

Ending hunger and achieving food security for all

Answers to the guiding questions - CBD

Key messages

- Biodiversity underpins essential ecosystem services — such as pollination, pest control, and nutrient cycling — that are critical for the productivity and sustainability of agriculture. SDG 15 should be seen as providing important synergies to achieving SDG 2 and not only trade-offs.
- Ending hunger and achieving food security for all can not be achieved without healthy ecosystems:
 - The post-2020 global biodiversity framework that will be adopted by the Convention on Biological Diversity in 2021, is an opportunity to build the resilience of our food systems by undertaking cross-sectoral and interdisciplinary actions to address inter-related environmental, health and development challenges.
- Production systems based on the conservation and sustainable use of biological diversity and traditional knowledge have the potential to offer invaluable benefits to nutrition and healthy diets, particularly, to vulnerable and marginalized groups.
- Biodiversity makes production systems and livelihoods more resilient to shocks and stresses — reducing its loss has long-term benefits for humans, ecosystems and animal health. It is a key resource in efforts to increase food production while limiting negative impacts on the environment.
- The total economic gains to society, from transforming the food and land systems, have been estimated to have the potential to reach \$5.7 trillion a year by 2030.¹

Guiding questions

1. **Which areas and socio-economic groups** are especially vulnerable to poor nutrition and food insecurity and what are ways to ensure that food systems transformations leave no one behind?
 - Those with the lowest income levels, vulnerable individuals and households who are already bordering poverty.
 - Nutrition-sensitive landscape approaches which focus on building diversity into landscapes and food systems to improve food diversity at the production level, and multiple sources of nutrients as well as vital ecosystem services, are tools to influence supply chains, as are nutrition-sensitive value chains, to increase access to, affordability of, and demand for nutritious foods sourced from sustainable production and food systems while ensuring that no one is left behind.
2. **What fundamental changes are needed** to make our food systems an engine for inclusive growth and contribute to accelerating progress towards ending hunger and achieving food security for all in the Decade of Action?
 - SDG 15 largely supports sustainable agricultural production and genetic diversity.
 - However, the current dominant model of agricultural production is detrimental both to our health and to the natural systems that we rely on.
 - Food systems should be an engine for **both inclusive and sustainable growth**. Some of the fundamental transformations required by our current food systems include:
 - Recognizing the role of biodiversity in underpinning the productivity and resilience of agricultural and other ecosystems.

¹ See: The Food and Land Use Coalition. 2019. Growing Better: Ten Critical Transitions to Transform Food and Land Use

- Increasing the adoption of nature-based solutions, by mainstreaming biodiversity into agricultural policies.
- Promoting agricultural systems that are both productive and regenerative, combining techniques, such as crop rotation, integrated pest management, controlled livestock grazing systems, conservation agriculture and agroforestry, with technologies that can support more judicious use of inputs including land, water and synthetic and bio-based fertilisers and pesticides².
- Promoting more diversified healthy diets to reduce biodiversity loss and improve nutrition and dietary health.
- Reducing food waste and loss — 28% of the world's agricultural area is used annually to produce food that is lost or wasted, that is around 1.4 billion hectares of land³.
- Improving biodiversity benefits from initiatives in supply chains by improving biodiversity criteria in standards for sustainability and increasing market share

a) How could they be designed and implemented to generate synergies and strengthen existing ones with other Goals and Targets?

- **For SDG 2 and SDG 15 to become mutually reinforcing, agricultural systems need to maximize their productivity without adversely impacting land, water and biodiversity and without further habitat loss, ecosystem degradation and associated biodiversity losses and climate change impacts. The following can help in the design and implementation of policies to create and strengthen synergies**
 - **Decentralized solutions: Focus on decentralized solutions, such as agriculture that is interwoven with natural corridors and national policies that regulate equitable access to food⁴:**
 - i. **Agroforestry is reported to be increasing in every region of the world: it is estimated that more than 5 million km² of agricultural land (23 percent of the total) have at least 20 percent tree cover. Global recognition of the contributions of agroforestry has increased over the past decade, as has the mainstreaming of agroforestry into development and environmental agendas and appreciation of its potential impact on rural livelihoods, climate-smart agriculture, biodiversity conservation and land restoration (synergies between SDG 1, SDG 2, SDG 13 and SDG 15).**
 - **Consumption Change: Focus on changes in human consumption patterns, most notably by promoting a more diverse and healthy diet and by promoting efforts to reduce losses in food systems³.**
 - **Mobilizing finance by improving the business case for biodiversity and green investments: This requires anchoring natural capital in companies' non-financial reporting to influence the decisions made by executives and investors and shifting sectoral investment flows into a more biodiversity-friendly direction³.**
 - **Developing and implementing incentives: Incentives will need to encourage the adoption of biodiversity-friendly practices and remove or reduce perverse incentives that are harmful to biodiversity, taking into consideration the needs of farmers, rural small-holders, land managers, indigenous people and local communities and other stakeholders:**
 - i. **Worldwide, there is a growing number of good examples of national initiatives to reverse the effects of unsustainable agricultural subsidies. These range from the abolishment of a pesticide subsidy scheme in Indonesia or the removal of subsidies for wetland drainage in Austria to adjustments in India's intergovernmental fiscal transfer system that are designed to encourage forest conservation.**

² Ibid.

³ <http://www.fao.org/news/story/en/item/196402/icode/>

⁴ Based on Copper and Coates. 2015. Agriculture, biodiversity and sustainable development: scenarios and policy options.

- **Nature based solutions (NBS):** NBS can be designed to simultaneously deliver on multiple goals creating synergies and co-benefits related to food security, climate change, restoration and conservation of ecosystems.
 - i. The restoration and sustainable management of ecosystems have proven to be a cost-effective, safe and immediately available means of sequestering carbon and preventing the emission of greenhouse gases.⁵ Creating synergies between SDG 13 and 15 and with potential synergies with SDG 2.

b) What are some of the possible trade-offs from these changes and how can they be mitigated?

- Thriving ecosystems are key for the achievement of food security, while greater genetic diversity in the crops we grow can increase yields and improve nutritional quality of foods.
- However, increased agricultural production and productivity, if not sustainable, can result in biodiversity loss, deforestation and land degradation, jeopardising long term food security. A careful balance is needed between achieving food for all and conserving and restoring ecosystems.
- Tools and methodologies to identify, manage and mitigate trade-offs are readily available, for example the Economics of Ecosystems and Biodiversity' (TEEB) for Agriculture and Food, the FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors, the Agrobiodiversity Index.
- Given the growing evidence of the key role of biodiversity for food security and nutrition⁶, for example, the global economic value of pollinators to the agricultural sector, has been estimated at between 235 and 577 USD billion annually⁷, a better understanding of the complex and intertwined nature of food systems is needed to understand the outcomes and impacts of policy decisions across sectors, over time and in space to mitigate and avoid trade-offs when possible.

3. **How might COVID-19 facilitate or complicate** the implementation of needed food systems changes?

a) Will it aggravate and/or reduce vulnerabilities?

- So far there is no evidence of COVID 19 facilitating implementation of food systems transformations or reducing vulnerabilities. Its impact on vulnerable individuals and households who are already bordering poverty may actually widen inequality gaps and even entrench people in poverty.

b) What are the changes in design and implementation of policies affecting food systems which are necessary to prevent and better deal with food security and nutrition impacts of infectious disease outbreaks and pandemics in the future?

- **Government stimulus packages should aim to “build back better” and should not support sectoral behavior that lead to further environmental degradation.**
- **Investments should focus in promoting resilient food systems that help rebuild natural capital and strengthen food supply chains (locally, regionally and globally).**
- **Large investments in regenerative practices, such as agroforestry, silvo-pasture and mangrove restoration, can play key roles in preventing disasters, improving the livelihoods of vulnerable communities, and deliver benefits in terms of reduced emissions. Importantly, such actions could**

⁵ Epple, C., García Rangel, S., Jenkins, M., & Guth, M. (2016). Managing ecosystems in the context of climate change mitigation: A review of current knowledge and recommendations to support ecosystem-based mitigation actions that look beyond terrestrial forests. Technical Series No.86. Secretariat of the Convention on Biological Diversity, Montreal.

⁶ See also FAO. 2019. The State of the World's Biodiversity for Food and Agriculture.

⁷ IPBES (2016). The assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production

provide large-scale employment generation and help reset local economies after the shocks of COVID-19⁸.

- Policies can be designed considering the One Health approach which is an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes.
 - The Secretariat of the Convention on Biological Diversity has worked closely for many years with the World Health Organization, and a wide range of partners, to promote whole-of-government, whole-of-society integrated approaches, that prioritize prevention. At its last meeting of the Conference of the Parties, the CBD Parties adopted biodiversity-inclusive One Health Guidance to assist countries in implementing such integrated, interdisciplinary and cross-sectoral approaches to health.

c) What of the current immediate actions we are seeing will contribute to the long-term resilience of food systems?

- Countries all over the world have undertaken actions such as:
 - aid packages for farmers and food processors;
 - direct transfers to vulnerable and low-income individuals;
 - linking all sectors of society to ensure food security.
- These actions demonstrate that unprecedented and interrelated challenges demand concerted action, however these should be underpinned by the recognition that there is a need to fundamentally transform our relationship with the natural world to reduce the risk of future pandemics.

4. **What knowledge and data gaps need to be filled** for better analyzing current successes and failures in food systems and the trade-offs and synergies, across SDGs, in implementing food systems changes to fix these failures?

- Over 90% of the world's cultivated plants are not only threatened, but under-researched and poorly integrated in markets and diets, and as many are underutilized animal source foods — this means there is great potential to leverage the multi-faceted health benefits of biodiversity.
- Appropriate monitoring systems at the correct scales are required to understand how agriculture impacts on land degradation and biodiversity loss.
- Developing landscape-scale management approaches to address some of the trade-offs between biodiversity conservation and agriculture development need to be further developed and strengthened.
- Shifting from trade-offs to synergies requires knowledge of where synergies are possible but also political processes that support a redistribution of benefits and costs across different groups locally and globally, and between the long and short terms. It also requires innovative technologies, multidisciplinary interventions, and institutions that are geared to capturing synergies rather than maximizing individual objectives⁹.
- Data is needed to explore interlinkages across environmental areas together with social and economic information in order to produce insights. There is a need not only for national level statistics, but for geospatial data and data which can be disaggregated for vulnerable populations.
- Governance can play a significant role in developing and deepening the knowledge on the interactions between SDG 2 and SDG 15. For example, the Convention on Biological Diversity requires to integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies. The National Biodiversity Strategies and Action Plans (NBSAPs) are important programme and planning instruments that help analyze and foster synergies or mitigate trade-offs.

⁸ <https://bit.ly/2X2kjAe>

⁹ FAO. 2014. Building a common vision for sustainable food and agriculture. Principles and approaches.

5. **What partnerships and initiatives are needed** to harness synergies and/or reduce trade-offs in food systems?
- a) What are the most critical interventions and partnerships needed over next 2 years, 5 years, 10 years?
- **Next 2 years:** More comprehensive biodiversity mainstreaming innovations, investments in sustainable and diverse production landscapes and a whole of government and whole of society approach to make food systems more resilient, inclusive and sustainable.
 - **Next 5 years:** Multi stakeholder partnerships that can simultaneously deliver and address multi-dimensional challenges in nature and development.
 - **Next 10 years:** achievement of global commitments, including the SDGs, the post-2020 global biodiversity framework and the Paris Climate Agreement.
- b) Can these be scaled up or adjusted to fit other contexts?
- All levels of the food system need to be transformed, from production to distribution to consumption but recognizing the role of biodiversity in underpinning the productivity and resilience of agricultural and other ecosystems in a critical first step.
 - The post-2020 global biodiversity framework can play a significant role in building the resilience we need in the face of growing environmental, health and development challenges and in scaling up actions by:
 - Creating incentives for farmers to adopt biodiversity-based techniques
 - Promoting the strengthening of environmental regulations to ensure habitat degradation and contamination are halted.
 - Promoting investments in local food systems and develop regional food supply chains
 - Educating citizens to cut food waste and improve consumption patterns
 - Production systems that support biodiversity and harness its power should be encouraged. There are many different biodiversity-based farming techniques, like agroforestry, agroecology, conservation agriculture and silvopasture. Biodiversity based production systems have the capacity to produce food and secure livelihoods while minimizing the cost to the environment. In addition, these diversification practices cut costs for farmers, because they rely less on external inputs.
 - Countries that grow a greater diversity of crops also generate more jobs, due to a higher diversity of employment niches. They also benefit from more stable yields through time, leading to greater food security.
 - Improving efficiency in the use of resources is crucial to sustainable agriculture. Current food supply chains are long and not resilient and flexible to shocks, as we have seen during this pandemic. We need to create shorter, more local and resilient supply chains that can adapt more easily to changes. Shorter supply chains also mean less packaging and travel emissions and strengthens the roles of farmers in our food systems.
- c) How can private sector support investments for sustainable agriculture production and supply reduce food insecurity?
- **The private sector can support investments that:**
 - support more inclusive market structures, enabling smallholders to engage and participate in value chains;
 - create additional market opportunities and demand for products that are biodiversity friendly;
 - increase consumers' awareness on the benefits of diverse diets;
 - promote expansion of local supply to meet local demand as this will diversify the number of crop varieties grown at a global level and increase resilience
 - Although the private sector will play a key role, these approaches will require the engagement of all stakeholders and active participation of indigenous peoples and local communities, women and youth.

The role of indigenous peoples and local communities in preserving local biodiversity is also widely recognized and can play an important role in transforming our food systems

- **Increasing consumers' awareness on the benefits of diverse diets and leveraging peoples' attachment to food cultures and traditions will be important to increase demand for more nutrient-rich and diverse food.**
- **Informed citizens can make better decisions— strengthening the buyer's and consumer's perspective on biodiversity by raising awareness of the impacts of different products as well as the importance of biodiversity for food security and healthy diets will play a significant role in transforming the food system.**