed pasturelands, loss of biodiversity, mangrove destruction and overfishing, non-recyclable food packaging waste, and groundwater contamination?
4. What set of multi-sector options are available for countries to provide affordable and nutritious food to their populations to counter the double



burden of malnutrition and overweight/obesity and the increase in Non-Communicable Diseases related to poor diet?

5. How can we most effectively address the increasing marginalization of smallholder producers, especially women, particular ethnic groups and those in remote areas, by providing improved access to productive assets, inputs, services and markets to make a living and escape chronic food insecurity?
6. Limited availability of public infrastructure and amenities in rural areas compared to urban settings (e.g., limited access to drinkable water and electricity) has a big impact on health as well as on the capacity of agro-processing value chains to consider nutrition. It is also a driver for youth migration to urban areas. How can public and private actors address equity gaps through targeted support for food SMEs in rural areas?
7. Which solutions exist for inclusive business models involving smallholders, youth and

women in the food system that promote nutrition-sensitive commercialization across the food value chains and take advantage of emerging opportunities in domestic and regional markets?

These questions, supported by factual evidence and stakeholder views, provide a basis for food system actors, in the public and private sectors as well as civil society, to determine what could be the key entry points and levers in a given food system to address the root cause of the problem and change the system behavior. They may include varied leverage points in multiple sectors, at diverse levels of governance (i.e., national, provincial, municipal, local or at regional (multi-country) levels) or by various actors or institutions. Assessment teams and stakeholders in the 50+ countries will determine and refine their sets of strategic food system sustainability issues and leverage points for action by the end of their respective national exercises.





Way forward

These insights about key strategic sustainability issues in the food system provide examples of the types of concerns and problems that are emerging in the national assessments. They highlight the challenges, opportunities and often the trade-offs to address them, underscoring the value of a food-systemic perspective that looks across multiple goals and sectors. They also identify in broad terms some of the critical levers and entry points for addressing the issues. Drivers and trends external to food systems such as political stability, policy, fair governance, demography, education, or infrastructure, have a considerable influence on them. This draws attention to the necessity to work not only with food system actors but also with actors and institutions from sectors that contribute key food system inputs (e.g., health, education, social affairs, transport, energy). Similarly, they suggest that future actions will need to interact across multiple levels of government (e.g., national, provincial, municipal, community) or with neighbouring countries. They underscore the importance of local food systems' context,

understanding the challenges faced by diverse actors, and strengthening capacities for local implementation of appropriate levers.

The results of the participatory food systems assessments carried out in 50+ countries throughout the world will help inform and guide stakeholders in government, private sector, and civil society to develop a strategic vision and an empirical foundation for advancing a post-Summit policy, investment and capacity development agenda in support of the transition to sustainable food systems. This agenda will undoubtedly require further stakeholder consultations and in-depth analyses to develop programmes, policies and investments. Strengthening the institutional, policy and governance mechanisms for sustainable food systems represents a critical prerequisite in most countries to enable governments and stakeholders to translate vision and priorities into action and results, mobilizing the public and private finance required for this agenda.

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