



General Assembly

Distr.: General
23 July 2021

Original: English

Seventy-sixth session

Item 25 of the provisional agenda*

Agriculture development, food security and nutrition

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Report of the Secretary-General

Summary

The present report contains an overview of critical challenges to agrifood systems and opportunities for transforming them, in particular in the context of recovery from the coronavirus disease (COVID-19) pandemic. The pandemic has had widespread and deep effects on the social, economic and environmental sustainability of agrifood systems. Building on previous discussions, it is shown that, to transform agrifood systems, more effective collective action is required so as to leverage systemic interlinkages, maximize synergies and manage trade-offs among the Sustainable Development Goals. Evidence, critical gaps, challenges and opportunities are discussed in relation to two key themes: lessons learned about recovering from the pandemic and its impact on agriculture, food security and nutrition, and ways to move towards resiliency and transformational change and promote more sustainable agrifood systems. Agrifood system transformation makes it possible to achieve progress across the commitments taken in the 2030 Agenda for Sustainable Development and the Paris Agreement. The United Nations Food Systems Summit is a catalyst for more effective collective action at all levels. Well-targeted, evidence- and science-based policy changes, as well as investments in agrifood system transformation can help to build resilience against future shocks and accelerate inclusive, green recoveries from the pandemic.

* A/76/150.



I. Introduction

1. In its resolution [75/235](#) on agriculture development, food security and nutrition, the General Assembly requested the Secretary-General to report to the Assembly at its seventy-sixth session on the implementation of the resolution and reaffirmed the commitment to leave no one behind and commit to taking more tangible steps to support people in vulnerable situations and the most vulnerable countries to reach the furthest behind first.

2. The present report provides an annual update on global efforts to achieve the internationally agreed goals on agriculture development, food security and nutrition in line with the 2030 Agenda for Sustainable Development. It has been drafted on the basis of contributions from across the United Nations system,¹ from the high-level political forum on sustainable development, the Department of Economic and Social Affairs and other sources.

II. Overview

3. Efficient, inclusive, resilient and sustainable agrifood systems are essential for achieving the Sustainable Development Goals, leaving no one behind and ensuring the right to food. According to the Food and Agriculture Organization of the United Nations (FAO), the agrifood system covers the journey of food from farm to table – including when it is grown, fished, harvested, processed, packaged, transported, distributed, traded, bought, prepared, eaten and disposed of. It encompasses non-food products that constitute livelihoods and all the people and activities, investments and choices that play a part in delivering food and agricultural products. In the FAO constitution, the term “agriculture” and its derivatives include fisheries, marine products, forestry and primary forestry products.² The coronavirus disease (COVID-19) pandemic has had a widespread and deep impact on agrifood systems, thereby exacerbating pre-existing challenges. The pandemic is a health, humanitarian, and socioeconomic crisis that is worsening inequality and affecting vulnerable groups disproportionately. The situation demands bold action to stimulate an accelerated and transformative recovery to ensure the respect of human rights for all. The transformation of agrifood systems is part of that effort. As highlighted in the *Global Sustainable Development Report 2019*, transformation towards sustainable food systems can bring benefits across sectors and accelerate progress towards multiple Sustainable Development Goals by leveraging interlinkages to maximize synergies and manage trade-offs. Sound evidence and the engagement of all stakeholders are needed to drive transformative change to achieve the 2030 Agenda.

4. In the present report, evidence is analysed to better understand how sustainable agrifood systems advance food security, nutrition, agricultural production and the sustainable management and use of natural resources to ensure progress in all

¹ Contributions have been included from the following entities: Food and Agriculture Organization of the United Nations (FAO), World Food Programme, International Fund for Agricultural Development, High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, International Atomic Energy Agency, International Telecommunication Union, secretariat of the Convention on Biological Diversity, United Nations Conference on Trade and Development, United Nations Industrial Development Organization, United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women), Economic Commission for Latin America and the Caribbean, Economic and Social Commission for Asia and the Pacific, and Economic and Social Commission for Western Asia.

² Food and Agriculture Organization of the United Nations, *Report of the Council of the Food and Agriculture Organization of the United Nations, One Hundred and Sixty-Sixth Session, 26 April – 1 May 2021* (CL 166/REP).

dimensions of sustainability. Section III contains a review of the progress made in the shift towards sustainable agrifood systems so that the Sustainable Development Goals can be achieved, as well as of the remaining gaps and challenges. In section IV, evidence is examined of the impact of the pandemic on agriculture, food security and nutrition. Promising ways are identified to move towards more resilient and sustainable agrifood systems that support achievements across the 2030 Agenda, especially in the context of the Food Systems Summit. Section V is focused on means of implementation and on partnership initiatives to accelerate transformative action towards Sustainable Development Goal 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture), with synergies across the 2030 Agenda. The final section contains recommendations, including key action that can be taken and policies that can be adopted to improve resilience and prevent future crises.

III. Progress towards Goal 2 and related Sustainable Development Goals: estimating the effects of COVID-19 along multiple dimensions

5. New projections confirm that world hunger will not be eradicated by 2030 unless bold action is taken to accelerate progress. Action is especially needed to address inequality in access to food. The number of people in the world affected by hunger continued to increase in 2020 under the shadow of the pandemic.³ In 2020, between 720 and 811 million people in the world faced hunger, which means that there were 161 million more hungry people in a single year. Similarly, the global prevalence of moderate or severe food insecurity around the world has been slowly rising since 2014. The estimated increase in 2020 was equal to that of the previous five years combined. Nearly one in three people in the world (2.37 billion) did not have access to adequate food in 2020, an increase of almost 320 million people in just one year. At the global level, the gender gap in the prevalence of moderate or severe food insecurity has grown even larger during the start of the pandemic. It was 10 per cent higher among women than among men in 2020, compared to 6 per cent in 2019.

6. The world is not on track to achieve targets for any of the nutrition indicators by 2030. The latest estimates from 2020 indicate that 22.0 per cent of children under 5 years of age (149.2 million) suffered from stunting, 6.7 per cent (45.4 million) suffered from wasting and 5.7 per cent (38.9 million) were overweight.⁴ These figures do not account for the impact of COVID-19. Most children under five years with malnutrition live in Africa and Asia. Those regions account for more than 9 out of 10 of all children with stunting, more than 9 out of 10 children with wasting and more than 7 out of 10 children who are overweight worldwide.⁵ Adult obesity continues to rise, with prevalence at 13.1 per cent in 2016. New estimates for 2019 show that globally 29.9 per cent of women aged 15 to 49 years were affected by anaemia.⁶ The pandemic will further affect children's food security, with more than 370 million

³ FAO, International Fund for Agricultural Development (IFAD), United Nations Children's Fund (UNICEF), World Food Programme (WFP) and World Health Organization (WHO), *The State of Food Security and Nutrition in the World 2021: Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All* (2021).

⁴ UNICEF-WHO-World Bank: *Joint Child Malnutrition Estimates*, 2021 Edition.

⁵ FAO, IFAD, UNICEF, WFP and WHO, *The State of Food Security and Nutrition in the World 2020 and The State of Food Security and Nutrition in the World 2021*.

⁶ FAO, IFAD, UNICEF, WFP and WHO, *The State of Food Security and Nutrition in the World 2021*.

children who can no longer rely on school meals due to school closures and 6.7 million children under 5 who could suffer from wasting.⁷

7. The pandemic and the measures put in place to counter it have delivered one of the most devastating blows to global food security and nutrition in recent times. The unprecedented reach and scale of the economic downturns caused by the measures to contain the pandemic were particularly harmful. The economic downturn translates directly into increased food prices, greater food insecurity and malnutrition as people have less income to buy food, let alone more expensive nutritious foods required for healthy diets. In 2020, almost all lower-middle-income countries were affected by pandemic-induced economic downturns and the increase in hunger was more than five times greater than the highest increase in the previous two decades.⁸ The largest increase in undernourishment was seen in Africa, followed by Asia. Some of those countries were also affected by other causes, particularly climate-related disasters, conflict, or a combination of those.

8. COVID-19 has disrupted crop production and value chains because it led to restrictions in the movement and availability of inputs, labour, post-harvest services and timely access to markets. That in turn has disrupted the availability and affordability of fresh and nutritious food for consumers, and has undermined the livelihoods of farmers and workers dependent on agriculture, among them migrant workers. National responses have only partially addressed pressures on migrant workers, for example by relabelling migrant workers as “essential” with exceptions granted for travel and visa restrictions. Overall, the pandemic has exposed the vulnerability of many migrant agricultural workers to exploitation, poverty and food insecurity, and the fact that their protections and prospects for skill development are limited.

9. Trade disruptions have exacerbated food safety risks. Food losses and food waste have become more pronounced. For net importers of food, the risk of food insecurity increases during times of crisis. Multilateral policy coordination for agricultural trade is needed to support a post-COVID-19 mix of recovery policies for food-insecure countries that meets local needs for food production and consumption. Investments in food storage, cooling and transport can reduce food safety concerns and food loss during interruptions.

10. The fisheries and the aquaculture sectors can reduce food insecurity by providing nutritious food to vulnerable communities, particularly in small island developing States and low-income food-deficit countries. The recovery can boost existing commitments to a “blue transformation”. Such a boost can be achieved through a sustainable intensification of aquaculture, effective management of fisheries and upgraded fish value chains backed by integrated normative frameworks, participatory and ecosystem approaches and scaled-up investment.

11. Inclusive growth in the agrifood sector is an avenue for reducing extreme poverty and hunger, particularly in rural areas. While the full economic and social impact of the COVID-19 crisis is still unfolding, estimates are that the number of poor will have increased by between 119 million and 124 million people in 2020, causing the extreme poverty rate to rise for the first time in a generation.⁹ Women and children are among the most vulnerable to poverty, with an estimated increase of

⁷ UNICEF, “Futures of 370 million children in jeopardy as school closures deprive them of school meals – UNICEF and WFP” (28 April 2020); UNICEF, “An additional 6.7 million children under 5 could suffer from wasting this year due to COVID-19” (29 July 2020).

⁸ See FAO, IFAD, UNICEF, WFP and WHO, *The State of Food Security and Nutrition in the World 2021: Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All* (2021).

⁹ See [E/2021/58](#).

42 million to 66 million additional children living in extreme poverty.¹⁰ Rural women in developing countries face pressures on their income-generating capacities and access to nutritious foods, in addition to mounting workloads and escalations in gender-based violence.

12. The pandemic is creating significant labour market challenges, with increased underemployment and unemployment. The agriculture, forestry, and fishing sector experienced negative growth rates of working hours and employment, at -4.4 per cent and -3.1 per cent, respectively, in the third quarter of 2020, with disproportionately high losses for the most vulnerable.¹¹ In spite of targeted income support, young workers, women, the self-employed and lower- and medium-skilled workers have been hardest hit. The pandemic has slowed progress in eliminating child labour from agrifood systems as families face disruptions in income and livelihoods; before the pandemic, 71 per cent of all child labourers worldwide were found in agriculture.

13. In agrifood systems, women mostly operate as informal actors – in sub-Saharan Africa, 90 per cent of women work in the informal sector – and they have been significantly affected by lockdowns and other COVID-19 response measures.¹² Women’s disproportionate share of unpaid care and domestic work remains undervalued and reduces their income-generation capacity. Supporting the vital roles of women, rural women in particular, as farmers, workers, care providers, entrepreneurs, community leaders and first responders during crises can help to realize the right to food, food security and nutrition for households and communities.

14. Young people face special challenges during the pandemic owing to their higher levels of structural unemployment, underemployment and informality. They are often the first to lose work. Estimates indicate that 23.8 million additional children and young people from pre-primary to tertiary school levels may drop out of or have no access to school in 2021 because of the pandemic’s economic impact alone.¹³ Mobilizing young people, especially young farmers, in conjunction with investment in new technologies, is a critical strategy to move forward.

15. The Sendai Framework for Disaster Risk Reduction laid a solid foundation for efforts to prevent and reduce the impact of disasters, but insufficient progress has been made. Between 2008 and 2018, crops, livestock, fisheries, aquaculture, and forestry absorbed 26 per cent of the overall impact of medium- to large-scale disasters induced by natural hazards in the least developed countries and lower-middle-income countries.¹⁴ Following disasters, approximately \$108.5 billion was lost as a result of declines in crop and livestock production in the least developed countries and lower-middle-income countries.¹⁵ Climate change exacerbates the frequency and severity of climate-related events, which have a disproportionate impact on women and vulnerable groups.

16. Fragility, conflict, and violence, and the associated risks of high inflation, reduced food production, reduced remittances and blocked trade routes, directly affect progress towards ending extreme poverty and eliminating hunger, in both low-income and middle-income countries. Undernourishment and food insecurity are expected to remain high in poorer and conflict-affected countries. To accelerate progress towards the targets of the Sustainable Development Goals, more efforts are needed to work

¹⁰ United Nations, “Policy brief: the impact of COVID-19 on children”, 15 April 2020.

¹¹ International Labour Organization (ILO), “ILO Monitor: COVID-19 and the world of work”, seventh edition, 25 January 2021.

¹² ILO, *Women and Men in the Informal Economy: A Statistical Picture*, third edition (Geneva, 2018).

¹³ United Nations, “Policy brief: education during COVID-19 and beyond”, August 2020.

¹⁴ FAO, *The Impact of Disasters and Crises on Agriculture and Food Security* (Rome, 2021).

¹⁵ Ibid.

through the humanitarian-development-peace nexus. This should be done with an increased commitment to inclusive solutions through dialogue, the adaptation of macroeconomic policies, institutional reform in core State functions and the adoption of redistributive policies to save lives and safeguard development gains.

17. The global population is projected to grow from 7.8 billion in 2020 to 9.7 billion in 2050, although trends vary considerably across geographic regions. The fastest population growth is projected for sub-Saharan Africa, slower population growth is projected for Asia, Latin America and the Caribbean, and relatively little change in population numbers is projected for Europe and Northern America combined.¹⁶ The combination of fast population growth and high levels of urbanization requires innovative ways to transform agrifood systems. The aim is to deliver nutritious foods for a growing population in line with the commitments made in the 2030 Agenda and the Paris Agreement. There is a pressing need to gain a better understanding of the needs of vulnerable groups such as migrants and refugees so that policies can be designed and implemented with those needs in mind.

18. Urban areas have a key role to play in the transformation of agrifood systems. Fostering changes in urban diets can be a way to bring about change elsewhere. Cities absorb up to 70 per cent of the food supply, account for 70 per cent of global waste and are increasingly affected by malnutrition in multiple forms. Food consumers in urban areas can shape more sustainable agrifood systems by increasing their demand for healthy diets in line with Sustainable Development Goal 11. Municipal governments, food policy councils and similar multi-stakeholder mechanisms at the city, territorial and regional levels also have a role to play, as they have shown themselves to be effective at identifying and connecting food system actors, facilitating collaboration and coordination and exploring innovative, community-based solutions.

19. Territorial approaches can help to exploit the full potential of urban-rural linkages for sustainable agrifood systems. By 2030, 3.4 billion people will live in rural areas, but the vast majority will live close to an urban centre. Small and medium-sized urban centres will increasingly house important components of the agrifood system, such as small and medium-sized enterprises that add value in food production, processing and distribution contributing to the development of local or regional agrifood systems. Support to sustainable local and family food production, promotion of sustainable agro-industries and improved infrastructure to connect rural areas with small cities and towns would benefit rural populations. Urban-rural linkages can advance the protection of biodiversity with sustainable urban food consumption and land- and seascape governance.

20. Biodiversity is indispensable to food security, sustainable development and vital ecosystem services, as greater biodiversity means greater resilience to climate change and other shocks. Biodiversity is also integral to food production, as it ensures pollination, nutrient cycling and pest control, and can reduce the need for costly or environmentally harmful external inputs. During the past decade, insufficient progress has been made in eliminating or reforming subsidies and other incentives that promote activities that are potentially harmful to biodiversity, and in developing positive incentives that foster biodiversity conservation. In recent years, efforts have expanded to promote sustainable agriculture, forestry and aquaculture, including by facilitating farmer-led agroecological approaches and by recognizing that farmers, livestock keepers, forest dwellers, fisherfolk and indigenous peoples are all managers and custodians of biodiversity. Biodiversity continues to decline in landscapes used

¹⁶ United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: 2019*.

to produce food and timber; food and agricultural production remains among the main causes of global biodiversity loss.

21. The pandemic has further highlighted the fragility of natural balances caused by the unsustainable management of resources and by the degradation of habitats and ecosystems degradation. Some of that fragility is caused by agrifood systems. Evidence suggests that the degradation of ecosystems and changes in the landscape increase the risk of diseases jumping from wild animals to humans. Changes in the landscape and the loss of biodiversity go hand in hand with major shifts in the ecology of pathogens and the wildlife species that those pathogens use as hosts and reservoirs. As a result, disease patterns change. Landscape changes and associated biodiversity loss could weaken the “dilution effect”, which is the ability of communities rich in species to moderate infection levels and disease.

22. A more sustainable use of freshwater and rainwater in agriculture, which accounts for more than 70 per cent of global water withdrawals, is needed to support progress across the Sustainable Development Goals.¹⁷ Currently, some 2.2 billion people around the world cannot access safe drinking water. Three billion lack basic handwashing facilities. This lack of access is a constraint on abilities to minimize the spread of diseases, among them COVID-19.¹⁸ About 1.2 billion people – roughly one-sixth of the world’s population – live in severely water-constrained agricultural areas.¹⁹ In the past two decades, as populations were growing, the annual amount of available freshwater resources per person declined by more than 20 per cent. Competition for access to water fuels tensions and conflicts, which further exacerbates inequalities in access to water, particularly for vulnerable populations.

IV. Thematic discussion: towards an inclusive green recovery: actions to promote resiliency and transformational change towards more sustainable agrifood systems

1. Policy change to promote food security and access to nutritious foods

23. As highlighted in the *Global Sustainable Development Report 2019*, transformation towards sustainable agrifood systems can bring benefits across sectors and accelerate progress towards multiple targets of the Sustainable Development Goals. Careful analysis of interactions and trade-offs can bring about such a transformation, as agrifood systems interact with economic, health, energy, environment and governance systems, among other things. Actions to improve progress in one area can advance or hinder progress in others.

24. Efforts to respond to the pandemic are an avenue to build back better agrifood systems by using portfolios of integrated policies and investments that are aimed at mitigating the pressures that limit people’s access to nutritious foods (pressures that have increased during the crisis), while simultaneously building resilience to future pandemics and disasters. To address important causes of food insecurity and malnutrition that predate COVID-19 and mitigate the impact of the crisis, short-, mid- and long-term coordinated interventions may be necessary. Those may include the following:

¹⁷ FAO, *The State of Food and Agriculture* (Rome, 2020).

¹⁸ WHO and UNICEF, *Progress on household drinking water, sanitation and hygiene 2000–2017: Special Focus on Inequalities* (2019).

¹⁹ FAO, IFAD, UNICEF, WFP and WHO, *The State of Food Security and Nutrition in the World 2020*.

(a) Promoting trade and tax policies to avoid the distortion and disruption of global and regional trade while promoting secure access to healthy, affordable diets;

(b) Addressing key logistical bottlenecks in food value chains to avoid unnecessary spikes in the cost of commodities so that affordable, diversified safe and nutritious food remains available;

(c) Strengthening support to small-scale producers, small and medium-sized enterprises and agrifood value chain workers to sustainably increase their productivity, revenue and incomes, increase the capacity for innovation, reduce food losses and promote access to markets, including through e-commerce channels;

(d) Creating measures and incentives facilitating the creation of decent jobs and the acquisition of necessary skills;

(e) Expanding and improving emergency food assistance and social protection programmes to sustain livelihoods and guarantee access to sufficient, nutritious food for the poor and for vulnerable households.

25. Longer-term measures aimed at transforming agrifood systems should be focused on reducing the cost of nutritious food and increasing the affordability of healthy diets. Such measures should also be aimed at enhancing efficiencies in food storage, processing, packaging, distribution and marketing, while reducing food loss and waste. Policies should be adopted that incentivize behavioural changes such as, in some regions, moderation in the consumption of meat and fish through food labelling and well-targeted taxes. A greater focus on nutritional outcomes of value chains, regulation of food industry marketing, food labelling that promotes consumer wisdom, and education in nutrition.

26. It is critical to support farmers with technical means that enable them to produce their crops sustainably, thereby protecting the environment, generating income and creating social equity. Policy measures to achieve that can be adapted to local contexts, capacities and policy environments in order to enhance resilience to shocks, climate change, outbreaks of pests and diseases, and changes in market forces and consumer preferences. For example, nuclear and related techniques have helped countries to use sustainable, climate-smart agricultural practices that help to maintain soil health and biodiversity and increase the genetic diversity of crops.

2. Examples of positive investments and policy changes that promote green agrifood systems while benefiting the 2030 Agenda as a whole

27. In times of emergency, it is important to focus response and longer-term recovery measures on the most vulnerable first. New credit lines, safety nets, income support, food distribution programmes and other interventions should be scaled up and directed to the have-nots, not just because they are the most in need but also because doing so would trigger demand and thus mitigate the detrimental impact of COVID-19 on the economy.

28. Giving women, small-scale producers and rural businesses greater access to financing can be a way to support the recovery and empower the most vulnerable. This can be achieved by various means, including preferential access to credit and to savings and loan mechanisms, lower interest rates for women and incentives to extend credit to smallholders. The supply of credit in underserved areas could be enhanced by expanding financial services, for instance with the help of digital financial technologies. Giving women access to and control over land and productive resources is another important way to achieve food security and sustainable livelihoods, while at the same time supporting women's agency and empowerment.

29. Support could further include the promotion of integrated public procurement and food distribution (such as for public institutions, food assistance schemes and school feeding programmes) to guarantee continuous and structured demand for the products and services of small-scale producers and rural businesses. Setting up agricultural e-commerce and fostering digitalization and access to technology could be a promising route to rejuvenation in rural areas.

30. Capacity-building is needed in food production, safety and hygiene, quality assurance, packaging, and research and development. It can lead to a more efficient use of materials, water and energy, and can result in the uptake of suitable renewable energy applications in agriculture and food production, while at the same time improving the safety of production. Efforts should include enabling small and medium-sized enterprises to adopt resource efficiency practices and invest in renewable energy applications.

31. Important opportunities exist for digitalization, mechanization and precision agriculture adapted to smaller-scale producers in lower-middle-income countries. Taking advantage of those opportunities can mean increasing the efficiency of crop production and advisory services, improving the connectivity and market linkages of value chain actors and thus promoting decent employment and improved livelihoods. Mechanization supports and improves the efficiency of storage and processing of, among other things, perishable products such as fruits and vegetables, which in turn can reduce food loss and enhance the incomes of farmers by empowering them to time their sales better and thus obtain remunerative prices.

32. Integrated climate change adaptation and mitigation measures are a clear necessity and offer a fundamental opportunity to achieve many cobenefits. Reducing greenhouse gas emissions and developing more resilient agrifood systems and livelihoods would contribute to reducing poverty and hunger. Climate action to facilitate a green and resilient recovery from the pandemic in agrifood systems should promote the adoption of solutions that benefit nature with integrated land, water, pest and crop management. For example, the Economic Commission for Latin America and the Caribbean has identified the bioeconomy as a strategic sector for driving forward a more sustainable development model for Latin America and the Caribbean, with innovations such as microbial fertilizers and bacteria that promote plant growth. Actions are needed that promote a shift towards more sustainable practices, among them agroecology, agroforestry and silvopastoral systems, and foster sustainable, climate-neutral and resilient food value chains.

33. On the road to a green recovery, momentum needs to be built to reduce deforestation and forest degradation, and prevent encroachment on the lands of indigenous peoples. National programmes should be a combination of poverty alleviation and environmental protection, such as public works programmes in forest restoration and monitoring, and expanding cash transfer programmes through payments for ecosystem services.

3. Enhancing the environmental sustainability of agrifood systems

34. Interventions are needed that lower the agrifood system's greenhouse gas emissions; improve water and soil quality, and animal and plant health; and reduce biodiversity loss, ecosystem destruction, food loss and waste, and toxicity.²⁰ The effectiveness of those interventions depends on incentives in policies, increases in the availability and dissemination of research and information about the benefits of

²⁰ FAO, "Sustainable food systems: concept and framework", 2018, available at <http://www.fao.org/3/ca2079en/CA2079EN.pdf>.

sustainable practices, and the provision of capacities and services to all actors with the full engagement of food producers. Measures include:

(a) Supporting farming systems to comply with recommended management practices such as minimum soil disturbance; permanent organic soil cover; species diversification; use of high-yielding and adapted seed varieties; integrated pest management; plant nutrition based on healthy soils; and efficient water management. These should be combined with the integration of pastures, trees and livestock into production systems and the use of adequate and appropriate farm power and equipment;

(b) Boosting the use of land husbandry practices to enhance soils' biota and organic matter, which is proven to increase crop productivity, by establishing national regulations for sound land husbandry, monitoring soil health and building the capacity of researchers, extension workers and farmers;

(c) Investing in the implementation of smarter precision technologies for irrigation combined with deficit irrigation and wastewater-reuse, while also discontinuing subsidies and other measures that result in water waste;

(d) Supporting the implementation of plant protection practices, integrated pest management practices, the local production of biocontrol agents, strict pesticide regulations and the removal of pesticide subsidies;

(e) Promoting multi-stakeholder initiatives aimed at reducing land, water and food waste and supporting more linkages between rural, peri-urban and urban areas to reduce carbon footprints and food losses. Where applicable and economically viable, high-tech practices of local food production, such as hydroponics and vertical farming, can optimize scarce land and water resources.

35. Nature-based solutions are particularly relevant for the sustainable management of biodiversity, soils, and the use of water resources in agriculture, in a context of climate change. Nature-based solutions investments create jobs that typically have low training and education requirements, are quick to establish and require relatively little capital for each worker. Some estimates indicate that restoring 150 million hectares of degraded agricultural land could generate \$85 billion for national and local economies, \$30 to 40 billion a year in additional income for smallholder farmers and increased food security for approximately 200 million people. Preventing topsoil loss could create nearly \$1 trillion of benefits over the next 15 years in Africa alone. Doing nothing would cost double that amount.²¹

36. Conservation agriculture is another promising approach to sustainable agriculture based on the principles of permanent soil cover, minimum soil disturbance and diversification. It can strengthen the resilience of smallholder farmers by improving soil health and productivity and by reducing their dependence on chemical inputs. Sustainable agricultural mechanization has an important role to play in implementing the principles of conservation agriculture through machinery such as no-till seeders.

²¹ United Nations Convention to Combat Desertification, "Restored land, healthy people, green recovery: build forward better with land-centered solutions", 2021, available at <https://www.unccd.int/publications/restored-land-healthy-people-green-recovery-build-forward-better-land-centered>.

4. Maximizing synergies and minimizing trade-offs in the impacts of our actions to promote agrifood systems transformation

37. Transitioning towards sustainable agrifood systems produces synergies with other dimensions of sustainable development. However, multiple potential trade-offs must be identified, and their effects minimized. Increasing agricultural production can increase environmental externalities. Ensuring access to sufficient, safe and nutritious food for all must account for more careful use of both natural resources and the reduction of food loss and waste. Country experience shows that policies that account for ecosystems and other environmental services can encourage investments in technologies and approaches to protect ecosystems. Measures of this sort, however, should be taken in ways that ensure price increases do not restrain access to food for the poor, particularly in low- and middle-income countries.

38. Trade-offs must be managed as well between the adoption of productivity-enhancing technologies and employment, where labour-saving technologies could reduce the purchasing power of poor people, in both rural and urban areas. This is exacerbated by trends in the manufacturing and service sectors, which have traditionally absorbed part of the labour force freed from agriculture, but which also face capital and information intensification (see [E/CN.9/2021/2](#)). Strong labour market institutions and investments in re-qualifying workers in both rural and urban areas, for instance, are needed to improve opportunities, ensure fair remuneration and decent working conditions, and expand income-earning opportunities and worker transitions. This also requires fiscal systems that are able to capture and retain value added at the local level and track and tax income flows, including illicit financial flows (see [E/CN.9/2021/L.5](#)).

39. Integrated geospatial, biophysical and socioeconomic data, combined with advanced systems-based analytics, can help identify and evaluate interactions and trade-offs among competing objectives, and enable more targeted investments and combinations of actions. For example, the Hand-in-Hand Geospatial Platform allows for countries to identify areas for targeted interventions to exploit the agricultural potential to eradicate hunger and poverty and all forms of malnutrition.²² Data disaggregated by sex, age and disability can help to ensure gender-responsive policies.

40. Transitioning towards sustainable agrifood systems requires high-level commitment, decisive leadership and a coalition of actors with the collective strength and commitment to sustain a transformational agenda. Global governance in food and agriculture has a critical role to play, providing essential public goods, including data and information, ensuring inclusive and equitable domestic and international institutions that engage all stakeholders, and ensuring that social and environmental impacts are widely accounted for in global and regional agreements and frameworks, including for the reduction of greenhouse gas emissions (see [E/CN.9/2021/L.5](#)).

41. Integrated approaches across the areas of health and the environment are also needed. The One Health approach jointly addresses human, animal (terrestrial and aquatic), plant and environmental health with promise for protecting agrifood systems from growing and emerging threats, including the rise of antimicrobial resistance and zoonotic and transboundary animal diseases.²³ Scaling up, resourcing and monitoring existing efforts is needed. Recognizing that many countries do not have the infrastructure to detect these diseases, the Zoonotic Disease Integrated Action project, of the International Atomic Energy Agency, enables countries to access training,

²² Available at <http://www.fao.org/hih-geospatial-platform/en/>.

²³ More information on the One Health approach is available at <https://www.who.int/news-room/qa-detail/one-health>.

equipment and expertise for the implementation of detection and diagnostic techniques and to become part of a global network of national laboratories to conduct coordinated actions to develop their research capabilities and enhance global preparedness. Mechanization solutions for livestock and poultry can also play an important role in the prevention and control of zoonoses. They offer advantages in terms of more reliable elimination of pathogens, blocking of transmission routes and enhancement of biosafety.

42. The Secretary-General's United Nations Food Systems Summit in 2021, as part of the decade of action to achieve the Sustainable Development Goals by 2030, has the potential to unleash the power of food system transformation to deliver progress on all 17 Sustainable Development Goals. The process leading up to the Summit, including regional and national dialogues, and its follow-up present a unique opportunity for Governments and stakeholders, with the support of all United Nations entities, to:

- (a) Strengthen cooperation and new forms of governance;
- (b) Make decision-making more transparent and accountable for societal objectives;
- (c) Down-scale models and evidence from the global and regional to the national and territorial levels;
- (d) Evaluate emerging proposals for transforming food systems, assess their economic, environmental and social impacts, and identify their potential for reducing trade-offs and strengthening co-benefits for all;
- (e) Implement innovative governance arrangements to build consensus around opportunities and engage relevant actors around priority actions for transformative change.

V. Means of implementation and partnership initiatives to accelerate transformative action for Sustainable Development Goal 2 and vital Goal targets across the 2030 Agenda for Sustainable Development

1. Investment needs and market access and development issues

43. Agrifood system transformation relies on data-driven evidence; innovation and technology; human capital formation; and institutional capacity for improved governance. Participatory assessments can promote national-level policy dialogue on the changes needed to improve the sustainability, inclusiveness and profitability of agrifood systems across dimensions, for improved food security, nutrition, health, jobs and livelihoods.

44. Private finance mobilized by official development finance interventions is estimated at \$1.4 billion per year for the agriculture, forestry and fishing sector (2017–2018 average). This represents only 3.3 per cent of the total private capital mobilized through blended finance in all sectors, leaving much room for an increase of blended finance in the agrifood sector.²⁴ Likewise, according to estimates from the

²⁴ More information available at <https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/mobilisation.htm>.

Global Impact Investing Network, in 2019 the food and agriculture sector represented only 9 per cent of impact investors' total assets under management.²⁵

45. Although agriculture is currently the economic sector with the lowest levels of digital technology adoption, emerging digital technologies have tremendous potential in the transformation of agrifood systems. Digitalization may increase agricultural production and productivity, help in adapting to and mitigating the effects of climate change, and improve early warning systems about plant and animal pests and diseases. That can encourage a more efficient use of natural resources, reduce risks and improve resilience in farming, and increase the integration of small-scale producers into markets, for instance by reaching consumers through e-commerce.²⁶

46. However, the use of digital technologies among small-scale producers is hampered by the digital divide. Capacity and skill development among workers and producers is needed to avoid their exclusion from economic opportunities and the consequent increase in inequality.²⁷ Additionally, the gender digital divide presents barriers for women to equally access and benefit from technologies, which can have an impact on productivity, profitability and access to nutrition and risks further entrenching gender inequalities if women are not among those creating the technologies with better access to education and jobs in science, technology, engineering and mathematics.

47. Most of the current digital initiatives are donor-supported, often scattered and bound to project time frames and lacking fully viable business models. Scaling them up will require making those technologies attractive to and feasible for small-scale producers by addressing well-known market and policy failures and by promoting local, context-specific digital solutions (as opposed to one-size-fits-all remedies) through rigorous and reliable third-party feasibility checks.²⁸ These efforts should be enabled by significant targeted public and private investment and policy support in the form of farmers' digital registries, digital literacy, rural connectivity and improved regulatory and incentive frameworks. For example, the International Telecommunication Union's Smart Villages project empowers disadvantaged rural communities with access to basic digital infrastructure and services that deliver practically applicable guidance and information to farmers to improve their livestock management practices and build market awareness.²⁹

48. Across investments, attention is needed to strengthen and support the contributions of rural women and women farmers, including small-scale farmers, to the agricultural sector by ensuring equal access to agricultural technologies, investments, innovations in small-scale agricultural production and distribution to improve productive capacity and incomes and strengthen resilience while addressing

²⁵ Global Impact Investing Network, "Annual impact investor survey 2020", available at <https://thegiin.org/assets/GIIN%20Annual%20Impact%20Investor%20Survey%202020.pdf>.

²⁶ World Bank, "Future of food: harnessing digital technologies to improve food system outcomes", 2019.

²⁷ Technical Centre for Agricultural and Rural Cooperation, "The digitization of African agriculture", June 2019; FAO, "Realizing the potential of digitalization to improve the agrifood system", concept note, 2020; GSM Association, "State of the industry report on mobile money," 2019; World Bank, "Future of food: harnessing digital technologies to improve food system outcomes", April 2019; United Nations Capital Development Fund, "Leaving no one behind in the digital era", February 2020.

²⁸ FAO, "Realizing the potential of digitalization to improve the agrifood system", concept note, 2020; World Bank, "Future of food: harnessing digital technologies to improve food system outcomes", April 2019.

²⁹ International Telecommunication Union, "Building smart villages: a blueprint – as piloted in Niger", 2020.

the existing gaps in and barriers to trading their agricultural products in local, regional and international markets.³⁰

49. Social protection is also needed in the form of cash transfers or food assistance, especially those that directly support women entrepreneurs and informal traders with grants and subsidized credits, or keep childcare services open during lockdown to help relieve unpaid care burdens. It is critical that economic stimulus and recovery packages reach rural areas as well as urban settings.³¹

50. At the regional level, involving the private sector, in particular in sustainable food production and processing, to develop profitable, sustainable and inclusive regional food industries, advocating for the further liberalization of food trade and developing a monitoring system for food prices, food production, export potentials and market access could support the achievement of food security and support livelihoods and access to nutritious foods.

2. Global partnership initiatives that are striving to accelerate transformative action

51. The Government of Japan will host the Tokyo Nutrition for Growth Summit in December 2021, at which participants are expected to put forward financial, policy, programmatic or impact commitments that contribute to advancing the nutrition agenda towards achieving the global nutrition goals and ending all forms of malnutrition. The Summit will focus on three areas: health – making nutrition integral to universal health coverage; food – building food systems that promote healthy diets and good nutrition; and resilience – addressing malnutrition effectively in fragile and conflict-affected contexts.³²

52. As part of the midterm review of the United Nations Decade of Action on Nutrition (2016–2025), informal consultations were convened in 2020 with Member States and non-State actors to seek their views on progress made, barriers encountered and gaps identified for the first half of the Decade of Action, from 2016 to 2020. Preliminary findings highlight the critical role of sustainable, resilient agrifood systems for healthy diets and improved nutrition. The reports recognized agroecology and biodiversity, sustainability issues in national food-based dietary guidelines, measures to reduce food loss and waste, and actions for enhancing food supply resilience in crisis-prone areas. Governments have accelerated measures to reduce or eliminate industrially produced trans-fats, and the food industry has implemented voluntary or mandatory reformulation of processed food products to reduce their salt content.³³

53. The United Nations Decade of Family Farming is working towards creating an enabling environment to promote policies, investments and knowledge for family farmers by acting as a global partnership initiative involving almost 1,600 actors, including more than 950 farmers' organizations. Governments, the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), producer organizations and other stakeholders are

³⁰ Agreed conclusions of the Commission on the Status of Women at its sixty-first session, 2017, available at <https://www.unwomen.org/en/csw/outcomes>.

³¹ UN-Women and UNDP, COVID-19 Global Gender Response Tracker, available at: <https://data.undp.org/gendertracker/>.

³² See <https://nutritionforgrowth.org/wp-content/uploads/2020/12/N4G-Vision-and-Roadmap.pdf> and <https://nutritionforgrowth.org/events/>.

³³ United Nations, United Nations Decade of Action on Nutrition, midterm review foresight paper, available at https://www.un.org/nutrition/sites/www.un.org.nutrition/files/general/pdf/nutrition_decade_mtr_background_paper_en.pdf.

working together to promote the design and implementation of national and regional frameworks of action for the support of family farmers. To date, 51 countries are working on the implementation of the Decade, including 7 countries that have already approved national action plans on family farming.³⁴

54. The ocean makes a significant contribution to food security and nutrition, and it holds the potential to play an even bigger role in the global food system. The United Nations Decade of Ocean Science for Sustainable Development³⁵ will support capacity development and foster transformative partnerships to generate knowledge that provides the basis for innovative solutions and sound decision-making to optimize the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions to achieve a productive ocean that supports sustainable aquatic food production.

55. In reaction to the outbreak of the pandemic, Group of 20 (G20) ministers of agriculture met in April and September 2020 and affirmed their commitment to keeping global food supply chains functioning and to guarding against any unjustified restrictions to international trade in food and agriculture. Italy holds the G20 presidency in 2021 and has continued to dedicate attention to the resilience of the agricultural sector under the ongoing COVID-19 pandemic. In addition, the Italian G20 presidency is dedicating significant attention to global food security. The G20 ministers of agriculture will meet in Florence, Italy, on 17 and 18 September 2021.

56. The Committee on World Food Security has recently endorsed the Voluntary Guidelines on Food Systems and Nutrition, which aim to support transformative actions towards more sustainable food systems that can deliver food security and better nutrition for everyone.³⁶ The Committee recently endorsed policy recommendations on agroecological and other innovative approaches and will soon start consultations on voluntary guidelines on gender equality and women's and girls' empowerment.³⁷ The Committee's high-level panel of experts produced an issue paper on the global impact of the pandemic on food security and nutrition.³⁸ The Committee is also engaged in the United Nations Food Systems Summit processes, raising awareness of the value-added of its inclusive processes and policy products. Future workstreams include thematic areas related to the engagement of young people and their employment in agriculture and food systems, data collection and analysis, and the reduction of inequalities.

57. Parliamentary alliances for food security and nutrition have proven to be powerful catalysts of effective legislation and public policies in these domains, contributing to the enabling environment for achieving Sustainable Development Goal 2. As of the writing of the present report, more than 45 parliamentary alliances have been established worldwide, and over 30 laws on food security and nutrition have been passed by national parliaments, while framework laws have been developed with FAO support by regional parliaments. Laws to support national COVID-19 responses include support to smallholders and social protection to address

³⁴ The seven countries are: Costa Rica, the Dominican Republic, the Gambia, Indonesia, Nepal, Panama and Peru.

³⁵ For more information, see <https://www.oceandecade.org/>.

³⁶ Committee on World Food Security, "CFS voluntary guidelines on food systems and nutrition", available at http://www.fao.org/fileadmin/templates/cfs/Docs2021/Documents/CFS_VGs_Food_Systems_and_Nutrition_Strategy_EN.pdf.

³⁷ Committee on World Food Security, forty-eighth session, "Making a difference in food security and nutrition", 4 June 2021, available at http://www.fao.org/fileadmin/templates/cfs/CFS48/Report/CFS_48_Report_for_adoption_En.pdf.

³⁸ Committee on World Food Security, "Impacts of COVID-19 on food security and nutrition: developing effective policy responses to address the hunger and malnutrition pandemic", 2020, available at <http://www.fao.org/3/cb1000en/cb1000en.pdf>.

hunger caused by the pandemic. FAO is hosting regional and interregional parliamentary dialogues on legislative responses to the impact of COVID-19 on food security and nutrition and good practices and lessons learned.

58. The comprehensive development plan for Central America, coordinated by the Economic Commission for Latin America and the Caribbean, includes initiatives focused on agriculture and food systems in partnership with FAO and participating Governments (El Salvador, Guatemala, Honduras and Mexico), in order to address the structural drivers of international migration. Specific initiatives under the plan have the objective of promoting sustainable rural development in territories characterized by high levels of poverty and outward migration, thus linking human mobility issues with the food systems agenda.

59. Through the Centre for Sustainable Agricultural Mechanization, the Economic and Social Commission for Asia and the Pacific is supporting the promotion of sustainable agricultural mechanization in partnership with a wide range of stakeholders such as policymakers, the private sector and youth. Examples include the development of national agricultural mechanization strategies, knowledge exchange and networking among national agricultural machinery associations, agricultural machinery testing stations, and research and academic institutions. The adoption of safe, efficient and environmentally sound agricultural machinery has been facilitated through capacity-building exercises for national stakeholders and the development and in-principle adoption of harmonized regional standards.

60. Achieving Sustainable Development Goal 2 in countries with food crisis situations is particularly challenging. Concerted efforts between stakeholders around the humanitarian, development and peace nexus are needed to accelerate transformative actions in these contexts. The Global Network Against Food Crises offers a coherent coordination framework to promote collective efforts for a more efficient use of resources to prevent, prepare for and respond to food crises and, ultimately, to support collective outcomes related to Sustainable Development Goal 2. To that end, the Global Network seeks to address the long-term challenges facing agriculture and food systems by working at the global, regional and country level around three interlinked dimensions: (a) enhancing the understanding of food crisis contexts; (b) leveraging strategic investments in agriculture, food security and nutrition; and (c) strengthening coordination with actors beyond the agriculture and food security sector.

61. The Inter-Agency Network on Youth Development and the Decent Jobs for Youth global initiative have supported regional and national initiatives to foster youth employment. The FAO-United Nations Industrial Development Organization Opportunities for Youth in Africa³⁹ initiative is committed to accelerating job creation in the agrifood sector and envisions youth as agricultural entrepreneurs within the industry, mediating Africa's competitive engagement in global agricultural value chains.

62. The International Year for the Elimination of Child Labour (2021) was launched to promote global momentum towards mainstreaming child labour elimination in agricultural and nutrition programmes. The International Partnership for Cooperation on Child Labour in Agriculture is active in policy dialogues, advocacy and awareness-raising efforts and capacity-building activities at the country level to support key actors in the agricultural sector in addressing child labour issues in national policies and programmes, extension services and monitoring activities. A high-level global

³⁹ FAO and UNDP, "Opportunities for youth in Africa: accelerating jobs creation in agriculture and agribusiness", available at https://open.unido.org/api/documents/17070331/download/24March_EB_Revised_190143_ProDoc%20-%20Opportunities%20for%20Youth%20in%20Africa_FIN....pdf.

event on eliminating child labour in agriculture will be held on 2 and 3 November 2021.

VI. Conclusions and recommendations

63. The present report has presented analysis and evidence to demonstrate the role that agrifood systems transformation can play to boost recovery from the impact of the pandemic and associated drivers and shocks on agriculture, food security and nutrition. The thematic section focused on how to move towards resiliency and transformational change for more sustainable agrifood systems that support achievements across the 2030 Agenda for Sustainable Development, especially in the context of the United Nations Food Systems Summit.

64. The impacts of the pandemic are still unfolding and will continue to be a source of uncertainty with potentially severe implications for access to food and for longer-term development goals. It is important that countries and the international community as a whole continue to support vulnerable groups in promoting access to food, ensure open markets and uninterrupted trade flows, and avoid actions that could jeopardize food security, particularly in developing countries dependent on food imports.

65. Disruptions to agrifood trade and supply chains have been less severe than anticipated, as governments and partners have protected and supported the functioning of agrifood sectors as much as possible. Nevertheless, food prices have increased, especially in urban areas, pushing poor households and vulnerable groups to further reduce healthy diets and employ negative coping strategies, such as adjusting nutritional choices and selling assets, which will have long-term implications. Despite government efforts, however, smallholder and family farmers in many countries have experienced uneven impacts owing to lack of access to inputs and markets as a result of restrictions.

66. Inequalities exacerbated by COVID-19 compromise sustainable development, exacerbate social segmentation and prevent large parts of the population from rising out of poverty. The weight of the pandemic has fallen disproportionately on women in their role as care providers and small-scale, mostly informal entrepreneurs, which will delay efforts to make substantial gains in household nutrition and food security.

67. In many developing countries, acute and chronic food insecurity are expected to increase owing to the effects of slower economic activity, rising unemployment and reduced remittances from workers abroad. In this context, social safety nets, including unemployment payments and cash or in-kind transfers represent fundamental means to secure incomes and access to food for the poor and vulnerable.

68. Response and recovery efforts have not yet sufficiently taken environmental impacts into account. A major challenge will be to strengthen incentives and capacities to relaunch the sustainability “green development” agenda and to enhance uptake of nature-based solutions. Fundamental shifts to sustainable production and consumption in food system policies and strategies are needed to improve nutrition and advance towards zero-hunger policies, coupled with a transition towards a circular economy approach to production, with improved systems to manage food waste.

69. The combination of rapid population growth, high levels of urbanization, forced migration and refugee movements poses a threat to achieving Sustainable Development Goal 2, with a pressing need to develop a sound understanding of the relationships between population dynamics, agriculture and food security that are reflected in the design and implementation of policies.

70. To accomplish these objectives, governments and their development partners may wish to consider the following:

(a) Working across sectors and institutional stakeholders (ministries, private sector, science, civil society);

(b) Promoting a social agenda as an essential part of sustainable food system transformation;

(c) Promoting a One Health approach, to address the encroachment of habitats and unsustainable production and consumption practices. A twin-track approach is needed to modify consumption patterns and production practices across the food supply chain;

(d) Maintaining an open agrifood trade system to strengthen the resilience of agrifood systems and guarantee continuous access to diversified and healthy diets;

(e) Strengthening information systems, which are at the heart of early preparedness and action and should be part of a comprehensive and integrated agenda involving a combination of tools, actors and solutions adapted to diverse contexts;

(f) Building closer partnership between governments and peoples' organizations, especially smallholders and family farmers, women, consumers, the private sector across the food system and indigenous peoples;

(g) Bolstering international cooperation and solidarity to strengthen health and food systems, vaccine distribution, development assistance across the humanitarian-development nexus and action to combat illicit flows to expand fiscal space;

(h) Financing the recovery through review-informed public expenditures in the agrifood sector, strengthened rural financial markets, including with access for women, and increased official development assistance, debt restructuring and debt relief;

(i) Cooperating in the area of science, technology and innovation, including traditional knowledge, to bring sustainable practices within the reach of low-income countries, women and disadvantaged groups (smallholders and micro-, small and medium-sized enterprises).
