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Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development

Adverse impact of climate change on the full realization of the right to food

Report of the Secretary-General*

Summary

In the present report, submitted pursuant to Human Rights Council resolution 50/9, the Secretary-General examines the adverse impacts of climate change on the full realization of the right to food, as well as greenhouse gas emissions relating to food systems. The Secretary-General highlights examples of human rights-based adaptation and mitigation strategies and good practices and provides concrete recommendations, building on literature reviews, consultations with experts and submissions from Member States, national human rights institutions, international organizations and civil society organizations.

* The present report was submitted after the deadline in order to reflect the most recent information.

I. Introduction

1. The present report is submitted pursuant to Human Rights Council resolution 50/9, in which the Council requested the Secretary-General, in consultation with and taking into account the views of States, the Council's special procedures, the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), the United Nations Environment Programme (UNEP), the World Meteorological Organization, the Committee on World Food Security and other relevant international organizations and intergovernmental bodies, including the Intergovernmental Panel on Climate Change and the secretariat of the United Nations Framework Convention on Climate Change, and other stakeholders, to submit a report to it at its fifty-third session on the adverse impact of climate change on the full realization of the right to food.

2. On 4 October 2022, the Office of the United Nations High Commissioner for Human Rights (OHCHR) circulated a note verbale and a questionnaire to Member States, requesting their inputs.[1] Other stakeholders, including international organizations, national human rights institutions and civil society organizations, were also contacted. The 47 contributions received, together with stakeholder consultations, informed the present report.[2] In the report, the Secretary-General concludes that, given the catastrophic impact of climate change on food production, the only way to limit climate-related hunger, stunting and starvation is for States and relevant stakeholder groups, including businesses, to take immediate action to fulfil their respective human rights obligations and responsibilities with respect to climate action and food security. That includes reducing the impacts of climate change on the full realization of the right to food, as well as cutting the greenhouse gas emissions created by food systems.

II. Right to food

3. Climate change poses a serious threat and is increasingly becoming an obstacle to the full and effective realization of the right to food.[3] It affects the four components of the right to food – namely, its physical and economic accessibility, availability, adequacy and sustainability – in different and related ways.[4] By undermining the right to food, climate change impacts also threaten the full and effective enjoyment of other human rights. The Intergovernmental Panel on Climate Change has found that climate change will lead to increasing pressure on food production and access, particularly in vulnerable regions, thereby undermining food security and nutrition.[5] Extreme weather events and natural hazards hamper crop, livestock, fisheries and aquaculture productivity.[6] The intensification of droughts and floods leads to decreases in crop yields, which greatly affect rural populations dependent on agriculture.[7] Rising sea levels and the acidification of oceans affect fisheries.[8] Changing seasons and rising temperatures degrade pastoral systems, leading to reduced herd mobility, decreased productivity, increases in vector-borne diseases and parasites and reduced access to water and feed.[9]

[1] See www.ohchr.org/sites/default/files/documents/issues/climatechange/food/nv-and-questionnaire-climate-change-and-human-rights-04102022-en_0.pdf.

[2] All contributions are available at www.ohchr.org/en/climate-change/impact-climate-change-right-food.

[3] See A/64/170, A/67/268, A/69/275, A/70/287, A/71/282, A/72/188, A/HRC/7/5, A/HRC/9/23, A/HRC/16/49, A/HRC/25/57, A/HRC/31/51, A/HRC/31/51/Add.1, A/HRC/31/51/Add.2, A/HRC/34/48, A/HRC/34/48/Add.1 and A/HRC/37/61.

[4] A/HRC/16/40, para. 16.

[5] Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability* (Cambridge, United Kingdom of Great Britain and Northern Ireland, Cambridge University Press, 2022), p. 14.

[6] A/HRC/37/61, para. 11.

[7] FAO, *Climate Change and Food Security: Risks and Responses* (Rome, 2015), pp. 9 and 17.

[8] Ibid., p. xii.

[9] Intergovernmental Panel on Climate Change, *Climate Change 2022*, p. 746.

4. Climate change poses a threat to the ability of entire regions to feed themselves, by increasing the frequency and intensity of extreme weather disasters, such as floods, droughts and megafires. Between 2008 and 2018, agricultural production loss caused by climate change amounted to $30 billion in Africa alone.[10] The Intergovernmental Panel on Climate Change has projected that 10 per cent of the area that is currently suitable for major crops and livestock will be climatically unsuitable by 2050 under high-emissions scenarios.[11] Temperature rise and extreme weather events are expected to reduce yields of staple crops, such as rice, wheat and corn, and the area and quality of farmland, especially in Africa.[12]

5. Malnutrition has increased in many places, including for Indigenous Peoples, local communities, peasants, small-scale food producers and low-income households. This is due to sudden losses of food production related to more extreme weather and climate events, which reduce access to food with dietary diversity.[13] While a decline in food productivity leads, in general, to an increase in food prices, the increasing costs of fuel and fertilizers further drives up food prices, which have a negative impact on affordability. Owing to several factors, including the armed conflict in Ukraine, the coronavirus disease (COVID-19) pandemic and climate change, global food prices increased by 21 per cent between January and September 2022 compared with the same period in 2021.[14] Children, older persons and pregnant women are among those that are most affected by the impacts of climate change on food accessibility.[15]

6. According to scholars, climate change affects the availability of food both directly through climate variabilities, such as drought and flooding, and indirectly, through pests and diseases, rising sea levels and changes in the availability of fresh water.[16] Women are likely to be the first to go hungry as they make up a sizable portion of small-scale food producers and often bear the main responsibility for feeding their families.[17]

7. The adequacy of food and its fulfilment of dietary needs, different according to a person's age, culture, health, occupation and living conditions,[18] is also affected by climate change. Scholars state that climate change affects the nutritional quality of food by reducing the production, storage and consumption of fruits, vegetables, nuts, seeds and fish.[19] It leads to heat stress, resulting in yield losses and impaired product quality, as well as increasing amounts of food loss and waste,[20] leading to increased workloads for women.[21]

8. Climate-related extreme weather events disrupt the stability of food supply. An increase in the frequency and intensity of extreme weather events, such as wildfires, droughts, floods and storms, leads to reduced crop yields, which directly affect those persons whose livelihoods depend on agriculture and livestock.[22] According to the Intergovernmental Panel on Climate Change, increasing extreme weather and climatic events are exposing millions of people to acute food insecurity.[23] Climate change compounds pre-existing food insecurity

[10] Submission by FAO.

[11] Intergovernmental Panel on Climate Change, *Climate Change 2022*, p. 725.

[12] FAO, *The Impact of Disasters and Crises on Agriculture and Food Security* (Rome, 2021), pp. 35, 36 and 82.

[13] Intergovernmental Panel on Climate Change, *Climate Change 2022*, p. 9.

[14] World Bank Live, "A shortage of life's essentials: the human cost of the food and fuel crises", 11 October 2022.

[15] Intergovernmental Panel on Climate Change, *Climate Change 2022*, p. 9.

[16] Tais de Moura Ariza Alpino and others, "The impacts of climate change on food and nutritional security: a literature review", *Ciência & Saúde Coletiva*, vol. 27, No. 1 (2022), p. 276.

[17] OHCHR, "Recommit to the right to food – UN expert", 15 November 2022.

[18] OHCHR and FAO, "The right to adequate food", Human Rights Fact Sheet No. 34 (2010), p. 3.

[19] De Moura Ariza Alpino and others, "The impacts of climate change", p. 277.

[20] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (Cambridge, United Kingdom, Cambridge University Press, 2019), p. 439.

[21] United Nations Entity for Gender Equality and the Empowerment of Women, "Explainer: how gender inequality and climate change are interconnected", 28 February 2022.

[22] FAO, *The Impact of Disasters and Crises on Agriculture and Food Security*, p. 9.

[23] Intergovernmental Panel on Climate Change, *Climate Change 2023: Synthesis Report*, "Summary for Policymakers" (forthcoming), p. 5.

and is reversing the progress made in abolishing hunger and starvation. Poverty and high levels of inequality are compounding climate change-related food insecurity and malnutrition.[24]

9. In 2021, between 702 and 828 million people were affected by hunger.[25] Climate change is projected to put another 80 million people at risk of hunger by the middle of the century.[26] Those who have contributed the least to global warming are disproportionately affected;[27] most of the world's undernourished live in Asia and Africa.[28] The majority of climate change-related disasters, such as extreme weather events, have hit countries in which the right to food is already being violated and social protection systems are not sufficiently robust to respond to climate-induced hunger, including in Africa, Asia, Central and South America, small island developing States, least developed countries, and the Arctic. Those hardest hit include Indigenous Peoples, small-scale food producers and low-income households – in particular, in developing countries.[29] Persons suffering from severe hunger include those directly dependent on agriculture and subsistence farming, herding, fishing and hunting. Their livelihoods, knowledge and traditional ways of life are threatened by climate change and competition over resources, which will lead to increasing hunger and malnutrition if the right to food is not respected, protected and fulfilled.[30]

10. In consultations for the present report, stakeholders shared examples of how climate change is affecting the full realization of the right to adequate food. Many stakeholders highlighted the intersecting relationship between inequality, food insecurity, declining ecosystem productivity and climate change. Countries that have contributed very little to climate change often lack the resources to support a climate-resilient, rights-based response to its impacts on people. Stakeholders also noted that, in many cases, those that had profited from industries and government policies that passed the costs of climate change on to others had not paid for the human and ecological devastation that they had caused.

11. In Afghanistan, the flash floods in July 2022 – which followed a severe drought in 2021 – caused significant damage to crops, infrastructure and livelihoods, severely affecting the 85 per cent of the population that relies on agriculture for subsistence.[31] In 2021, Madagascar experienced its worst drought in 40 years, causing widespread food insecurity.[32] In the aftermath of the floods in Pakistan in 2022, alarming levels of severe acute malnutrition among children were reported.[33] Somalia has experienced more than 30 climate-related shocks since 1990 and the devastation of pastures, grazing lands and crops by desert locusts in 2020 compounded the impacts of decades of conflict, insecurity and spiralling food prices, leading to heightened food insecurity and the loss of livelihoods for millions of agropastoralists. Recent droughts in the Central American Dry Corridor have resulted in food insecurity and increasing malnutrition, acting as a driver of migration from the region.[34]

12. The submissions received also highlighted climate impacts on the right to food for fishers and coastal communities. Climate change contributes to changes in oceanographic conditions, declining reproduction patterns and the distribution of fish species towards higher

[24] United Nations, "Secretary-General's chair summary and statement of action on the United Nations Food Systems Summit", 23 September 2021.

[25] FAO and others, *The State of Food Security and Nutrition in the World 2022: Repurposing Food and Agricultural Policies to Make Healthy Diets More Affordable* (Rome, FAO, 2022), p. xiv.

[26] Intergovernmental Panel on Climate Change, *Climate Change 2022*, p. 64.

[27] A/70/287, paras. 3 and 29; and A/HRC/34/48/Add.1, para. 64.

[28] FAO and others, *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* (Rome, FAO, 2021), p. xii.

[29] Intergovernmental Panel on Climate Change, *Climate Change 2023: Synthesis Report*, "Summary for Policymakers", p. 5.

[30] A/HRC/19/75, para. 18.

[31] Submission by WFP.

[32] Submission by the Anglican Consultative Council.

[33] United Nations Children's Fund, "More than 1 in 9 children in flood-affected areas of Pakistan suffering from severe acute malnutrition", press release, 21 October 2022.

[34] Submission by Climate Refugees and Alight.

altitudes, which negatively affect food security in the tropics.[35] In India, fish cultivation in the Lower Dibang Valley district of Arunachal Pradesh has been affected by flooding and heavy rain.[36] In Indonesia, climate change affects the right to food of fishers and coastal communities due to declining fish catches and coastal erosion.[37] Climate change negatively affects the right to food of Indigenous Peoples and local communities, including in Peru.[38] In the Brazilian Amazon, illegal mining, deforestation and climate change are adversely affecting the full realization of the right to food by the Yanomami.[39]

III. Climate change impacts of food systems

13. While climate change impacts put global food systems at risk, food systems are a significant source of the anthropogenic greenhouse gas emissions that are causing climate change.[40] According to the International Food Policy Research Institute, today's industrialized food system is a major contributor to climate change and environmental degradation, including through biodiversity loss, soil degradation, water depletion and pollution.[41] Between 21 and 37 per cent of global greenhouse gas emissions come from food systems.[42] The idea of transporting food long distances due to the "comparative advantage" of production is not adequately factoring in the costs imposed on the rights to health and livelihoods of those who are not part of the transaction. As the global population increases and if no change is made in the food production system, food systems emissions are projected to grow between 60 and 90 per cent between 2010 and 2050.[43]

14. Some two thirds of greenhouse gas emissions from food systems come from agriculture, forestry and other land use.[44] That is mainly related to changes in land use, deforestation and peatland degradation.[45] Agriculture is responsible for 80 per cent of global deforestation,[46] which is carried out to create land for agricultural production of export commodities, including beef, soy and palm oil. The production of meat was responsible for approximately 54 per cent of greenhouse gas emissions from agriculture between 2018 and 2020 and is projected to increase by more than 60 per cent between 2010 and 2050 as meat consumption continues to increase.[47] In such a scenario, the reduction of fossil fuel emissions alone – however significant – will not be sufficient to meet the goals of the Paris Agreement.[48] Food system transformation is therefore key to limiting global warming.

15. While boosting food production, the technologies of the Green Revolution have contaminated soils and waters through their use of chemical fertilizers and pesticides, causing significant damage to the soil.[49] Pesticides and chemical fertilizers, together with other components of the pre- and post-production stages (such as feed production, processing, storage, refrigeration, retail, waste disposal, food service and transport), are responsible for

[35] Submission by One Ocean Hub.
[36] Submission by Tilu Linggi, Centre of International Legal Studies, Jawaharlal Nehru University, India.
[37] Submission by Nukila Evanty, Executive Director of Women Working Group, Indonesia.
[38] Submission by Peru.
[39] Submission by the School of Public Health, Drexel University, United States of America.
[40] Submission by the secretariat of the United Nations Framework Convention on Climate Change.
[41] International Food Policy Research Institute, *2022 Global Food Policy Report: Climate Change and Food Systems* (Washington, D.C., 2022). See also A/76/179 and A/76/237.
[42] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, p. 439.
[43] UNEP, *Emissions Gap Report 2022: The Closing Window – Climate Crisis Calls for Rapid Transformation of Societies* (Nairobi, 2022), p. 54.
[44] International Food Policy Research Institute, *2022 Global Food Policy Report*, p. 3.
[45] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, p. 439.
[46] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development* (New York, United Nations, 2019), p. 65.
[47] UNEP, *Emissions Gap Report 2022*, pp. 56 and 57.
[48] Ibid, p. 54.
[49] A/76/237, para. 12.

an estimated 5 to 10 per cent of greenhouse gas emissions.[50] Soil erosion reduces crop yields and the soil's ability to store and cycle carbon, nutrients and water.[51]

16. According to the Intergovernmental Panel on Climate Change, emissions from aquaculture and large-scale fisheries may represent approximately 10 per cent of total agriculture emissions.[52] Aquaculture produces approximately 50 per cent of the fish consumed by humans, however, around 35 per cent of the harvest in capture fisheries and aquaculture globally is either lost or wasted.[53]

17. Supply chain activities account for between 19 and 29 per cent of the greenhouse gas emissions of the global food system.[54] Energy use in the food supply chain is a rapidly growing emissions source that includes on-farm fuel use, food transportation, food service, cooking, cooling and freezing in the food-processing industry, packaging and energy use in retail, as well as food-related energy consumption by households. The retail sector accounts for 20 per cent of the energy use of food systems, in comparison with a figure of 30 per cent for households, which includes the energy spent in travelling to purchase food.[55] Changing food consumption patterns have affected transport and storage needs, leading to increased greenhouse gas emissions: transport accounts for between 5 and 11 per cent of the global food system's emissions.[56]

18. Food loss and waste are estimated to account for between 8 and 10 per cent of global greenhouse gas emissions.[57] One third of all food produced for human consumption is either lost or wasted due in part to poor logistics or exposure to pests and diseases that are exacerbated by climate change.[58] Marketing practices that encourage consumers to buy more than they can consume and that rely on long periods of transport and storage also contributed to the estimated 931 million tonnes of food waste that was generated in 2019.[59] On average, 74 kg of food per capita is wasted every year. Reducing food waste could contribute to a decrease in greenhouse gas emissions and an improvement in food security.[60]

19. Some types of climate action can negatively affect the right to food, for example, by converting land to monoculture plantation forests or bioenergy crops with adverse effects on food production and food prices. For climate action to successfully reduce emissions and safeguard the right to food of concerned communities, human rights must be integrated into its planning, design, implementation and evaluation. The adoption of agroecological practices, combining local knowledge, traditional products and innovation, could improve food security, nutrition and rural development, including the right to a clean, healthy and sustainable environment.

[50] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, pp. 476, 478 and 479.

[51] FAO, *The State of the World's Land and Water Resources for Food and Agriculture: Systems at Breaking Point – Synthesis Report 2021* (Rome, 2021), p. 23.

[52] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, p. 478.

[53] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, pp. 73 and 74; and FAO and others, *The State of Food Security and Nutrition in the World 2022*, p. 80.

[54] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, p. XXV.

[55] UNEP, *Emissions Gap Report 2022*, p. 60.

[56] Ibid.; and Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, p. 66.

[57] UNEP, *Food Waste Index Report 2021* (Nairobi, 2021), p. 20.

[58] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, p. 66.

[59] UNEP, *Food Waste Index Report 2021*, p. 8.

[60] Ibid., p. 4.

IV. Promoting and protecting the right to food in the context of climate change

A. Legal and policy framework

20. The right to food is enshrined in the Universal Declaration of Human Rights (art. 25 (1)) and the International Covenant on Economic, Social and Cultural Rights (art. 11). Article 11 of the Covenant recognizes the right to an adequate standard of living, including adequate food, clothing and housing, and to the continuous improvement of living conditions – in addition to the fundamental right of everyone to be free from hunger. Article 24 of the Convention on the Rights of the Child enshrines the obligation of States parties to provide adequate and nutritious food, while article 28 of the Convention on the Rights of Persons with Disabilities recognizes the right of persons with disabilities to adequate food.

21. In its general comment No. 12 (1999), the Committee on Economic, Social and Cultural Rights described its interpretation of the obligations of States parties to ensure the fulfilment of the right to adequate food, including for vulnerable groups and individuals and when faced with severe resource constraints, which include those caused by climatic conditions. It also highlighted that food sustainability implied food being accessible for both present and future generations. In its general comment No. 26 (2022), the Committee stated that the extraterritorial obligation to respect human rights required States parties, inter alia, to prevent domestic and international policies and actions – including those related to agriculture, climate change, development, energy, trade and investment – from interfering, directly or indirectly, with the enjoyment of human rights. That obligation also includes the right to food.

22. The Committee on the Elimination of Discrimination against Women, in its general recommendation No. 39 (2022), called upon States parties to adopt urgent measures to ensure that Indigenous women and girls had adequate access to sufficient food. Moreover, it noted that Indigenous women and girls were adversely affected by State failures to prevent foreseeable harm connected to climate change. In its general comment No. 15 (2013), the Committee on the Rights of the Child called upon States to put children's health concerns at the centre of climate action and to regulate and monitor the environmental impact of business activities that might compromise food security.

23. In the United Nations Declaration on the Rights of Indigenous Peoples, the General Assembly affirmed that States should consult and cooperate in good faith with Indigenous Peoples to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that might affect them, and prior to the approval of any project affecting their lands or territories and other resources (arts. 19 and 32). That could include climate change mitigation and adaptation measures. In the preamble to the Declaration, the General Assembly highlighted that respect for Indigenous Peoples' knowledge and traditional practices contributed to sustainable development and proper management of the environment. Furthermore, it recognized the right of Indigenous Peoples to be secure in the enjoyment of their own means of subsistence and development (art. 20 (1)). The Declaration sets out the right of Indigenous Peoples to the conservation and protection of the environment and the productive capacity of their lands or territories and resources (art. 29 (1)).

24. The United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas recognizes the right of peasants to adequate food and the fundamental right to be free from hunger, which includes the right to produce food and the right to adequate nutrition (art. 15 (1)). In the Declaration, the General Assembly affirmed that States should ensure that peasants and other people working in rural areas enjoy physical and economic access at all times to sufficient and adequate food that was produced and consumed sustainably and equitably, respecting their cultures and preserving access to food for future generations (art. 15 (2)). The General Assembly also affirmed that States should take appropriate measures to combat malnutrition in rural children, including by ensuring that women had adequate nutrition during pregnancy and lactation (art. 15 (3)). Moreover, it spelled out the right of peasants and other people working in rural areas to determine their

own food and agriculture systems and to participate in decision-making processes on food and agriculture policy (art. 15 (4)). In the preamble to the Declaration, the General Assembly recognized the right to food sovereignty for peasants and other people working in rural areas, as well as the right to culturally appropriate food produced through ecologically sound and sustainable methods that respected human rights. In article 2 (6) of the Declaration, the General Assembly indicated that States should take appropriate and effective measures in support of the realization of the purposes and objectives of the Declaration, such as improving the functioning of global markets to limit extreme food price volatility. The Declaration also promotes the participation of peasants in decision-making processes that may affect their lives, land and livelihoods (art. 10 (2)), which includes climate-related decision-making.

25. The ultimate objective of the United Nations Framework Convention on Climate Change is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, which should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change to ensure that food production is not threatened (art. 2). According to the preamble to the Paris Agreement, parties should respect, promote and consider their respective human rights obligations when taking action to address climate change. The Agreement is aimed at strengthening the global response to climate change, including by increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (art. 2 (b)).

26. At its twenty-seventh session, the Conference of the Parties to the United Nations Framework Convention on Climate Change adopted a decision on joint work on implementation of climate action on agriculture and food security. It recognized the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change. It urged parties and other stakeholders to promote sustainable agriculture, including by strengthening the role of Indigenous Peoples and local communities, in particular women and youth, with a view to eradicating hunger and poverty while ensuring food security (para. 10). In the decision, the Conference of the Parties took note of the recommendations of the different workshop reports under the Koronivia joint work on agriculture, which recognized the priority of designing and financing sustainable and climate-resilient agricultural systems, while applying a systemic approach in line with long-term global climate objectives to safeguard food security and end hunger (para. 2).

27. In the Guiding Principles on Business and Human Rights, the Human Rights Council affirmed the obligation of States to protect human rights within their territory or jurisdiction from actions by business enterprises. States should set out clearly the expectation that all businesses respect human rights throughout their operations and prevent and mitigate adverse impacts related to climate change, including by requiring them to exercise human rights due diligence, conduct environmental and climate impact assessments and/or disclose greenhouse gas emissions and climate change impacts.[61] In the context of climate change, in particular in situations in which businesses have contributed to severe impacts – for instance, large businesses involved in industrial agriculture and transportation – each business should provide for remediation appropriate to its share of the responsibility for the impacts.

28. The General Assembly has recognized the negative impact of climate change on food security, including through its resolution 76/166 on the right to food, in which it highlighted the importance of designing and implementing actions to reduce impacts, in particular on vulnerable populations (para. 44). In its resolution 40/7, the Human Rights Council also recognized the interlinkages between climate change and food insecurity. The General Assembly and the Human Rights Council recognized, in resolution 76/300 and resolution 48/13, respectively, the human right to a clean, healthy and sustainable environment. It is recognized in those resolutions that sustainable development and environmental protection contribute to and promote the enjoyment of human rights, which include the right to food.

[61] OHCHR, “Human rights, climate change and business: key messages”.

29. An array of other international instruments and structures relating to climate change and the right to food are also relevant, including those highlighted below.

30. The Rome Declaration on World Food Security, adopted at the World Food Summit in 1996, reaffirmed the fundamental right of everyone to be free from hunger and the need to minimize vulnerability to and the impact of climate-related ecological changes. The Voluntary Guidelines on Food Systems and Nutrition, which were endorsed by the Committee on World Food Security in 2021, provide guidance on aligning policies, laws, programmes and investment plans to address hunger and malnutrition, including in the context of climate change.

31. The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, which were endorsed by the Committee on World Food Security in 2012, stipulate that States, in accordance with their respective obligations, should ensure that the legitimate tenure rights to land, fisheries and forests of all individuals, communities and peoples likely to be affected – with an emphasis on farmers, small-scale food producers and vulnerable and marginalized persons – are respected and protected by laws, policies, strategies and actions aimed preventing and responding to the effects of climate change. The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (2014) highlight the need for States to address climate impacts on small-scale fisheries.

32. International policy tools and platforms promoting agroecological knowledge and skills as part of the global response to climate change include the 10 Elements of Agroecology, developed by FAO,[62] and the recommendations for just and sustainable food system transformations based on 13 agroecological principles (2019) developed by the High-level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. The Committee on World Food Security's policy recommendations on agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition (2021) provide guidance for its membership and other stakeholders on strengthening agroecological approaches, in order to reduce the climate change impacts of food systems.

33. The United Nations Food Systems Summit, which was held in 2021, set the stage for global food systems transformation to achieve the Sustainable Development Goals by 2030. To achieve sustainable food systems by 2030, the United Nations Food Systems Coordination Hub has been established to act as a catalyst and connector inside the United Nations system on the contribution of food systems transformation to the 2030 Agenda for Sustainable Development. As a follow-up to this process, countries will be invited to review their commitments to action made at the Summit during the United Nations Food Systems Stocktaking Moment in 2023. That event will showcase several examples of how the Hub supports the right to food as a framework informing national pathways. In addition, the Hub encourages countries to adopt a rights-based approach to food systems transformation, supporting the implementation of a long-term response to multilateral challenges.

34. In order to achieve all the Sustainable Development Goals, it is necessary to implement effective climate action under Goal 13. The 2030 Agenda emphasizes, within Goal 12, the importance of ensuring sustainable consumption and production patterns. The targets set therein include halving per capita global food waste at the retail and consumer levels and reducing food loss along production and supply chains by 2030 (target 12.3). Goal 2 sets out to ensure access by all people to safe, nutritious and sufficient food by 2030, while implementing resilient agricultural practices that increase productivity and production (targets 2.1 and 2.4). In the context of Goal 2 there is special focus on the poor and persons in vulnerable situations, including infants, adolescent girls, pregnant and lactating women, and older persons (target 2.2).

[62] *The 10 Elements of Agroecology: Guiding the Transition to Sustainable Food and Agricultural Systems* (Rome, 2018).

B. Human rights-based adaptation and mitigation strategies

35. The Intergovernmental Panel on Climate Change has found that climate action implemented with a rights-based approach leads to more sustainable outcomes.[63] Addressing the climate crisis and its impacts on human rights, including the right to food, requires States and businesses to take account of human rights in food systems. To promote and protect the right to food, States are obliged to mitigate and adapt to climate change, including through international cooperation.[64] Food systems transformation can present a pathway to tackle the climate crisis. Reducing emissions from food systems and minimizing their negative environmental impacts can strengthen their resilience to climate change and thereby safeguard the right to food.[65] That includes maximizing the quantity, quality, diversity and nutritional value of food and enabling more equitable access to nutritious food.[66] Food systems can reduce emissions by implementing a combination of supply-side and demand-side mitigation actions.[67]

36. Supply-side mitigation includes efficient production, storage, transport, processing and distribution, including the reduction of crop and livestock emissions. For cropping systems, mitigation can be done through soil carbon sequestration and reductions in emissions from fertilizers and paddy rice, and the bridging of yield gaps. In livestock systems, mitigation options include improved grazing land management, with higher net primary production and soil carbon stocks, higher quality feed and better manure management.[68] Demand-side mitigation includes dietary changes towards sustainable and nutritionally balanced diets, more diverse local varieties of production and the reduction of food loss and waste.[69] Dietary changes that contain more plant-based foods will reduce the demand for additional land needed for meat production, thereby reducing food system vulnerabilities and enhancing ecosystem provisions for food security, which will also affect the supply side.[70] Increased energy and water efficiency and better waste recovery are key for food system mitigation.

37. To create human rights-enhancing economies in which people can enjoy their human rights, including the right to food, businesses need to assess their practices, through the supply chain, in terms of their impact on the right to food and States must prioritize the fulfilment of human rights in their budgets and revenue generation. That includes dedicating sufficient resources to avert risks and reduce the adverse impacts of climate change on the right to food. To enable the transition to sustainable food systems, Governments should take their responsibility relative to business practices seriously and prioritize healthier, more diverse and balanced diets. Fiscal policies, including taxation on food according to its greenhouse gas emissions, and subsidies that promote healthy and sustainable food rather than harmful agricultural approaches can also contribute to food systems transformation. Those measures should be applied jointly with targeted investments and regulations.[71] Of the $540 billion that are currently given as agricultural subsidies, 87 per cent is either distorting prices or harmful for biodiversity, climate and human health.[72] Cities and local governments should recognize their human rights obligations and facilitate food system transition, for example by increasing the availability of organic and local products and reducing food loss

[63] Intergovernmental Panel on Climate Change, *Climate Change 2023: Synthesis Report*, "Summary for Policymakers", p. 33.

[64] Committee on Economic, Social and Cultural Rights, general comment No. 26 (2022).

[65] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, p. 69.

[66] Ibid., p. 68.

[67] UNEP, *Emissions Gap Report 2022*; and Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, pp. 439 and 440.

[68] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, p. 440.

[69] UNEP, *Emissions Gap Report 2022*, pp. 54 and 55.

[70] Ibid., p. 55; and Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, p. 439.

[71] UNEP, *Emissions Gap Report 2022*, pp. 60 and 61.

[72] FAO, United Nations Development Programme and UNEP, *A Multi-Billion-Dollar Opportunity: Repurposing Agricultural Support to Transform Food Systems* (Rome, 2021).

and waste.[73] Governments at all levels should increase efforts to ensure more just and equitable access to food.

38. Insecure land tenure rights and unequal access to resources and territories are among the root causes of food insecurity for small-scale farmers and peasants, notably women, Indigenous Peoples, local communities and those who practice nomadic, transhumance and hunter-gatherer lifestyles and depend on accessing traditional forest habitats and using land seasonally for grazing.[74] For those people – many of whom are at the forefront of experiencing climate change impacts – land is a source of income, food and identity.[75] Better protecting the right to land, including for women, who are often discriminated against in relation to accessing, using and controlling land, will contribute to safeguarding their right to food and reducing greenhouse gas emissions.

39. According to FAO, 1 per cent of the world's farms operate more than 70 per cent of all farmland. While those farms are integrated into the corporate food system, the more than 80 per cent of farms composed of smallholdings of less than 2 hectares[76] are generally excluded from global food chains. The majority of global agricultural subsidies has been given to commodities such as beef, milk and rice, which are responsible for high greenhouse gas emissions.[77] It is imperative to properly integrate the human rights costs of large farming operations, which may include avoiding regulatory constraints that negatively affect the ability of peasants and small-scale farmers to access markets and ensuring women's equal participation in agricultural production throughout the supply chain.[78]

40. For trade systems to reduce inequalities, contribute to food security and mitigate climate change, trade agreements must respect pre-existing human rights law and environmental safeguards throughout food supply chains and ensure that the real costs of food production and consumption – including their climate impacts – are reflected therein.[79] Small-scale farmers and peasants should be protected in accordance with human rights law by social security schemes and adequate insurance – especially in areas subject to climate-related hazards – and have access to markets, groundwater and irrigation, credit and finance.[80] As 80 per cent of the world's population is fed in part by imported agricultural products today, trade policies must fully integrate the right to food in their institutional frameworks. Measures could include, among others, removing the asymmetric use of trade-distorting subsidies, such as export restrictions on essential foodstuffs for food-deficit countries and on food aid to countries in emergency situations.[81]

41. Agroecology – defined by FAO as "a holistic and integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of sustainable agriculture and food systems" – is an essential approach to adapting to climate change and fulfilling the right to food.[82] Agroecological practices encompass production techniques derived from local experience and expertise, rely on traditional knowledge and draw upon immediately available resources.[83] An agroecological approach preserves biodiversity, utilizes fewer synthetic fertilizers, pesticides and other

[73] UNEP, *Emissions Gap Report 2022*, pp. 60 and 61.
[74] A/HRC/25/56/Add.1, para. 80; and Submission by International Land Coalition.
[75] A/HRC/51/28, para. 60.
[76] FAO, "Small family farmers produce a third of the world's food", 23 April 2021.
[77] FAO, United Nations Development Programme and UNEP, *A Multi-Billion-Dollar Opportunity*, p. 13.
[78] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, pp. 67–69.
[79] Ibid.; and submission by the World Trade Organization. See also A/75/219; and World Trade Organization, *World Trade Report 2022: Climate Change and International Trade* (Geneva, 2022).
[80] Independent Group of Scientists appointed by the Secretary-General, *Global Sustainable Development Report 2019*, pp. 67–69.
[81] David Bicchetti, Carlos Razo and Miho Shirotori, "Trade and food security: when an agreement delayed becomes a human right denied", United Nations Conference on Trade and Development, 7 June 2021.
[82] FAO, "Agroecology knowledge hub". See also A/76/237, A/HRC/16/49, A/HRC/46/33 and A/HRC/49/43.
[83] A/77/177, para. 61.

polluting agents, and produces livestock and crops that are more nutritious and resilient to environmental shocks caused by climate change.[84] Producer-based agroecology contributes to strengthening social cohesion by reducing social inequalities, promoting local governance and sovereignty and empowering local communities.[85]

42. A conversion from industrialized to agroecological food systems would require investments in traditional and Indigenous knowledge and scientific practices dedicated to agroecology.[86] It would require a just transition for workers, strong and secure land rights, genuine agrarian reform and effective regulation of agribusinesses.[87] Industrial agriculture and export-oriented food policies are among the driving forces of climate change and related harms and costs.[88] The adverse impacts of business on both nature and human health – deriving from unsustainable business practices – must be better accounted for.

43. According to the Intergovernmental Panel on Climate Change, approaches that work with natural processes, such as agroecology, ecosystem-based fisheries and aquaculture management, support food security, nutrition and sustainability and can strengthen resilience to climate change.[89] Small-scale farmers, fishers, peasants and pastoralists are highly vulnerable to climate change and face tremendous challenges regarding the abandonment of traditional farming practices, erosion of on-farm genetic diversity and loss of local knowledge. Small-scale farmers possess specialized knowledge on farming and resource management and help preserve genetic biodiversity that can be included in medicines and cures, as well as responses to emerging threats, including those caused by climate change.[90]

44. Indigenous Peoples and environmental defenders across the world risk their lives to protect the environment, including against climate impacts. In 2021, the killings of 200 land and environmental defenders were documented, of whom 50 were small-scale farmers.[91] Many peasants and Indigenous Peoples play a key role in conserving and restoring natural ecosystems, managing natural resources and safeguarding biodiversity. Their effective participation in food- and climate-related decision-making is imperative for reducing climate impacts, safeguarding the right to food and reducing emissions from food systems.

45. Many small-scale fishers are self-employed and catch fish for direct consumption within their households or communities. Women are important participants in the sector, in particular in post-harvest and processing activities.[92] Small-scale fisheries are integral to food security and support the livelihoods of riparian communities by providing food, nutrition and employment to local economies.[93]

46. The creation of conservation areas – both land and marine protected areas – and industrial aquaculture can negatively affect the rights of Indigenous Peoples, including their right to food, if implemented without their free, prior and informed consent.[94] Climate mitigation projects in the form of large-scale renewable energy projects and carbon sequestration through reforestation or forest protection measures may also negatively affect the livelihoods and food security of peasants, rural communities, pastoralists, fishers and

[84] David R. Boyd and Stephanie Keene, "Human rights-based approaches to conserving biodiversity: equitable, effective and imperative", Policy Brief No. 1 (OHCHR, 2021), p. 12.
[85] A/HRC/46/33, para. 59.
[86] A/77/177, para. 65.
[87] Ibid., paras. 65–78.
[88] A/76/237, para. 11.
[89] Intergovernmental Panel on Climate Change, *Climate Change and Land: An IPCC Special Report*, p. 21; and Intergovernmental Panel on Climate Change, *Climate Change 2022*, p. 90.
[90] Chelsea Smith, David Elliott and Susan H. Bragdon, "Realizing the right to food in an era of climate change: the importance of small-scale farmers" (Geneva, Quaker United Nations Office, 2015), p. 15.
[91] Global Witness, "Decade of defiance: ten years of reporting land and environmental activism worldwide" (2022), pp. 10 and 11.
[92] FAO, "Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication" (Rome, 2015), p. v.
[93] Ibid.; and A/HRC/40/56, para. 8.
[94] A/HRC/36/46, para. 14; A/HRC/40/56, para. 46; and A/HRC/50/57, para. 9. See also Boyd and Keene, "Human rights-based approaches to conserving biodiversity".

Indigenous Peoples, including by leading to land grabbing.[95] The production and use of biofuels as an alternative to fossil fuels to help mitigate emissions negatively affects the availability of food as increasing amounts of land are shifted from food to biofuel and biomass production.[96] International climate finance should include funding for agroecology and other approaches that work with natural processes, such as ecosystem-based fisheries and aquaculture management, and integrate human rights, including cultural rights, and traditional knowledge and practices related to food.

C. Good practices

47. In consultations for the present report, stakeholders shared good practices to prevent and adapt to the adverse impacts of climate change on the full and effective realization of the right to food, as well as to mitigate the climate change impacts of food systems. Mauritius provides financial schemes to cooperative societies to boost local food production.[97] Mexico promotes agroecology and the collective custody of the biocultural heritage as part of its climate change adaptation.[98] In the Philippines, the Adaptation and Mitigation Initiative in Agriculture programme seeks to enable climate risk-prone agrifisheries communities to pursue sustainable livelihoods while effectively managing climate impacts.[99]

48. In 2021, WFP helped to provide climate-risk insurance against the impacts of catastrophic drought, through its African Risk Capacity Replica Initiative, to 1.5 million people in Burkina Faso, the Gambia, Mali, Mauritania and Zimbabwe.[100] In Colombia, OHCHR is developing and piloting a project that applies a human rights-based methodology in costing the right to adequate food.

49. Measures for adapting food production systems and ensuring that food security is prioritized were included by 86 per cent of the countries that incorporated climate change adaptation into their nationally determined contributions.[101] The impacts of climate change on food security and poverty eradication are among the elements guiding the implementation of the nationally determined contribution of Colombia.[102] Agriculture and food security were identified as priorities by 27 of the 39 countries that submitted a national adaptation plan under the United Nations Framework Convention on Climate Change.[103] The National Action Plan for Adaptation and Mitigation to Climate Change of Argentina includes the sustainable management of food systems and forests.[104]

V. Conclusions and recommendations

A. Conclusions

50. **Transitioning to sustainable food systems, including agroecological approaches, presents a pathway to simultaneously address the climate crisis and safeguard the right to food.**

51. **Climate change negatively affects the realization of the right to food, disproportionately affecting those who have contributed the least to its occurrence. Rural populations, peasants, small-scale farmers and fishers, pastoralists, Indigenous**

[95] Committee on Economic, Social and Cultural Rights, general comment No. 26 (2022), paras. 2 and 56.
[96] Sustainable Development Solutions Network and Fondazione Eni Enrico Mattei, *Roadmap to 2050: The Land-Water-Energy Nexus of Biofuels* (New York, 2021), pp. 15 and 66.
[97] Submission by Mauritius.
[98] Submission by Mexico.
[99] Submission by the Commission on Human Rights of the Philippines.
[100] Submission by WFP.
[101] Submission by the secretariat of the United Nations Framework Convention on Climate Change.
[102] Submission by Colombia.
[103] Submission by the secretariat of the United Nations Framework Convention on Climate Change.
[104] Submission by the Office of the Ombudsman (Argentina).

Peoples, local communities, low-income households, women, children and persons with disabilities in developing countries are among those most at risk of suffering from climate-induced food insecurity and hunger. The urgent reduction of greenhouse gas emissions is key to limiting global warming to 1.5°C and climate change-related impacts on the full realization of the right to food.

52. **Industrial food systems are significant greenhouse gas emitters. A food system transition towards agroecology and other approaches that work with natural processes, such as ecosystem-based fisheries and aquaculture management, can reduce emissions, enhance food security and build climate resilience. That requires a transformation of trade regimes, the end of harmful agricultural subsidies and the promotion of healthy diets and locally grown food varieties. Reducing food loss and waste is also critical to create low-impact, healthy and resilient food systems. Increased accountability of businesses regarding their contribution to greenhouse gas emissions through their activities is a key component of that transition.**

53. **Climate change adaptation and mitigation policies must be accompanied by measures addressing the root causes of all forms of hunger and malnutrition and protecting the rights of those most at risk. Protecting the rights of women, peasants, small-scale farmers and fishers, pastoralists, Indigenous Peoples and local communities to own, access and use land and resources and recognizing their role in safeguarding the right to food are key to effective climate action. For climate action to effectively contribute to upholding the right to food, it must place rights holders at the centre of all action, ensuring their effective contribution to its planning, development, implementation, monitoring and evaluation.**

B. Recommendations

54. **The Secretary-General makes the following recommendations to States and other stakeholders to address the impacts of climate change on the full realization of the right to food and the climate change impacts of food systems.**

55. **The Secretary-General recommends that States should:**

(a) **Respect, protect and fulfil the right to food. In the context of climate action, those legal obligations require measures by States to ensure that business enterprises or individuals do not deprive people of their access to food. Strengthened social protection that leaves no one behind with respect to the right to food and respect for all human rights are proven ways to advance climate-resilient development;**

(b) **Take immediate, rights-based action to ensure that access to sufficient, safe, adequate and nutritious food is ensured for all people, everywhere, including by reducing climate impacts on food systems. States should take urgent action to reduce the climate impacts of food systems, including by transitioning to food systems that operate on the basis of natural processes, such as agroecology and ecosystem-based fisheries, and aquaculture management;**

(c) **End harmful agricultural subsidies that benefit large agribusinesses, phase out trade restrictions, particularly tariff barriers, and ensure equitable access to markets, including for peasants, small-scale farmers and fishers;**

(d) **Reassess land use, which often significantly contributes to the emission of greenhouse gases, in the national context. When possible, measures to reduce greenhouse gas emissions from land use should be considered, including by promoting deforestation-free value chains, leveraging the circular bioeconomy and taking advantage of natural synergies in food production methods (for instance, integrating animal husbandry and crop production) to restore degraded ecosystems. Measures to promote a shift in consumption towards more balanced diets, in national contexts, and enabling more equitable access to animal-source food between and within countries may also support sustainable land and natural resource management while promoting the right to adequate food;**

(e) **Ensure the rights of rural populations, notably women, peasants, small-scale farmers and fishers, pastoralists and Indigenous Peoples, including to access, own, use and manage land, territories and resources;**

(f) **Protect land and environmental human rights defenders – including Indigenous Peoples, local communities and peasants – prevent killings, attacks against and criminalization of land and environmental human rights defenders, and ensure accountability and access to justice and full reparations when their rights are violated;**

(g) **Ensure that climate mitigation and adaptation projects do not adversely affect human rights, including the right to food. The key role of rural populations, peasants, small-scale farmers and fishers, pastoralists, Indigenous Peoples and local communities in adapting to and mitigating climate change should be recognized and their meaningful and effective participation in climate action should be ensured;**

(h) **Increase climate financing for adaptation measures and those to address loss and damage – and therein for food systems transformation, including in the areas of agriculture, forestry, land use and sustainable use of ocean resources. International climate financing should be made accessible to local and national organizations and benefit the people who are most adversely affected by climate change and food insecurity;**

(i) **Participate in the United Nations Food Systems Stocktaking Moment, during which they should affirm their strengthened commitments to further the resilience of food systems, including through actions to combat climate change, biodiversity loss and pollution, as well as to promote social equity.**

56. **States and other stakeholders should include a human rights-based approach when assessing, developing and implementing measures that respond to scientific advances in understanding climate change and its impact, including on the right to food. States should consider requesting the support of OHCHR in the development of methodologies to assess the climate-related impacts of food production and the implications thereof on the realization of the right to food.**

57. **Businesses, including agribusinesses, should respect human rights, which entails avoiding infringing on the human rights of others and addressing adverse human rights impacts with which they are involved. In particular, they should limit their greenhouse gas emissions, restore degraded soil and watersheds and stop clearing new land for production. That requires conducting environmental impact assessments and comprehensive due diligence reviews for new projects.**

58. **The parties to the United Nations Framework Convention on Climate Change should consider food systems transformation as an integral part of climate mitigation and adaptation when formulating the outcomes and decisions of the sessions of the Conference of the Parties.**