



Food and Agriculture
Organization of the
United Nations



Convention on
Biological Diversity

Global Dialogue on the Role of Food and Agriculture in the Post-2020 Global Biodiversity Framework

6-7 July 2021

SUMMARY REPORT OF THE VIRTUAL MEETING



Global Dialogue on the Role of Food and Agriculture in the Post-2020 Global Biodiversity Framework

6-7 July 2021

SUMMARY REPORT OF THE VIRTUAL MEETING

Required citation:

FAO. 2021. *Global Dialogue on the Role of Food and Agriculture in the Post-2020 Global Biodiversity Framework – Summary Report of the Virtual Meeting 6-7 July 2021*. Rome, FAO. <https://doi.org/10.4060/cb7030en>

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

ISBN 978-92-5-135047-8

© FAO, 2021



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original [Language] edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

Sales, rights and licensing. FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org. Requests for commercial use should be submitted via: www.fao.org/contact-us/licence-request. Queries regarding rights and licensing should be submitted to: copyright@fao.org.

Contents

| | |
|---|-----|
| Acknowledgements | vi |
| Acronyms and abbreviations | vii |
| 1. Introduction | 1 |
| 2. Highlights from the Global Dialogue | 3 |
| 3. References | 27 |
| Appendix 1: Full programme | 31 |
| Appendix 2: Speakers..... | 35 |
| Appendix 3: Joint Report of the Co-chairs | 37 |



Acknowledgements

This report is part of a series of global knowledge products developed under the Multi-Donor Trust Fund project GCP/GLO/981/MUL. FAO acknowledges the financial contributions of the Kingdom of the Netherlands and the Swiss Confederation.

Acronyms and abbreviations

| | |
|---------|---|
| AU | African Union |
| CBD | Convention on Biological Diversity |
| CEO | Chief Executive Officer |
| CIFOR | Center for International Forestry Research |
| COAG | Committee on Agriculture |
| COFI | Committee on Fisheries |
| COFO | Committee on Forestry |
| COP | Conference of the Parties |
| COP 15 | 15th Conference of the Parties to the Convention on Biological Diversity |
| COP 26 | 26th Conference of the Parties to the United Nations Framework Convention on Climate Change |
| EMBRAPA | Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária) |
| FAO | Food and Agriculture Organization of the United Nations |
| GBF | Global Biodiversity Framework |
| GDP | gross domestic product |
| GEF | Global Environment Facility |
| GIAHS | Globally Important Agricultural Heritage System |
| ICRAF | World Agroforestry |
| IFAD | International Fund for Agricultural Development |
| IPBES | Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services |
| IPPC | International Plant Protection Convention |
| OEWG | Open-Ended Working Group |
| SADC | Southern African Development Community |

| | |
|--------|---|
| SDGs | Sustainable Development Goals |
| SOFO | State of the World's Forests |
| SUN | Scaling Up Nutrition |
| UN | United Nations |
| UNEP | United Nations Environment Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WWF | World Wildlife Fund |

1. Introduction

Achieving food security and improved nutrition for all depends on biodiversity. However, despite global efforts spanning several decades, biodiversity continues to be eroded. As the demand for agriculture¹ and agricultural products grows, the role of the agricultural sectors in securing the sustainable use and conservation of biodiversity will become even more significant.

The recent adoption by FAO's Governing Bodies of FAO's *Strategy on Mainstreaming Biodiversity across Agricultural Sectors* (Biodiversity Strategy) and the Action Plan for its implementation is a testament to the importance FAO Members attach to biodiversity.

While there are many examples of success, biodiversity and the ecosystem services that it provides are declining globally at rates unprecedented in human history, with growing adverse effects on people and the planet (FAO, 2019a; 2019b; IPBES, 2019; FAO, 2020a; 2020b; FAO & UNEP, 2020).

The COVID-19 pandemic has further highlighted the planetary emergency of inter-related global challenges of biodiversity loss, climate change, land degradation and health crises. It is a reminder that the destruction of biodiversity and degradation of ecosystems undermine the web of life and increase the risk of disease spillover from animals to people. It also put the spotlight on the role of food systems, and it underlined the fact that 'green' responses to the pandemic provide a unique opportunity for transformative change, and the many solutions that already exist, including in food systems. An investment in biodiversity and the health of our planet is an investment in humanity's future.

The 15th meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) is expected to adopt a Post-2020 Global Biodiversity Framework (GBF) with goals and targets that contribute to the 2030 Agenda for Sustainable Development and place the global community on a path towards realizing the 2050 vision for biodiversity of "Living in Harmony with Nature". The design and effective implementation of this framework must bend the curve of biodiversity loss, put nature on a path to recovery and meet the Sustainable Development Goals (SDGs).

FAO continues to support the process of developing a robust Post-2020 GBF. In its contributions, FAO highlights the dependence of agricultural sectors on biodiversity and the ecosystem services it provides; the positive contributions of biodiversity to securing food, nutrition, and livelihoods; and, reciprocally, the important role of the food and agricultural sectors for the sustainable use, enhancement, conservation, and restoration of biodiversity as a whole.

Within FAO, biodiversity and ecosystem services became a cross-cutting programme in the new Strategic Framework, strengthening transformative change in food systems to:

- Support the enhanced use of biodiversity as part of the solutions for sustainable production for world food security and healthy and nutritious diets;
- Promote measures to reduce food loss and waste;
- Minimise the negative externalities of agricultural sectors on biodiversity by encouraging the judicious use of inputs and improving management of land, freshwater and marine ecosystems, and;
- Increase efficiency and inclusiveness across food value chains.

¹ The term "agriculture" and its derivatives include crop and livestock production, fisheries and aquaculture, marine products, forestry and primary forestry products.

The Global Dialogue and the High-Level Segment

The Global Dialogue was co-organized by FAO and the Secretariat of the CBD and conducted virtually on the 6-7 July 2021. The Global Dialogue provided a forum to highlight the role and facilitate the engagement of the food and agriculture sectors in the Post-2020 GBF. The agenda is contained in Appendix 1.

The Global Dialogue featured 36 speakers from across the crop, livestock, forestry, fisheries, and aquaculture sectors, including leaders and champions of biodiversity in policy, science, and practice, representing a wide range of stakeholder groups and world regions. More than 950 participants contributed to the Dialogue, including by submitting questions for panellists and speakers, through discussion in the webinar chat, and by responding to online polls. The Global Dialogue concluded with a High-Level Segment on initiatives and approaches to mainstream biodiversity in the food and agricultural sectors, featuring the participation of ministers and representatives of regional organizations and international development institutions.

The conclusions of the Dialogue and the outcome of the High-Level Segment will feed into the ongoing CBD negotiations of the Post-2020 GBF and the UN Food Systems Summit.

One of the main outputs of the Dialogue is the Joint Report of Co-Chairs, reflecting the main themes and messages raised by speakers and through the discussions (available at Appendix 3). The report will be brought to the attention of the CBD Post-2020 processes and other relevant fora.

2. Highlights from the Global Dialogue

Day 1, Opening Session

The Global Dialogue was formally opened by the Director-General of FAO, **QU Dongyu**, and the Executive Secretary of the Convention on Biological Diversity, **Elizabeth Maruma Mrema**. The Opening Session was facilitated by FAO's Deputy Director-General, **Maria Helena Semedo**.

Director-General QU opened the Dialogue by emphasizing the essential contribution of biodiversity to food security and food diversity. To meet the growing demand for agricultural products, agri-food systems² need to conserve biodiversity, sustainably manage natural resources, and protect and restore ecosystems. The Director-General underlined that there is no healthy food without a healthy environment; the sustainable use, restoration, and conservation of biodiversity is critically important to FAO's work. This is reflected in FAO's new Strategic Framework for Better Production, Better Nutrition, a Better Environment, and a Better Life, and the FAO Strategy and 2021-23 Action Plan on Mainstreaming Biodiversity across Agricultural Sectors (FAO, 2020c; 2021). The Director-General further highlighted the need for collaboration in defining the role of food and agriculture in the Post-2020 GBF. The agricultural and environmental sectors need to listen to each other and the world's family farmers, Indigenous Peoples, small-scale producers, fisherfolk, livestock keepers and foresters must be included. The Global Dialogue serves exactly that purpose.

In her opening remarks, Executive Secretary Maruma Mrema also noted the vital role of biodiversity in supporting production – and the role of food and agriculture in conserving and sustainably managing biodiversity. It is not only about crops, livestock, forestry, and fisheries species, but also about all species in between that deliver vital functions that keep our ecosystems productive and healthy. There is strong evidence that sustainably managed production systems can support and enhance biodiversity and productivity. Moreover, an increasing number of policies are successfully supporting biodiversity. For example, policies promoting sustainable fisheries management and addressing unregulated fisheries have been effective. Nevertheless, despite progress, none of the Aichi targets were fully met. In designing the Post-2020 GBF, we must apply the lessons from the past decade. It is important to address direct and indirect drivers of biodiversity loss, including through integrated and holistic approaches. The role of gender, Indigenous Peoples, and local communities will also be critical. In particular, the GBF needs to better address the agricultural sectors, including fisheries, genetic diversity, soil biodiversity, and food systems as some examples. In this context, the Global Dialogue provides an important opportunity for all actors to join in a meaningful discussion around how the Post-2020 GBF can promote sustainable and biodiverse production systems.

Day 1, Session 1: Meeting People's Needs through Sustainable Use of Biodiversity

The first session was co-chaired by **H.E. Marie-Therese Sarch**, the Ambassador and Permanent Representative of the United Kingdom of Great Britain and Northern Ireland to FAO, and **H.E. Thanawat Tiensin**, the Ambassador and Permanent Representative of Thailand to FAO.

² The agri-food 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 also encompasses non-food products that also constitute livelihoods and all of the people as well as the activities, investments and choices that play a part in getting us these food and agricultural products. In the FAO Constitution, the term "agriculture" and its derivatives include fisheries, marine products, forestry and primary forestry products.



The first keynote and group of panellists focused on the links between people and biodiversity.

The opening **keynote speech** was made by United Nations Assistant Secretary-General Gerda Verburg, who is the Coordinator of the Scaling Up Nutrition (SUN) Movement. Ms Verburg set the context for the Global Dialogue by outlining the ways in which our current food systems are failing to deliver adequate nutrition, bankrupting our health systems, and exhausting our biodiversity and natural resources. To reverse this situation, immediate priorities include addressing food loss and waste, rewarding producers for positive contributions to the sustainable management of biodiversity, and addressing inequalities in food systems that prevent women and youth from fully participating. Underlying these actions, shifts in mindset are required. We need to shift focus from “feeding the world” by producing more calories, to concentrate on healthy nourishment, diet quality, and building resilient communities where food producers, women, and young people have livelihood opportunities to earn a decent income. Innovations will play an important role, but they need to be applicable to the local context, user friendly, and widely accessible. Youth need to be present at the decision-making table, and to be taken seriously. By working together and focusing on the connections between biodiversity, food and nutrition, we can find new win-win solutions to improve food systems and catalyse the implementation of all 17 SDGs – but there is a need to step out of our comfort zone, leaving our dogmas, egos, and logos behind.

Julia Fa, Professor of Biodiversity and Human Development at Manchester Metropolitan University and CIFOR, presented an overview of issues related to sustainable wildlife management. The use and trade of wild meat from over 600 vertebrate species makes a significant contribution to food security, nutrition, and livelihoods, especially in the tropics and sub-tropics (providing more than 50 percent of protein intake for many communities) (Redmond *et al.*, 2006). She highlighted that hunting, herding, and fishing are important cultural practices for many Indigenous Peoples. Alongside threats from habitat destruction, wild meat is increasingly overexploited because of uncontrolled hunting, endangering species that are critical for ecosystem function, and threatening food security, nutrition, and livelihoods. It is also important to be aware of the health risks from wild meat associated with the spill-over of zoonotic pathogens. Ensuring the sustainability of wild meat depends

on improved management practices, reducing demand for unsustainably harvested wild meat, developing a controlled and sustainable wild meat sector, and protecting customary use according to cultural practices and sustainable use requirements.

The Special Envoy for International Sustainable Agriculture from the Swiss Federal Office for Agriculture, **François Pythoud**, outlined the role of genetic resources for food and agriculture. He reminded us that genetic resources for food and agriculture are the basis of all food production and they have been created and maintained by people over millennia. Two priorities were identified for the transformation of food and agriculture towards sustainability: (i) Reducing threats to biodiversity from conventional agriculture, and (ii) the ecological intensification of agriculture, including through agroecological approaches. Both priorities depend on access to a wide range of genetic resources. The Post-2020 GBF can support these transformations by strengthening measures to stop the erosion of genetic resources and including area-based targets on the sustainable use of biodiversity in human managed ecosystems. The involvement and reconnection of actors along the value chain is key to set the right incentives and ensure fair incomes and livelihoods for producers. An international reference framework for measuring the sustainability footprint of food and agriculture systems is a priority, including recognised criteria and indicators on biodiversity. FAO's Strategy and its 2021-23 Action Plan on Biodiversity, as well as the Global Plan of Action on Biodiversity for Food and Agriculture which is currently under negotiation within the FAO Commission on Genetic Resources, will provide instruments that can support the implementation of the Post-2020 GBF in the food and agriculture sectors.

Tony Simons, Director General of World Agroforestry (ICRAF) and Executive Director of CIFOR-ICRAF, spoke about the complex interactions between agriculture, forests, trees outside forests, biodiversity and people. He asserted that forests and biodiversity have been neglected at the international level, even though they provide habitat for around 80 percent of terrestrial biodiversity (FAO, 2020a). Part of the problem has been the binary framing of agriculture (and its benefits to people) versus biodiversity (focused on wild habitats). The Post-2020 GBF gives us an opportunity to change this by thinking differently about how we connect different land uses, land users, and resources, and by seeking synergies between agricultural and biodiversity goals. Mr Simons highlighted that there is no net zero in biodiversity – we cannot afford to offset losses in one area by gains in another. Absence of information and options for biodiversity-based solutions and regenerative practices is no longer a barrier with many knowledge resources available, including databases, applications, maps, guidelines, analysis packages, and other tools. However, nothing will change without stronger partnerships between agriculture and biodiversity, including more voice and more participation from civil society and the private sector.

During the first **panel discussion**, participants and panellists highlighted the important role of Indigenous Peoples and traditional knowledge in protecting areas with a high ecological value. They need to be better supported as guardians and stewards of biodiversity. Indigenous Knowledge is also a key source of innovation for sustainable agriculture.

Shifting consumption patterns towards sustainable food and nutrition was another common theme. Transitions to sustainable alternatives (e.g. consumption of insects as source of food, sustainable fisheries, etc.) have an important role to play but improving the efficiency of food systems by reducing food loss (predominantly in the global South) and food waste (predominantly in affluent societies) is also critical.

Improved metrics for biodiversity were identified as a priority to inform public and private investments, measure relative performance, track progress against targets, and communicate to consumers. New geospatial techniques allow for low-cost proxy measures of biodiversity that go beyond species richness.

There was broad agreement that the success of the Post-2020 GBF will depend on adequate financial support and investment. There was a consensus that public support to agriculture should be reoriented in favour of public goods, biodiversity, and ecosystem services. OECD estimates indicate that of USD 720 billion provided annually in public support to agriculture, only 17 percent is delivered in ways that promote sustainable production and

resilience, and only 5 percent of public support is provided as green subsidies (OECD, 2021). Other suggested options to increase the financial basis for the work to be done included more partnerships with the private sector and developing innovative mechanisms (e.g. emissions taxes, carbon markets).

Finally, the panel offered some general conclusions to guide the development and implementation of the Post-2020 GBF:

- Landscape health, environmental health, and human health are deeply interconnected and a shift from sectoral to integrated approaches is still needed.
- There is not one single solution, and specific solutions need to be adapted to different regions, countries, and localities. Communities need to be included and empowered to contribute to sustainable solutions from the bottom up.
- All actors interested in transforming food systems towards a more sustainable system were challenged to open up to different perspectives. It is important to understand producers needs and to consider their realities.

The second panel explored different management aspects of biodiversity.

Luca Montanarella, who is a Senior Expert at the European Commission's Joint Research Centre, spoke about soil biodiversity and the multiple ecosystems services it provides as the basis for healthy food production and healthy people. Although there is more biodiversity in the soil than above-ground, it is often a forgotten aspect. The comprehensive *State of Knowledge of Soil Biodiversity* report, published by FAO and partners, gives a full picture of what is known about soil biodiversity, including threats to soil biodiversity (e.g. contamination, erosion, loss of soil organic carbon, unsustainable agricultural practices) and where the remaining knowledge gaps are (FAO *et al.*, 2020). We now need to act to recognise and protect soil biodiversity as the basis of food production and an important carbon sink. Soil biodiversity needs to be considered in policies, including those related to food security and food safety.

The Director-General of the International Fertilizer Association, **Alzbeta Klein**, recommended implementing regionally customised solutions for sustainable nutrient management. Fertilizer use has increased agricultural yields in many parts of the world, resulting in economic development but also contributing to biodiversity loss and ecosystem degradation. There is no single solution to address biodiversity losses, and a holistic and balanced approach is necessary, including regional or national sustainable nutrient management plans, alongside sustainable intensification based on good management practices, and environmental and forest protection policies to reduce land conversion. Financial solutions and incentives are necessary to support producers to change practices and optimise nutrient use.

Andrew Cunningham, Professor of Wildlife Epidemiology and Deputy Director of Science at the Zoological Society of London, discussed issues related to biodiversity and One Health. A key message was that biodiversity conservation and safeguarding public health are inextricably linked through a range of complex ecological and socio-economic pathways. Many drivers of biodiversity loss, such as habitat destruction, wild animal hunting, and wildlife trafficking, are also drivers of zoonotic disease emergence. To mitigate zoonotic disease risks from wild meat, the illegal wildlife trade needs to be stopped and the legal wildlife trade needs to be regulated (e.g. improving animal welfare, minimising transport distances, banning co-housing of different species, reducing time to slaughter). The rich mosaic of species that occurs in undisturbed ecosystems inhibits opportunities for pathogens to build up into high numbers across animal populations, thus limiting the degree of human exposure to any particular wildlife pathogen. Habitat conversion removes the protective effect of high biodiversity, increases the proportion of remaining pathogens that are zoonotic, and increases human-wildlife contact. Hence, habitat destruction is a lose-lose-lose situation when it comes to zoonotic disease emergence. The

biggest driver of habitat destruction is agriculture. It was suggested that reducing consumption of meat and dairy, where appropriate, would reduce land-use pressure.

The Secretary General of the Asian Farmers' Association for Sustainable Rural Development, **Estrella Penunia**, outlined the multiple contributions of family farmers to the sustainable use and conservation of biodiversity. Family farmers account for more than 90 percent of all farms and produce more than 80 percent of the world's food in value terms. Of these, small family farms of less than 2 ha account for 84 percent of all farms, occupying 12 percent of agricultural land (Lowder *et al.*, 2021). These family farmers are the custodians of biodiversity. They manage natural resources and ecosystems, preserving and promoting biodiversity through integrated, diversified, and agroecological production systems. Family farmers also preserve and share traditional knowledge on food systems. Three enablers were identified for inclusive and diversified production systems: (i) empowerment and agency for small-scale family farmers, fisherfolk, livestock breeders and pastoralists, and forest-based producers; (ii) appropriate, coherent, aligned policies that direct investments, research, and incentives towards diversified agroecological production; (iii) inclusive partnerships where family farmers are treated as equal partners rather than beneficiaries of government support.

The **second panel discussion** highlighted the need for context-specific solutions, adapted to different regions, countries, and food systems. Once again, the need for holistic approaches that combine multi-disciplinary knowledge was reinforced.

Soil contamination, including from micro-plastics, was identified as a significant problem in many parts of the world. In the past, soils have been treated as a sink for dumping waste. Awareness raising is needed to highlight the problem and shift attitudes towards soil biodiversity and soil health.

The need for more balanced diets, combining plant- and animal-based protein, was discussed with different viewpoints expressed. Some participants and panellists commented that any recommendations to reduce consumption of livestock products should focus on areas of the world with high levels of consumption and no shortage of alternative protein options. The contribution of livestock products to nutrition, climate resilience, and livelihoods was also discussed. It was noted that there will be winners and losers from policy and structural changes and impacts on livelihoods need to be managed. The importance of soil health was again reinforced, with the majority of plant-based proteins coming from pulses, which have a symbiotic relationship with nitrogen-fixing bacteria in the soil.

The following interventions were identified as options to support shifts to sustainable alternatives:

- Develop supportive markets.
- Provide information and awareness on the nutritional and sustainability benefits of alternative, sustainable food sources and production systems.
- Provide knowledge and technical support at different stages of the value chain.
- Provide financial incentives for producers that implement biodiversity-friendly practices and reward consumers for making sustainable choices.
- Shift public support towards research, education, and incentives that support diversified production systems, ecosystem services, and agroecological approaches.
- Demonstrate solutions through a dense network of lighthouses and living labs, involving local communities in the process.
- Give local communities ownership of their solutions and provide them with the support needed to succeed (e.g. to promote sustainable wild meat harvesting).



Day 1, Session 2: Mainstreaming Biodiversity for the 4 Betters: Better Production, Better Nutrition, a Better Environment, and a Better Life

The second session was co-chaired by **H.E. Nosipho Nausca Jean Ngcaba**, the Ambassador and Permanent Representative of South Africa to FAO, and **H.E. Miguel Jorge García Winder**, the Ambassador and Permanent Representative of Mexico to FAO.

The first keynote and group of panellists discussed human-rights based approaches, and ecosystem, landscape, and seascape approaches to the sustainable management of biodiversity.

In his **keynote speech**, the United Nations Special Rapporteur on human rights and the environment, **David Boyd**, recalled the powerful role that human rights have played over the course of history in inspiring social change. However, the human rights to life, health, food, a healthy environment, water, an adequate standard of living, and culture are threatened and violated by the current unprecedented rates of biodiversity loss. Indigenous Peoples and local communities are disproportionately harmed by ecosystem degradation and biodiversity loss. Conversely, when empowered to do so through recognition of their rights, Indigenous Peoples, local communities and family farmers can make enormous contributions to conserving and sustainably using biodiversity. There is an implementation and enforcement gap for international agreements, such as the Aichi targets, in which States are failing to implement by not giving appropriate urgency to the issue. Instead, they are encouraging more damage to nature. Annual spending on agricultural subsidies that harm nature is vastly greater than spending to protect biodiversity. States should apply a rights-based approach to all aspects of conserving, protecting, restoring, using, and benefitting from healthy ecosystems and biodiversity, implementing everyone's right to a healthy and sustainable environment. We need to act urgently to address the climate and biodiversity crises and avoid future pandemics. States must implement actions such as carbon neutral and nature positive economic recovery plans, transform food systems towards sustainability, and accelerate actions to protect and conserve nature. Ensuring that food systems uphold the right to food for all and conserve biodiversity is not an option, but an obligation based on national and international human rights law.

The President and CEO of EcoAgriculture Partners, **Sara Scherr**, provided an overview of integrated landscape and seascape management as key tools to support biodiversity. To sustain thriving populations of wild biodiversity requires large landscapes including adequate areas of natural habitat and ecological networks in and around farms and settlements. In turn, good management of biodiversity and ecosystems supports food production by securing water resources, controlling pests, enhancing climate resilience and enabling new markets for sustainable products. This can only be achieved by collaborative action and spatial planning at the scale of landscapes and seascapes, with solutions rooted in the local economic, social, cultural, and political context. Integrated landscape management is complex and most of our existing institutions are organized in silos to work on specific parts of a landscape. However, over the last few decades thousands of local landscape partnerships have emerged. We can draw on their experiences to scale action at the landscape scale. Despite their diversity, successful landscape partnerships have the following key features: (i) multi-stakeholder partnerships for long-term learning, negotiation, and action; (ii) long-term vision and defined landscape goals agreed by the partners; (iii) promotion of practices with both food security and biodiversity benefits; (iv) spatial planning to promote land-use synergies across the landscape; (v) and policy and market interventions that provide incentives for stewardship. Among the transformative actions to scale up landscape partnerships, Ms Scherr highlighted the endorsement of landscape approaches in public policy to institutionalise technical and support services (e.g. train facilitators, build market capacities, invest in research) and contribute to long-term financial support.

Building on the themes of landscapes and ecosystem services, Professor **Lucas Garibaldi** from the Universidad Nacional de Río Negro, Argentina, spoke about the power of pollinators. Mr Garibaldi demonstrated how the degradation of the environment caused by unsustainable agricultural practices impacts on bees and other



Photo (clockwise): David Boyd, United Nations Special Rapporteur on human rights and the environment; Sara Scherr, President and CEO, EcoAgriculture Partners; Ray Hilborn, Professor of Aquatic and Fishery Science, University of Washington, USA; Lucas Garibaldi, Professor, Universidad Nacional de Rio Negro, Argentina. ©FAO

pollinators, and their habitats, which in turn has negative consequences for agricultural production (Garibaldi *et al.*, 2011). Many crops benefit from animal pollination, in particular bee pollination, to produce seeds or fruits. Studies have shown that through better management of crop pollination, yields can be improved by 24 percent per hectare (Garibaldi *et al.*, 2016). A diversity of pollinators, including managed populations of bees, but also wild pollinators (Garibaldi *et al.*, 2013; Garibaldi *et al.*, 2015) is important for the delivery of pollination services. To preserve and promote the activity of pollinators in agricultural landscapes, it is important to provide habitat (Blaauw *et al.*, 2014) within agricultural areas as well as in natural and semi-natural areas. Those actions are important to guarantee food production and food sovereignty.

Ray Hilborn, Professor of Aquatic and Fishery Science at the University of Washington, USA, provided further examples of ecosystem-based management in the fisheries sector. All food production has impacts on biodiversity through habitat conversion, water use, pollution, carbon emissions, and direct exploitation. However, contrary to the public perception, fishing has a lower relative impact than many other threats to oceans (e.g. temperature rise, acidification, nutrient pollution). Effective fisheries management has proven successful in reducing threats to biodiversity. Limiting catch and fishing effort through fisheries management allows populations to recover. Changes in fishing gear and methods can effectively reduce bycatch of non-target species. Vulnerable marine ecosystems can be protected when they are mapped, and bottom-contact gear eliminated (Thompson *et al.*, 2016; Buhl-Mortensen *et al.*, 2019). An important advantage of sustainable fisheries is that they produce food without destroying the trophic structure of the natural ecosystem. Mr Hilborn made the case to protect 100 percent of oceans through effective fisheries management, and the Post-2020 GBF is a key instrument to do so.

João Campari, Global Leader of Food Practice at the World Wildlife Fund (WWF), spoke about the United Nations Food Systems Summit Action Track 3 on nature-positive production (of which he is the Chair). Mr Campari began by highlighting the hidden climate, environmental, health, and inclusion costs that are generated by food and land-use systems, estimated at USD 12 trillion a year (FOLU, 2019). Action Track 3 focuses on three key strategies to boost nature-positive production systems: (i) protecting natural ecosystems from conversion and degradation; (ii) sustainably managing existing food production systems; (iii) restoring degraded ecosystems and rehabilitating

soil function. Coalitions are now being formed around twelve action areas, including promoting the use and conservation of agrobiodiversity to re-diversify our production systems and improve resilience and outputs; transformation through agroecology and regenerative agriculture towards healthy, resilient, equitable and sustainable food systems; and facilitating the adoption and scaling of restoration practices that improve soil health in productive landscapes through investment and policy action. We need to see a comprehensive and ambitious target on food systems transformation in the Post-2020 GBF. A food systems target should promote the transition toward agroecology and regenerative agriculture, in turn supporting healthy soils. But action on production alone is not enough. Transformative action is needed across the food system – on the way we produce, share, and consume food, including reducing food loss and waste. We need actors across food systems to engage in negotiations on the Post-2020 GBF and to engage in its implementation. We can and must take ambitious and decisive action to deliver an equitable, net-zero carbon, and nature-positive world.



Photo: João Campari, Global Leader Food Practice, World Wildlife Fund. ©FAO

The **panel discussion** covered a range of topics.

Earth-centred, rights of nature laws were discussed as an interesting approach with some potential from a legal and a cultural perspective. From a cultural perspective, recognising that nature has rights forces us to rethink our relationship with nature. However, while rights of nature laws are only applied in a handful of countries, the human right to live in a healthy environment is recognised by over 150 countries. Focusing more on the implementation of the human right to a healthy environment was seen as a priority.

Agrobiodiversity and food diversity was an important discussion topic. Most of our food comes from a very limited range of plants and animals. Often these are produced in ways that deplete soils and ecosystem services. There are options to increase the use and consumption of agrobiodiverse foods, including forgotten species, varieties, and food sources:

- To diversify production, it is necessary to transform business models and help companies to restructure their supply chains.
- Policies that push and pull, working on production and consumption, can encourage a shift to more agrobiodiverse systems.
- Public support to agriculture, including subsidies, focuses on a limited number of food sources. Governments should redirect support to include smaller, more diversified producers, and a wider range of forgotten food sources.
- Policy interventions targeting consumption can also incentivise more diverse production, for example, through nutritional guidelines and public procurement programmes.

Increasing the production and consumption of sustainably sourced food from aquatic systems is another strategy to increase the diversity of agri-food systems. The diversity of food from fisheries is often greater than from more specialised terrestrial systems. The connections between land and aquaculture are also important to consider.

In crafting the Post-2020 GBF, there are opportunities to strengthen landscape and ecosystem-based approaches by (i) including landscape partnerships as critical allies and actors, to seek them out and work with them to co-create policies and programmes; (ii) promoting the use of existing tools to support landscape partnerships;

(iii) reforming finance to support the coordination of landscape partnerships and pool investments to achieve landscape transformations at scale.

A key element for the Post-2020 GBF is to include area-based targets that focus on productive landscapes. Natural habitat patches within these landscapes play key roles in supporting ecosystem services for production, such as pollination services, preventing soil erosion, pest control, and many more. Area-based management systems were also discussed as tools to address some threats to marine biodiversity. Through effective fisheries management, biodiversity can be protected in the same areas used for food production.

Resource mobilization and investment is a key enabling factor for food systems transformation. Exciting innovations are taking place, creating portfolios of complementary investments to support landscape partnerships. Investors try to maximise return and minimise risk. Increasing the information available and demonstrating the benefits will reduce the risk of investments and support the scaling out of more sustainable systems such as agroecological systems. This requires rebalancing public research investments that are heavily skewed towards conventional production. The scale of investments required are large, but the potential benefits to health and environment are even greater. Options to mobilise research include redirecting public support towards sustainable practices, shifting taxes to target pollution, and ensuring finance to support low-income countries.

Access to knowledge is another important enabler (or barrier) for producers to transition to agroecological or ecological intensification practices. In many cases, conventional practices are becoming less profitable because of the problems associated with the loss of pollinators, soil erosion, water pollution, flooding, herbicide resistance, etc. Producers recognise these problems, and many would like to change, but they need support to shift to more sustainable practices that are often knowledge intensive. Agroecological systems require different types of research, education, and extension. We need to co-generate knowledge with farmers and create the structures to share knowledge around the world.

The second keynote and group of panellists focused on the conservation and restoration of biodiversity in productive landscapes and seascapes.

Percy Summers, who is Senior Director of Science and Development at Conservation International, Peru, spoke about sustainable food production in the Amazon. Biodiversity and indigenous knowledge have allowed people to maintain and enhance food production in the Amazon, but the increasing demand for land and commodities for external markets is driving deforestation pressure. In Peru, most deforestation is caused by small landholders, with key underlying factors including poverty and inequality and lack of clear tenure rights. Mr Summers presented a case study from the Alto Mayo landscape, demonstrating how investing in sustainable production systems can effectively reduce deforestation and biodiversity loss while improving local communities' livelihoods, resilience, and well-being. Conservation agreements with farmers are used to provide direct technical assistance and incentives to transition to shade-grown organic agroforestry coffee. More than 1,000 farmers have signed conservation agreements, reducing deforestation by 300 ha per year. Linking sustainably grown coffee to specialty markets increases producers' income. Long-term sustainable financing mechanisms are linked to carbon credits from reduced deforestation. The business model can be scaled to other parts of the landscape using diverse products, including herbal teas from medicinal plants and native varieties of cacao.

The Executive Director of Sahara Sahel Foods, **Josef Garvi**, shared his organization's experiences in forest restoration in Niger. In the dryland areas of the Sahel, unsustainable agricultural practices have destroyed wild vegetation. Restoration using polycultures can help wild perennials return. Using diverse native food trees (many that were traditionally used by communities) can help achieve multifunctional benefits for health, nutrition, and production (e.g. improved soil health, productivity, natural pest control). To support and incentivise restorative practices, innovative and inclusive value chains have been developed based on these traditional and high-quality products, including for food and cosmetics.



Photo (clockwise): Percy Summers, Senior Director of Science and Development, Conservation International, Peru; Josef Garvi, Executive Director, Sahara Sahel Foods, Niger; Luís Gustavo Barioni, Agronomist and Animal Scientist, Embrapa, Brazil; Catherine Lovelock, Professor of Biological Sciences, University of Queensland, Australia. ©FAO

Professor **Catherine Lovelock** from the School of Biological Sciences at the University of Queensland, Australia, presented examples where the conservation and restoration of coastal ecosystems, including mangroves, is beneficial for the productivity and resilience of landscapes and coastal communities. Many coastal and wetland ecosystems have been converted for agricultural land and aquaculture. These pressures have reduced ecosystem services. Sea level rise and extreme events are contributing to salinization and flooding of coastal agricultural land, reducing yields and incomes. Coastal wetlands can protect coastal land from flooding and extreme events, while also supporting aquatic and terrestrial biodiversity. Furthermore, they are fisheries nurseries, and contribute to climate change adaptation, and carbon sequestration as a powerful carbon sink. Potential incentives to scale up coastal wetland restoration include blue carbon credit schemes.

Luís Gustavo Barioni, an Agronomist and Animal Scientist at Embrapa, Brazil, spoke about pasture restoration and sustainable grazing practices. Pasture degradation is a process that starts when vegetation cover is reduced and nutrients in the soil are not replaced, leading to loss of soil carbon and water holding capacity, lower water infiltration, and loss of soil cover. When the process is advanced, restoration costs increase significantly. Remote sensing can be used to monitor levels of pasture degradation, and to target public policies to respond. Tropic soils with deep rooted grasses have great potential as carbon sinks, and are probably underestimated, because most models focus on the top 20-30 cm. Maintaining and restoring the productivity of grasslands is important to ensure that there is not further conversion from forests, and to ensure the livelihoods of 1.7 billion people that depend on these areas.

The **final keynote** speech of the day was delivered by **FAN Shenggen**, Dean of Global Food Economics and Policy and Chair Professor at China Agricultural University. Mr FAN reminded the audience that biodiversity is deteriorating at an unprecedented rate, undermining nature's productivity, resilience, and adaptability.

- The current rate of extinctions is tens to hundreds of times higher than the average over the past 10 million years (IPBES, 2019).
- The stock of natural capital has declined by 40 percent between 1992 and 2014 (Dasgupta, 2021).



Photo: FAN Shenggen, Dean of Global Food Economics and Policy and Chair Professor at China Agricultural University. ©FAO

by mainstream economics, this is changing with new initiatives focusing on valuing biodiversity and assessing the economic and social costs of biodiversity loss, and the recognition by the private sector that biodiversity loss is a serious threat. For example, a recent survey revealed that CEOs perceive biodiversity loss as one of the top 5 risks to businesses (World Economic Forum, 2020).

- Land degradation costs more than 10 percent of global gross domestic product (GDP) annually in ecosystem services lost. Halting and reversing land degradation could generate USD 1.4 trillion of economic benefits per year (IPBES, 2018).

Mr FAN explained that biodiversity has multiple sources of value, including use value, intrinsic value, contributions to human health, and ultimately – for enabling human existence. Agrobiodiversity is the foundation of food systems, with strong evidence demonstrating the benefits of diversity to production through pest control and pollination (Dainese *et al.*, 2019). Although biodiversity has largely been neglected

Mr FAN concluded by outlining strategic interventions to transform food systems to be sustainable and to produce healthy, nutritious food, while maintaining biodiversity, including: (i) investments in new infrastructure and innovations that provide multiple benefits, including on yields, nutrition, sustainability, and resilience; (ii) repurposing public support to agriculture towards healthy and sustainable forms of production; (iii) new governance institutions to bring together actors across sectors; (iv) respecting nature through laws and policies that protect wild biodiversity; (v) open and resilient trade for the efficiency of food production and considering sustainable natural resource use; and (vi) behavioural changes that achieve win-wins for human and planetary health.

The **panel discussion** continued the focus on interventions for the sustainable transformation of agri-food systems.

Panellists expressed a need to find a balance between the efficiency and resilience of food systems and markets. Global trade allows more efficient production and affordable food, however, when supply chains are long, they are vulnerable to shocks, as has been demonstrated by the COVID-19 pandemic. Strengthening local food systems can help to promote regenerative forms of production. Indicators are needed to assess the sustainability, efficiency, and resilience of different food systems to help find the balance.

The combination of public policies and markets can incentivise integrated systems, such as silvopastoral and crop-livestock systems. Carbon-neutral products are gaining importance in markets – but water and biodiversity footprints will also need to be included. One of the main bottlenecks is at the initial stages of establishing these production systems. Governments can play a key role by supporting transitions at this point.

Opportunities to mainstream more diverse and forgotten food products were discussed, including:

- Encouraging pioneers and innovators who are working to recover these underutilized species and varieties to create the initial momentum.
- More research support to build the knowledge on these varieties (e.g. on their nutritional benefits) to help gain the acceptance of mainstream markets.
- Marketing support to tell the history of traditional foods, and to demonstrate the pleasure and value of food diversity in creative and fun ways.

However, there is a delicate balance, and public policies may be required to ensure that local people can still afford new food products as they gain market popularity.

In the Alto Mayo case study, new landscape partnerships between conservation and agriculture, research and the private sector have helped to develop value chains where producers can access higher prices from niche markets. Diversification of production systems also builds food security and resilience (e.g. to pests and diseases, such as coffee rust). Markets for ecosystem services have also played a key role, helping to pay for the additional costs of conservation measures. The cultural heritage and indigenous knowledge of the local communities provide opportunities to develop the value chains for multiple diverse products.

It was recognised that new technologies for information, communication, and geospatial technology for monitoring all have great potential to enable innovative markets and policies. There were a range of opinions on the role of biotechnologies for breeding. While participants recognised their potential, it was emphasised that biodiversity and traditional knowledge already provide many solutions for adapting to local and changing environments (e.g. for drought resistance).

Fostering financial investment for sustainable food systems transformation will be critical, including diverse, creative, and innovative solutions. The scale of the transition required means that private sector investment needs to be engaged. However, there were also concerns that the types of investment from large private sector actors will not be compatible with the measures needed to integrate biodiversity in value chains, particularly local ones. More effort needs to be made to promote the inclusion of smaller actors in value chains and markets. Matching investment with community-based projects requires new institutions that can disburse funding at appropriate scales, empowering local actors.

The session concluded with the four Co-Chairs presenting their preliminary summary of Day 1 of the Global Dialogue.³

Day 2, Opening Session

The Opening Session of Day 2 was facilitated by FAO's Deputy Director-General, **Maria Helena Semedo**, with FAO's Director-General, **QU Dongyu**, and the Executive Secretary of the Convention on Biological Diversity, **Elizabeth Maruma Mrema**, providing their remarks.

Director-General **QU** presented a forward-looking perspective, focusing on the implementation of biodiversity mainstreaming in the agriculture sectors over the next 10 years. The Director-General highlighted opportunities to act at the global, regional, national, and local levels. At the global level, the UN Common Approach on Biodiversity identifies areas for collaboration, including more than 50 practical interventions, such as the Great Green Wall initiative, and FAO's Green Cities Initiative. The UN Decade on Ecosystem Restoration 2021-2030 is another opportunity to mobilise collective efforts. FAO is co-leading the decade with UNEP and focusing on the restoration of productive landscapes and seascapes to enhance food security and nutrition, address climate change, and restore biodiversity. Director-General QU joined other speakers in calling for a repurposing of agricultural subsidy schemes that cause harmful trade-offs, advocating that these investments should be shifted to promote public goods and biodiversity mainstreaming in the agricultural sectors. Finally, the Director-General underlined that people and nature cannot be separated and that agricultural sectors are part of the solution. At COP 15 in Kunming, China, it will be important to establish an ambitious Post-2020 GBF that recognises the opportunities to address multiple sustainability challenges through biodiversity mainstreaming in the agricultural sectors.

Executive Secretary **Maruma Mrema** highlighted the importance of policies and investments that promote agroecological, integrated, and diversified approaches in farms, fisheries, and forests to reach the 2050 vision

³ The full Joint Report of the Co-Chairs is available at Appendix 3.

of Living in Harmony with Nature. This requires inter-ministerial coordination to ensure that food systems policies are coherent and complementary, alongside inclusive multi-stakeholder collaboration, and systems-based approaches. The Executive Secretary outlined four key questions to stimulate discussion on Day 2:

1. How can the Post-2020 GBF support smallholders in their dual role as producers and stewards of biodiversity while also incentivizing large-scale producers to shift towards more sustainable practices?
2. How can we better articulate links between CBD's plan of action on soil biodiversity and the post-2020 monitoring framework to effectively address the drivers of soil biodiversity loss?
3. How can we ensure that the goals and targets of the framework promote agrobiodiversity in our diets and production landscapes?
4. What goals and targets for fisheries and aquaculture are key to include in the global biodiversity framework?

Although the issues may seem daunting, the Executive Secretary reminded participants that the fifth Global Biodiversity Outlook (Secretariat of the Convention on Biological Diversity, 2020) provides a roadmap to transition our societies towards a more sustainable co-existence with nature. Among other interdependent transitions, the sustainable agriculture and food system transitions are a critical priority.

Following the opening addresses, the Global Dialogue's **cultural note** was performed by soprano **HE Hui**, who drew comparisons between the world of opera and the relationship between biodiversity and sustainable development. In each case, different elements of the orchestra and the ecosystem need to come together in harmony.

Two **keynote speeches** completed the Opening Session of Day 2, presenting solutions to protect and improve biodiversity within wider food systems transformations.

The WorldFish Global Lead for Nutrition and Public Health, **Shakuntala Haraksingh Thilsted**, who was awarded the 2021 World Food Prize, focused her presentation on biodiversity in food systems transitions. The disruptions caused by the global pandemic have exposed several inconvenient truths about the fragility, inequity, and unsustainability of our food systems. People-led solutions to transform our terrestrial and aquatic food systems are needed and they will be discussed at the UN Food Systems Summit. Ms Thilsted outlined key principles for transforming aquatic and terrestrial food systems towards sustainability:

- Both land- and water-based food systems are limited in their diversity (FAO, 2020d; WWF, 2021). Diversifying diets in ways that are safe and culturally acceptable can support sustainability and nutrition benefits. Knowledge and awareness raising can increase consumer demand for diversified and sustainable products.
- Developing integrated resource management strategies based on synergies between the different components of the system can achieve multiple benefits. For example, in Bangladesh, the integration of aquaculture based on polyculture ponds, including small and indigenous fish species has multiple benefits for nutrition and sustainability. This solution is being scaled up by the government.
- Develop linkages between traditional knowledge and modern technology (e.g., disseminating knowledge using digital technology).
- Engage diverse stakeholders as custodians of biodiversity and catalysts for change, including women, youth, and Indigenous Peoples.
- Work together across disciplines to ensure that solutions are holistic, respecting the planetary boundaries.

The former President of Mauritius and biodiversity scientist, **Bibi Ameenah Firdaus Gurib-Fakim**, focused on the critical importance of ecosystem restoration for our survival as a species and for economic prosperity. The UN Decade on Ecosystem Restoration presents a critical opportunity to raise awareness and catalyse action. Biodiversity loss and ecosystem degradation are undermining development progress. Forecasts indicate that the collapse of ecosystem services would imply a 9.7 percent reduction in GDP annually for sub-Saharan Africa (Johnson *et al.*, 2021). Moreover, one-third of the world's farmland is degraded, 87 percent of inland wetlands have disappeared, and one-third of commercial fish species are overexploited (FAO, 2020a; IPBES, 2018). At the core of these problems lies widespread institutional failures. Ecosystem restoration is needed on a large scale to deliver multiple benefits and help achieve the 2030 Agenda. Restoration of forest landscapes also curbs the risk of future pandemics. For this effort to be sustained on a global scale, long-term green investments are required. There is growing evidence that the investments will more than pay for themselves (UNEP, 2021):

- By 2030, Mesoamerica and Indonesia could add USD 2.5 billion to their economies by restoring coral reefs (UNEP *et al.*, 2018).
- Restoring fisheries to their maximum sustainable yield could increase production by 16.5 million tonnes, with an annual value of USD 32 billion (Ye *et al.*, 2013)
- Agroforestry revival could increase the food security of 1.3 billion people (Smith *et al.*, 2019).

Actions that prevent, halt, and reverse ecosystem degradation are needed to keep global temperature increases below 2 degrees. With careful planning, restoring 15 percent of converted lands, while stopping further conversion, could avoid 60 percent of species extinctions (Strassburg *et al.*, 2020).

Achieving restoration at scale requires deep changes including the adoption of inclusive measures of wealth as a more accurate measure of economic progress. Natural capital accounting can help create an enabling environment for private investment. The elimination of perverse subsidies and increasing finance for biodiversity restoration requires widespread awareness on the risks of ecosystem degradation and collapse. Ecosystem restoration alone is not a complete solution to the interconnected crises we face; however, it is an essential part of our collective response. Alongside transforming food systems, it is necessary to change the way cities are designed, decarbonise economies and shift to circular economic models. We need to change the way we think, act, and measure success, starting immediately.

Day 2, Panel Discussion 1: The Roles and Contributions of Agriculture Sectors and their Reflection in the Draft Post-2020 Global Biodiversity Framework

The first panel discussion of Day 2 was co-facilitated by **Kent Nnadozie**, Secretary of the International Treaty on Plant Genetic Resources for Food and Agriculture, and **Irene Hoffmann**, Secretary of the Commission on Genetic Resources for Food and Agriculture.

The Co-Chairs of the Open-Ended Working Group (OEWG) on the Post-2020 GBF, **Francis Ogwal** (Uganda) and **Basile van Havre** (Canada), presented an update on the development of the first draft of the Post-2020 GBF, providing the background context for the discussion. The Co-Chairs explained that the framework focuses on the direct drivers of biodiversity loss. While many indirect drivers are also important, they are largely outside the scope of the Convention on Biological Diversity and need to be addressed through the existing framework of the SDGs.

The Co-Chairs of the OEWG outlined a set of guiding principles that are being applied to develop the framework:

- The need to respond to the urgency of change required.
- Applying an open, transparent, inclusive, and science-based approach.



- Establishing ambitious yet realistic targets.
- The need for a far-reaching framework that is led by the Parties and encourages the participation of all (including governments, civil society, businesses, banks, farmers, consumers, etc.) in the development and implementation of the framework.
- Ensuring that the framework is linked to and contributes to the achievement of the SDGs (reflecting a strong view expressed by the Parties to the Convention and stakeholders).

The framework will have goals, milestones, and targets that balance the three objectives of the Convention on conservation, sustainable use, and equitable benefit sharing. The current draft framework has four goals; three goals capture the objectives of the Convention, and the fourth goal focuses on the means of implementation. The targets are clustered around reducing threats to biodiversity, meeting peoples' needs, and tools and solutions. Lessons learned from the previous set of Aichi Biodiversity Targets include the need to improve accountability and reporting, with other CBD subsidiary bodies and working groups working to refine the monitoring, accountability, and reporting elements of the Framework. FAO has a strong potential to contribute in this area.

The role of food and agriculture in the Post-2020 GBF was discussed in more detail, including the following key points:

- Without the involvement of the agri-food sectors, the framework will not be successful.
- Almost all goals and targets are relevant for food systems and the agricultural sectors.
- The new framework will apply an "all-of-society" approach and aims to engage a wider range of policymakers beyond Ministers of the Environment.
- Working on productivity and sustainability at the same time is necessary to secure synergies and ensure biodiversity conservation.
- Benefits from the utilization of genetic resources, including benefits related to food security, must be shared fairly and equitably.
- In planning sustainable agri-food systems, integrated scenario planning (modelling) across multiple sectors and at relevant scales will be key to consider all drivers of change.
- Private sector engagement is critical and needs to be facilitated by the framework, including by promoting a "level playing field" by repurposing public support to agriculture that is currently directed to unsustainable practices. Businesses need stability and the 10-year period of the Post-2020 GBF can help to provide that. Better understanding the risks and exposure of investments in relation to biodiversity loss will enable more effective and sustainable allocation of resources.

In conclusion, the Co-Chairs reiterated that the sustainable transformation of food and agriculture is the most significant systems transformation that we face in terms of scale and scope. It requires time and resources, but the transformation can help us achieve a future that is more healthy, sustainable, and prosperous. However, we will only be successful individually if we are successful collectively; We must work together. The next steps for the OEWG were outlined in preparation for COP 15.

Following the Co-Chairs of the OEWG, **Eduardo Mansur**, Director of FAO's Office of Climate Change, Biodiversity and Environment, presented FAO's *Strategy on Mainstreaming Biodiversity across Agricultural Sectors* (FAO, 2020c) and the *Action Plan for the Implementation of the Strategy for 2021-2023* (FAO, 2021). The Action Plan, including 56 key actions, has been discussed extensively by FAO's Governing Bodies and recently adopted by FAO's Members. By mainstreaming and integrating biodiversity into policies and programmes across the agricultural sectors at multiple levels, the Strategy aims to reduce negative impacts on biodiversity and promote sustainable agricultural practices. The Strategy is structured around four outcomes:

1. Providing support to Members at their request to enhance their capacity to mainstream biodiversity;

2. Mainstreaming biodiversity across FAO's policies, programmes, and activities;
3. Ensuring the role of biodiversity for food security and nutrition is globally recognised;
4. Coordinating and strengthening FAO's work on biodiversity.

The first key action listed in the Action Plan is to support countries in the implementation of the Post-2020 GBF. The UN Decade on Restoration, co-led by FAO and UNEP, is a further opportunity to accelerate the implementation of the Post-2020 GBF and the FAO Strategy on Mainstreaming Biodiversity. FAO stands ready to engage in different ways, through normative and project work, and at country, regional, and global level, to support the mainstreaming of biodiversity and sustainable transformations of agri-food systems. More than 100 active FAO projects are already contributing to different aspects of biodiversity mainstreaming.

The two presentations were followed by a roundtable discussion, including responses from bureau members of the various biodiversity-related technical committees, statutory bodies and conventions that are hosted by FAO. The bureau members highlighted the importance that their bodies have given to biodiversity and outlined their work in support of FAO's Biodiversity Strategy and its 2021-23 Action Plan. The bureau members indicated the interest of their bodies to be involved in the implementation of the Post-2020 GBF. In response, the Co-Chairs of the OEWG highlighted the elements of the draft framework on partnerships and synergies, including opportunities for collaboration in relation to implementation and monitoring, which are closely linked to SDG indicators. In addition, bureau members made a series of specific points related to their sectors.

The Chairperson of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture, **Yasmina El Bahloul**, highlighted the Parties' request for the Bureau and Secretariat of the International Treaty to engage in the development and implementation of the Post-2020 GBF and emphasised the importance of enhancing cooperation between the Treaty, CBD, and other biodiversity-related conventions. Specific recommendations for the Post-2020 GBF included:

- The objectives and targets of the Post-2020 GBF should link biodiversity, food security, and sustainable agriculture – and the draft of the framework seems to be moving in this direction.
- At the genetic level, the focus should also include conservation and sustainable use, not only access and benefit sharing.
- Targets should expressly consider the role of the International Treaty and its multilateral system.
- Monitoring of the Post-2020 GBF should be aligned with the International Treaty.
- The strategies developed by the International Treaty should play a central role in relation to the aspects of the Post-2020 GBF on plant genetic resources.

The Commission on Phytosanitary Measures (CPM) Bureau Vice-Chairperson, **John Greifer**, outlined the close history of collaboration between the International Plant Protection Convention (IPPC) and CBD to advance the shared goal of preventing the spread of harmful pests that endanger not only agriculture, but also natural habitats and biodiversity. The IPPC-CBD relationship is key to maintain a coordinated approach to avoid the global spread of pests. Specific recommendations for the Post-2020 GBF included:

- The Post-2020 GBF should reflect the shared mandate of both conventions in managing the threat of alien invasive species.
- For 25 years, IPPC has been developing international standards and guidance material to prevent the spread of pests. These tools enhance and harmonise the efforts of governments to survey, detect, and contain potentially harmful pests, especially through trade pathways.
- Furthermore, the IPPC adopted a 10-year strategic framework earlier this year (FAO, 2019c), including several elements that are relevant to the Post-2020 GBF:

- The strategic framework reaffirms IPPC's goal of safeguarding plant genetic resources in the natural environment;
- The strategic framework recognises the impact that climate change will have on the biology, distribution, and spread of pests into new areas, including natural habitats;
- There is an emphasis on strengthening the capacity of countries to detect, assess and report on emerging pest threats, allowing for a more rapid and effective early response to pest incursions.

The IPPC will continue to progress standards that address the movements of pests through international trade, including sea and air containers as new pathways, and new channels related to e-commerce. Metrics to assess progress are important and data reported to IPPC could support countries to set baselines. Performance goals and targets need to be accompanied by investment, communication, and capacity building.

Bommakanti Rajendar, Chairperson of the Committee on Agriculture (COAG), reiterated the importance of FAO's Strategy on Mainstreaming Biodiversity across Agricultural Sectors and the Post-2020 GBF. At the 27th COAG session in September and October 2020, the Committee considered FAO's Strategy on Mainstreaming Biodiversity, welcomed the progress made in its implementation, and provided detailed inputs to the 2021-23 Action Plan. COAG welcomes the further engagement of Members in the implementation of the Action Plan and the promotion of sustainable agricultural practices that ensure food security and prosperity for all while safeguarding natural resources. Cross-sectoral coordination will be important for implementing the Action Plan and the Post-2020 GBF and it is expected that biodiversity will be on the agenda at the 28th COAG session in July 2022. The outcomes of the Global Dialogue and the CBD COP 15 will be brought to the attention of the Committee.

The Vice-Chair of the Committee on Forestry (COFO), **Yusuf Serengil**, recalled that at its 25th session in October 2020, COFO welcomed the FAO-UNEP report on the *State of the World's Forests (SOFO) 2020*, which focused on the contributions of forests and the people who manage them to the conservation and sustainable use of biodiversity (FAO, 2020a). COFO invited Members to consider the key findings of SOFO 2020 in the negotiations of the Post-2020 GBF, as appropriate. COFO also requested FAO to strengthen work on forest biodiversity, in collaboration with CBD and other organizations, including by reviewing and sharing good practices and policies that balance the conservation and sustainable use of forest biodiversity to meet the needs of people, especially those living in or near forests. COFO invited Members to strengthen the mainstreaming of biodiversity conservation and sustainable use in the forestry sector and in collaboration with other sectors.

The Vice Chair of the Committee on Fisheries (COFI), **Renée Sauvé**, started by encouraging participants to review the planned approach to include the fisheries and aquaculture sector in the Post-2020 GBF. The sector is a driver of economic and social development, employing millions of people, often as the sole source of income for coastal communities, and especially women. Seafood is also increasingly important in contributing to food security and nutrition, particularly in Small Island Developing States. Ms Sauvé reminded participants that healthy oceans are needed to mitigate climate change and that ensuring the sustainable management of aquatic ecosystems through the ecosystem approach to fisheries is critical. Therefore, a related indicator should be included in the Post-2020 GBF. COFI is engaged in developing guidance on deterrents to address unsustainable fishing practices. COFI gave a clear endorsement to several activities that support biodiversity, as reflected in FAO's Strategy and 2021-23 Action Plan on Biodiversity Mainstreaming. The goals and targets of the new GBF cannot be achieved without the engagement of the communities that rely on fisheries activities and are most closely associated with these aquatic ecosystems. It is critical that the framework is developed with those communities, stakeholders, and authorities to ensure that goals and targets are realistic, effective, and achievable. In the context of implementing the Post-2020 GBF, a dedicated and inclusive marine programme will be necessary, under the CBD, including inputs from technical and policy experts, covering the issues of both conservation and sustainable use.

Day 2, Panel Discussion 2: The Global Biodiversity Framework: Supporting Biodiversity for Food and Agriculture. Recent Initiatives and Approaches

The High-Level Segment of the Global Dialogue was held on the afternoon of the second day and co-facilitated by **David Cooper**, Deputy Executive Secretary of the Convention on Biological Diversity, and **Eduardo Mansur**, Director of FAO's Office of Climate Change, Biodiversity and Environment.

Mr Cooper welcomed participants to the High-Level Segment of the Global Dialogue, highlighting the long-standing cooperation between FAO and the CBD, and recalling some key areas of discussion over the first three sessions:

- The food and agriculture sectors all depend on biodiversity, from genetic resources, to soil microbes, to pollinators and natural enemies.
- Biodiversity and the way we manage it is important for agricultural productivity, sustainability, and food security and nutrition.
- When we look to the future of biodiversity as a whole and the Post-2020 GBF, nothing is more important than the way we manage the food and agriculture sectors.
- Everyone is involved, including producers, businesses, and consumers.
- To meet the goals of the Post-2020 GBF, and the SDGs, a transformation is needed in the way we manage the food and agriculture sectors.
- This issue will be central to the UN Food Systems Summit, and the climate change and biodiversity COPs.

The High-Level Segment opened with ministerial interventions from China and Mexico.

H.E. HUANG Runqiu, the Minister for Ecology and Environment of the People's Republic of China emphasised the great importance that China attaches to biodiversity conservation and the construction of an ecological civilization. Minister HUANG stated that biodiversity is at once the foundation, goal, and means of sustainable development. Furthermore, biological diversity is important to maintain China's rich cultural and food diversity. Minister HUANG outlined some of China's domestic policy achievements, including the reforestation of 70.39 million hectares over the last decade and the protection of 25 percent of China's land area with high ecological value, covering 90 percent of terrestrial ecosystem types and 85 percent of key wildlife populations. At the global level, China is the incoming Chair and host of CBD COP 15. Minister HUANG encouraged the Parties to the Convention to continue to combine their efforts through multilateral cooperation, and to seek common ground, resolve differences, and forge consensus on an ambitious and pragmatic Post-2020 GBF. The Post-2020 GBF and the UN Decade on Ecosystem Restoration are important opportunities to mobilise resources to address biodiversity loss, climate change, health, and other challenges in synergy. The main objective of COP 15 is to provide new solutions and blueprints to safeguard biodiversity, while achieving the goals of sustainable agriculture and food security. The draft framework already places a strong emphasis on agricultural biodiversity. Minister HUANG concluded with the message that to address global challenges we need to accelerate our actions to achieve transformational change in food systems, infrastructure, energy, land use, and other complementary areas.

Mexico's Deputy Secretary of Planning and Environmental Policy, **H.E. Jorge Arturo Argueta Villamar**, highlighted Mexico's mega-diverse ecosystems and the country's high linguistic and cultural diversity, with Indigenous, local, and traditional communities playing an important role as custodians of biodiversity, through their sustainable management and knowledge. Mexico has developed a range of strategies and plans that recognise the importance of biodiversity for food and agriculture, and aim to protect and sustainably use biodiversity, while moving towards food sovereignty, including through agroecological approaches. Some examples include:

- The use of geographical denomination in certain areas, providing a special status to help protect and promote agricultural biodiversity;
- The promotion of diversified diets to increase the sustainability of food systems;
- Development of tools, programmes, and plans to support agroecological and agropastoral approaches in peri-urban and rural areas.

Various government departments are working together towards these strategic goals. For example, the intersectoral policy programme to promote healthy production of healthy food involves six federal government institutions and sub-national and local authorities. The programme has developed several initiatives, including the promotion of diverse maize varieties and supporting sustainable production in buffer zones surrounding protected areas. The importance of FAO's leadership in Globally Important Agricultural Heritage Systems (GIAHS) and the role of these landscapes for the protection and sustainable use of biodiversity was also recognised. To conclude, the Deputy Secretary reiterated Mexico's commitment to support the negotiation and implementation of the Post-2020 GBF and underlined that the transition to sustainable agriculture will enhance the environment as well as the wellbeing and health of our people.

Following the ministers, representatives of regional and development organizations also had the opportunity to present and respond to audience questions.

The European Commissioner for Agriculture, **Janusz Wojciechowski**, presented the European Union's Biodiversity Strategy and Farm to Fork Strategy as key pillars in Europe's response to biodiversity loss and land and sea degradation, whose impacts are accelerating and undermining our capacity to address climate change. The Biodiversity Strategy includes an ambitious but achievable set of goals and actions to meet the commitments of the SDGs and ensure that Europe's biodiversity will be on the path to recovery by 2030. The Strategy also supports global action on biodiversity in the context of Europe's bilateral, regional, and multilateral international relations. Urgent action is necessary to address the main drivers of biodiversity loss related to food production and consumption, and to promote and safeguard agrobiodiversity. Therefore, the Biodiversity Strategy was adopted alongside the Farm to Fork Strategy that aims to secure fair, healthy, and environmentally friendly food systems. Farmers need to receive fair returns for sustainably managing biodiversity and we must transform production systems to reduce the use of hazardous pesticides and fertilizers. The European Union will step up its support for agroecological research and innovations that have a major role to play in the transition, alongside landscape approaches, and technological and digital solutions. Partnerships will be important to implement the two strategies, including with the many family farms that are part of the private sector. Engaging the business and finance sector is also essential to secure investments in natural capital and sustainable food and agriculture. Innovative financial mechanisms can help unlock these private investments. Resource mobilization will make or break the Post-2020 GBF. The European Union supports an integrated approach to financing in line with the target of 10 percent funding for biodiversity by 2026. Additionally, increasing international financial flows to developing countries will be an important part of the post-2020 GBF. Existing financial mechanisms, such as the Global Environment Facility (GEF), are well placed to deliver these investments in biodiversity.

The Head of the African Union Commission's Agriculture and Food Security Division, **Simplice Nouala**, identified a growing recognition in the region that safeguarding biodiversity and sustainable natural resource management are essential to ensure nutritious food for present and future generations, and to achieve the SDGs. The conservation and sustainable use of a wide range of plant and animal diversity is essential to respond to multiple crises, including malnutrition, climate change, and emerging diseases. Mr Nouala highlighted the interactions between climate change and biodiversity loss, citing estimates of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) that by 2100, unmitigated climate change will cause a loss of over half of African bird and mammal species, a 20-30 percent decline in lake productivity, and a significant loss of plant species (IPBES, 2019). Further immediate threats to biodiversity include the loss and degradation of natural habitats caused by agricultural expansion, overexploitation of wildlife and fisheries including illegal hunting and trade, and the spread of invasive species. The African Union (AU) is committed to

safeguarding biodiversity through regional policies that support sustainable land, forest and ocean management. The Great Green Wall is an example of an ambitious attempt to address land degradation and desertification. An AU strategy to combat illegal exploitation and trade of wild species has been developed and the AU is facilitating the participation of Member States in the negotiation of the Post-2020 GBF. Partnerships are required, including closer collaboration between the ministries of agriculture and environment in policy planning, alongside a new narrative on agricultural transformation for Africa that puts biodiversity at the centre.

The Deputy Executive Director of UNEP, **Joyce Msuya**, outlined the role of UNEP and the wider UN in integrating biodiversity across societies and economies. A whole-systems approach is necessary to achieve the environmental and socio-economic transformations required to live and thrive in harmony with nature. By working together, the UN system can leverage its resources to better address the complex and interconnected dimensions of food systems. Under the UN Common Approach to Biodiversity, the UN has committed, including at the highest level, to join forces in the following areas:

- Advancing global advocacy and normative frameworks, such as communications campaigns to mobilise global action for nature.
- Convening dialogues on systemic challenges that require a multilateral response.
- Fostering regional collaboration between countries to address biodiversity-related challenges that transcend borders and working with regional development banks to integrate biodiversity and nature-based solutions in economic models and policies.
- Joint implementation at the country level, led by UN country teams.

Ms Msuya concluded by reflecting on the ways in which our societies can be reshaped for a sustainable and resilient recovery from the pandemic.

Martien Van Nieuwkoop, the Global Director of Agriculture and Food at the World Bank, highlighted the hidden costs of global food systems, including impacts on biodiversity loss, climate change, and high levels of malnutrition, overweight and obesity, among others. This illustrates that our current food systems are not fit for purpose, and business as usual is not an option for the future. Existing public support to food systems is contributing to the hidden costs of food systems by causing a misallocation of resources and contributing to environmental externalities. Repurposing existing public support to agriculture is a key opportunity to achieve better environmental and nutritional outcomes. However, this will not be easy as there are many vested interests in the current allocation of public support. There is a need for greater private sector leadership to improve the sustainability of the global food system. In this regard, active debates on the need for climate and nature risk disclosure reporting for food and agriculture companies and deforestation-free investment funds are encouraging signs. The World Bank is actively engaging in the transformation of food and agriculture systems, including through analytical work and support to governments on the repurposing of public support to agriculture, and by managing and supporting investments in sustainable, integrated production landscapes and food value chains at scale, in partnership with the GEF.

The Director for Food, Agriculture and Natural Resources of the Southern African Development Community (SADC), **Domingos Gove**, provided examples of regional integration and cooperation in Southern Africa to support biodiversity mainstreaming and poverty alleviation. SADC has adopted a regional agricultural policy and investment plan to stimulate sustainable agricultural development and food security. Alongside the agricultural policy, regional strategies for biodiversity conservation have been developed, including the SADC fisheries programme and regional forestry strategy. Regional cooperation also plays an important role in governing the region's 18 transboundary terrestrial and marine conservation areas, including some of the largest in the world. Further regional initiatives include the promotion of *in situ* and *ex situ* conservation of genetic resources

through SADC's resource centre and gene bank, and the development of a monitoring and surveillance centre to combat illegal, unreported, and unregulated fishing in the region. The success of these initiatives depends on the collective commitment of Member States to a regional integration agenda and multilateral collaboration. Given that agriculture is the most important social and economic activity for the region, Mr Gove emphasised the need to mainstream biodiversity conservation and sustainable use as the best model to address systemic food insecurity and alleviate poverty.

The Director of IFAD's Environment, Climate, Gender and Social Inclusion Division, **Jyotsna Puri**, focused on the intersections between small-scale agriculture and biodiversity. Targeting small-scale producers and applying a holistic approach is critical to achieve multiple objectives on biodiversity, climate adaptation and mitigation, poverty alleviation, and food security. However, despite the importance of the sector, it is massively underserved. Analysis by the Climate Policy Initiative, and supported by IFAD, showed that only 1.7 percent of climate financial flows went to small-scale producers (Chiriack and Naran, 2020). Policy coordination is a further challenge, with a recent IPBES-IPCC report showing that biodiversity and climate policies are usually undertaken independently and rarely linked up to achieve potential synergies (Pörtner *et al.*, 2021). IFAD is currently developing its first Biodiversity Strategy. The Strategy recognises that biodiversity is an important tool to contribute to global development goals and will provide systematic guidance for future investments. Ms Puri concluded by highlighting the shortcomings of current agricultural metrics, which exclude important considerations related to biodiversity, nutrition, and other sustainability metrics – this is a priority to improve evidence-based decision-making.

The final **panel discussion** focused on measures to ensure that public and private finance are aligned in support of biodiversity and small-scale producers. This is a critical question to ensure just and equitable transitions. Key ideas arising from the discussion included:

- It is important to recognise and evaluate trade-offs in policymaking.
- We need to redefine what it means to be a farmer – in the 21st century that means providing a range of ecosystem services and public goods, including food.
- Public policies need to recognise and value these contributions.
- Investments from the bottom-up need to ensure the inclusion of small-scale producers, women and girls, Indigenous Peoples, and youth.

To conclude the session, **H.E. Miguel Jorge García Winder**, Ambassador and Permanent Representative of Mexico to FAO, presented an interim summary of the Global Dialogue on behalf of the four Co-Chairs.⁴

Day 2, Closing Session

The Global Dialogue was formally closed by the Director-General of FAO, **QU Dongyu**, and the Executive Secretary of the Convention on Biological Diversity, **Elizabeth Maruma Mrema**.

In his concluding remarks, Director-General QU Dongyu commented on the vivid exchange of ideas among so many different actors and sectors involved in agri-food systems. The Global Dialogue highlighted the spirit of close collaboration between FAO, the CBD, and the Members and actors working at country level. It echoed the urgent need to mainstream biodiversity across the agriculture sectors on the road to COP 15 in Kunming, China, the UNFCCC COP 26, and other important meetings. The Director-General concluded with his personal

⁴ The full Joint Report of the Co-Chairs is included at Appendix 3.

observations on key interventions to scale up solutions for the conservation, restoration, and sustainable use of biodiversity. Continuing to build the science and evidence-base on biodiversity is crucial, alongside more effective legal governance of biodiversity, increased investment, and greater public awareness. We also need to learn from Indigenous Peoples who have a valuable body of knowledge on biodiversity. Finally, biodiversity is a global public good, and therefore, governments need to play a leading role, in close collaboration with international organizations and all stakeholders. We need to work, learn, and contribute together for a more biodiverse and sustainable planet for future generations.

Executive Secretary Maruma Mrema concluded the Global Dialogue by thanking and commending the participants for the rich discussions. The Dialogue created a space to explore the connections between food, biodiversity, and agriculture, and to discuss future collaborative approaches. The inseparable nature of these topics was clearly demonstrated. The experiences shared during the Dialogue included a range of insightful and inspirational solutions and the Executive Secretary was impressed to hear about the country-level initiatives that are taking place. Now we need to scale up by creating an enabling environment for the sustainable transformation of food and agriculture. Executive Secretary Maruma Mrema acknowledged the importance of FAO's Strategy on Mainstreaming Biodiversity across Agricultural Sectors and its 2021-23 Action Plan as critical instruments to guide countries in implementation. As we move to negotiate and adopt an ambitious Post-2020 GBF, it is imperative to catalyse the role of biodiversity in supporting productive and sustainable food systems. Our economies, livelihoods and wellbeing depend on our most precious asset that is nature. The responsibility is ours – if we are bold in our ambition and if we all work together, Living in Harmony with Nature will no longer be simply a vision but a reality for our generation and future generations.

3. References

- Blaauw, B.R., Isaacs, R., Kuhlmann, M., Kleijn, D., Klein, A.M., Kremen, C., Morandin, L., Scheper, J. & Winfree, R.** 2014. From research to action: practices to enhance crop yield through wild pollinators. *Front. Ecol. Environ.*, 12: 439447.
- Buhl-Mortensen, L., Burgos, J.M., Steingrund, P., Buhl-Mortensen, P., Ólafsdóttir, S.H. & Ragnarsson, S.Á.** 2019. *Vulnerable marine ecosystems (VMEs): Coral and sponge VMEs in Arctic and sub-Arctic waters– Distribution and threats.* Nordic Council of Ministers.
- Chiriac, D. & Naran, B.** 2020. *Examining the Climate Finance Gap for Small-Scale Agriculture.* Climate Policy Initiative.
- Dainese, M., Martin, E.A., Aizen, M.A., Albrecht, M. & Ramos, D.** 2019. A global synthesis reveals biodiversity-mediated benefits for crop production. *Science Advances*, 5(10): eaax0121.
- Dasgupta, P.** 2021. *The Economics of Biodiversity: The Dasgupta Review.* London, HM Treasury.
- FAO (Food and Agriculture Organization of the United Nations).** 2019a. *The State of the World's Biodiversity for Food and Agriculture.* Bélanger, J. & Pilling, D. (eds.). FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome. 572 pp. (also available at <http://www.fao.org/3/CA3129EN/CA3129EN.pdf>).
- FAO.** 2019b. *The State of the World's Aquatic Genetic Resources for Food and Agriculture.* FAO Commission on Genetic Resources for Food and Agriculture assessments. Rome.
- FAO.** 2019c. *Strategic framework for the International Plant Protection Convention (IPPC) 2020–2030.* Rome. Published by FAO on behalf of the IPPC Secretariat.
- FAO.** 2020a. *The State of World Fisheries and Aquaculture 2020. Sustainability in action.* Rome.
- FAO.** 2020b. *Global Forest Resources Assessment 2020: Main report.* Rome.
- FAO.** 2020c. *FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors.* Rome.
- FAO.** 2020d. *Illuminating Hidden Harvests.* Rome.
- FAO.** 2021. *2021-23 Action Plan for the Implementation of the FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors.* Rome.
- FAO, ITPS, GSBI, CBD & EC.** 2020. *State of knowledge of soil biodiversity - Status, challenges and potentialities, Report 2020.* Rome. FAO. <https://doi.org/10.4060/cb1928en>
- FAO & UNEP.** 2020. *The State of the World's Forests 2020. Forests, biodiversity and people.* Rome.
- FOLU (The Food and Land Use Coalition).** 2019. *Growing Better: Ten Critical Transitions to Transform Food and Land Use.* Global Consultation Report of the Food and Land Use Coalition.
- Garibaldi, L., Aizen, M., Klein, A., Cunningham, S. & Harder, L.** 2011. Global growth and stability of agricultural yield decrease with pollinator dependency. *Proceedings of the National Academy of Sciences of the United States of America*, 108: 5909–5914.
- Garibaldi, L.A., Bartomeus, I., Bommarco, R., Klein, A.M., Cunningham, S.A., Aizen, M.A., Boreux, V., Garratt, M.P., Carvalheiro, L.G., Kremen, C. & Morales, C.L.** 2015. Trait matching of flower visitors and crops predicts fruit set better than trait diversity. *Journal of Applied Ecology*, 52(6): 1436–1444.

- Garibaldi, L.A., Carvalho, L.G., Vaissière, B.E., Gemmill-Herren, B., Hipólito, J., Freitas, B.M., Ngo, H.T., Azzu, N., Sáez, A., Åström, J. and An, J., Blochtein, B., Buchori, D., Chamorro, F., Silva, F., Devkota, K., Ribeiro, M., Freitas, L., Gaglianone, M.C. & Zhang, H.** 2016. Mutually beneficial pollinator diversity and crop yield outcomes in small and large farms. *Science*, 351(6271): 388–391.
- Garibaldi, L.A., Steffan-Dewenter, I., Winfree, R., Aizen, M.A., Bommarco, R., Cunningham, S.A., Kremen, C., Carvalho, L.G., Harder, L.D., Afik, O., Bartomeus, I., Benjamin, F., Boreux, V., Cariveau, D., Chacoff, N., Dudenhöffer, J., Freitas, B., Ghazoul, J., Greenleaf, S. & Klein, A.** 2013. Wild pollinators enhance fruit set of crops regardless of honey bee abundance. *Science*, 339(6127): 1608–1611.
- IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services).** 2018. *The IPBES assessment report on land degradation and restoration*. Montanarella, L., Scholes, R. & Brainich, A. (eds.). Bonn, Germany, Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
- IPBES.** 2019. *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. Brondizio, E.S., Settele, J., Díaz, S. & Ngo, H.T. (eds.). Bonn, Germany, Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
- Johnson, J.A., Ruta, G., Baldos, U., Cervigni, R., Chonabayashi, S., Corong, E., Gavryliuk, O., Gerber, J., Hertel, T., Nootenboom, C. & Polasky, S.** 2021. *The Economic Case for Nature: A Global Earth-Economy Model to Assess Development Policy Pathways*. Washington, DC, World Bank.
- Lowder, S.K., Sánchez, M.V. & Bertini, R.** 2021. Which farms feed the world and has farmland become more concentrated? *World Development*, 142: 105455.
- OECD (Organisation for Economic Co-operation and Development).** 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the Challenges Facing Food Systems*. Paris, OECD Publishing.
- Pörtner, H.O., Scholes, R.J., Agard, J., Archer, E., Arneth, A., Bai, X., Barnes, D. et al.** 2021. *Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change*, IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4659158
- Redmond, I., Aldred, T., Jedamzik, K. & Westwood, M.** 2006. *Recipes for Survival: Controlling the Bushmeat Trade*. Report for WSPA. London.
- Secretariat of the Convention on Biological Diversity.** 2020. *Global Biodiversity Outlook 5*. Montreal.
- Smith, P., Nkem, J., Calvin, K., Campbell, D., Cherubini, F., Grassi, G. et al.** 2019. Interlinkages between desertification, land degradation, food security and greenhouse gas fluxes: Synergies, trade-offs and integrated response options. In: *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*. Shukla, P.R., Skea, J., Calvo Buendia, E., Masson-Delmotte, V., Portner, H.-O., Roberts, D.C., Zhai, P., Slade, R., Connors, S., van Diemen, R., Ferrat, M., Haughey, E., Luz, S., Neogi, S., Pathak, M., Petzold, J., Portugal Pereira, J., Vyas, P., Huntley, E., Kissick, K., Belkacemi, M. & Malley, J. (eds.). IPCC.
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L., Cordeiro, C.L., Crouzeilles, R., Jakovac, C.C., Junqueira, A.B., Lacerda, E., Latawiec, A.E., Balmford, A. & Brooks, T.M.** 2020. Global priority areas for ecosystem restoration. *Nature*, 586(7831): 724–729.
- Thompson, A., Sanders, J., Tandstad, M., Carocci, F. & Fuller, J.** 2016. *Vulnerable marine ecosystems: processes and practices in the high seas*. Fisheries and Aquaculture Technical Paper No. 595. Rome, FAO.
- UNEP (United Nations Environment Programme).** 2021. *Becoming #GenerationRestoration: Ecosystem restoration for people, nature and climate*. Nairobi

UNEP, International Sustainability Unit, International Coral Reef Initiative & Trucost. 2018. *The Coral Reef Economy: The Business Case for Investment in the Protection, Preservation and Enhancement of Coral Reef Health*. Nairobi.

World Economic Forum. 2020. *The Global Risks Report 2020*. Geneva, Switzerland.

WWF (World Wildlife Fund). 2021. *The World's Forgotten Fishes*. Gland, Switzerland, WWF International.

Ye, Y., Cochrane, K., Bianchi, G., Willmann, R., Majkowski, J., Tandstad, M. & Carocci, F. 2013. Rebuilding global fisheries: the World Summit Goal, costs and benefits. *Fish and Fisheries*, 14: 174–185.



Appendix 1: Full programme

Day 1: Tuesday 6 July 2021

10:00h – 13:00h

OPENING SESSION

Introduction

Facilitator: **Maria Helena Semedo**, Deputy Director-General, Food and Agriculture Organization of the United Nations

QU Dongyu, Director-General, Food and Agriculture Organization of the United Nations

Elizabeth Maruma Mrema, Executive Secretary, Convention on Biological Diversity

SESSION 1: MEETING PEOPLE'S NEEDS THROUGH SUSTAINABLE USE OF BIODIVERSITY

Co-chairs: **H.E. Marie-Therese Sarch**, Ambassador and Permanent Representative, United Kingdom of Great Britain and Northern Ireland and **H.E. Thanawat Tiensin**, Ambassador and Permanent Representative, Thailand

Keynote: *Biodiversity, Food and Nutrition*

Gerda Verburg, Coordinator Scaling Up Nutrition Movement, United Nations Assistant Secretary-General

Panel 1

Sustainable Wildlife Management

Julia Fa, Professor Biodiversity and Human Development, Manchester Metropolitan University, UK

The Role of Genetic Resources for Food and Agriculture

François Pythoud, Special Envoy International Sustainable Agriculture, Federal Office for Agriculture, Switzerland

Forests, Trees Outside Forests, Biodiversity and People

Tony Simons, Executive Director, CIFOR-ICRAF/Director General, World Agroforestry (ICRAF)

Discussion

Panel 2

Soil Biodiversity - The Basis

Luca Montanarella, Senior Expert, Joint Research Centre, European Commission

Reducing Pollution: Managing Fertilizers for Profit and Biodiversity

Alzbeta Klein, Director-General, International Fertilizer Association

Biodiversity and One Health

Andrew Cunningham, Professor Wildlife Epidemiology & Deputy Director of Science, Zoological Society of London, UK

Family Farmers' Contributions to Biodiversity Sustainable Use and Conservation

Estrella Penunia, Secretary General, Asian Farmers' Association for Sustainable Rural Development

Discussion

13:00h – 14:30h Break

14:30h – 18:00h

SESSION 2: MAINSTREAMING BIODIVERSITY FOR THE 4 BETTERS: BETTER PRODUCTION, BETTER NUTRITION, A BETTER ENVIRONMENT, AND A BETTER LIFE

Co-chairs: **H.E. Nosipho Nausca Jean Ngcaba**, Ambassador and Permanent Representative, South-Africa and **H.E. Miguel Jorge García Winder**, Ambassador and Permanent Representative, Mexico

Keynote: *Biodiversity and Human Rights*

David Boyd, United Nations Special Rapporteur on human rights and the environment

Panel 1

United Nations Food Systems Summit Action Track on Nature-Positive Production

João Campari, Global Leader Food Practice, World Wildlife Fund

How Integrated Land/Seascape Management Supports Biodiversity

Sara Scherr, President and CEO, EcoAgriculture Partners

The Power of Pollinators

Lucas Garibaldi, Professor, Universidad Nacional de Rio Negro, Argentina

Protecting Biodiversity through Fisheries Management

Ray Hilborn, Professor Aquatic and Fishery Science, University of Washington, USA

Discussion

Panel 2

Sustainable Food Production in the Amazon

Percy Summers, Senior Director Science and Development, Conservation International, Peru

Forest Restoration in the Sahel

Josef Garvi, Executive Director, Sahara Sahel Foods, Niger

Coastal and Mangrove Restoration

Catherine Lovelock, Professor of Biological Sciences, University of Queensland, Australia

Pasture Restoration and Sustainable Grazing Practices

Luís Gustavo Barioni, Agronomist and Animal Scientist, Embrapa Agricultural Informatics, Brazil

Keynote: *The Economic Costs of Biodiversity Loss and Ecosystem Degradation for Agriculture Sectors: Valuing Biodiversity as the Basis of Production*

FAN Shenggen, Dean Global Food Economics and Policy and Chair Professor at China Agricultural University

Discussion

Co-Chairs' Conclusions

H.E. Marie-Therese Sarch, Ambassador and Permanent Representative, United Kingdom of Great Britain and Northern Ireland (on behalf of the four Co-Chairs)

Day 2: Wednesday 7 July 2021

10:30h – 13:30h

OPENING SESSION

Facilitator: **Maria Helena Semedo**, Deputy Director-General, Food and Agriculture Organization of the United Nations

QU Dongyu, Director-General, Food and Agriculture Organization of the United Nations

Elizabeth Maruma Mrema, Executive Secretary, Convention on Biological Diversity

Cultural note

HE Hui, soprano, China

Keynote: *Biodiversity in Food Systems Transitions*

Shakuntala Haraksingh Thilsted, 2021 World Food Prize Winner

The Critical Importance of Ecosystem Restoration

Bibi Ameenah Firdaus Gurib-Fakim, Former President of Mauritius

Co-Chairs' Interim Report on the Outcomes of the Global Dialogue

H.E. Nosipho Nausca Jean Ngcaba, Ambassador and Permanent Representative, South Africa (on behalf of the four Co-Chairs)

PANEL DISCUSSION I: STATUS OF DEVELOPMENT OF THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

Facilitators: **Kent Nnadozie**, Secretary, International Treaty on Plant Genetic Resources for Food and Agriculture, and **Irene Hoffmann**, Secretary, Commission on Genetic Resources for Food and Agriculture

The Roles and Contributions of Agriculture Sectors and their Reflection in the Draft Post-2020 Global Biodiversity Framework

Francis Ogwal (Uganda) and **Basile van Havre** (Canada), Co-Chairs OEWG on the Post-2020 GBF

FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors

Eduardo Mansur, Director, Office of Climate Change, Biodiversity and Environment, Food and Agriculture Organization of the United Nations

Roundtable discussion involving Bureau members of FAO intergovernmental processes and biodiversity related Conventions

Yasmina El Bahloul, Chairperson, International Treaty on Plant Genetic Resources for Food and Agriculture Governing Body

John Greifer, CPM Vice-Chairperson, International Plant Protection Convention

Bommakanti Rajendar, Chairperson, Committee on Agriculture

Yusuf Serengil, Vice-Chairperson, Committee on Forestry

Renée Sauv e, Vice-Chairperson, Committee on Fisheries

13:00h – 14:30h Break

15:00h – 18:00h

PANEL DISCUSSION II: THE GLOBAL BIODIVERSITY FRAMEWORK: SUPPORTING BIODIVERSITY FOR FOOD AND AGRICULTURE. RECENT INITIATIVES AND APPROACHES

Facilitators: **David Cooper**, Deputy Executive Secretary, Convention on Biological Diversity, and **Eduardo Mansur**, Director, Office of Climate Change, Biodiversity and Environment, Food and Agriculture Organization of the United Nations

HUANG Runqiu, Minister Ecology and Environment, People's Republic of China

Jorge Arturo Argueta Villamar, Deputy Secretary Planning and Environmental Policy, Mexico

Janusz Wojciechowski, Commissioner for Agriculture, European Commission

Simplice Nouala, Head of Division, Agriculture and Food Security, African Union Commission

Joyce Msuya, Assistant Secretary-General and Deputy Executive Director, United Nations Environment Programme

Martien Van Nieuwkoop, Global Director, Agriculture and Food, World Bank

Domingos Gove, Director, Food, Agriculture and Natural Resources, Southern African Development Community

Jyotsna Puri, Director, Environment, Climate, Gender and Social Inclusion Division, International Fund for Agricultural Development

Co-Chairs Summary of the Global Dialogue

H.E. Miguel Jorge García Winder, Ambassador and Permanent Representative, Mexico (on behalf of the four Co-Chairs)

CLOSING REMARKS

QU Dongyu, Director-General, Food and Agriculture Organization of the United Nations

Elizabeth Maruma Mrema, Executive Secretary, Convention on Biological Diversity

Appendix 2: Speakers

Ms Gerda Verburg is UN Assistant Secretary-General and Coordinator of the Scaling Up Nutrition Movement. She has extensive and broad experience from the fields of politics and international cooperation. Following her appointment as Minister of Agriculture, Nature and Food Quality of the Netherlands in 2007, she was in 2008 elected as Chair of the UN Commission on Sustainable Development (CSD 17).

From 2011, she served as Permanent Representative of the Netherlands to the Rome based UN Organizations. In 2013, she was elected as Chair of the UN Committee on World Food Security (CFS).

Ms Julia E. Fa is Professor of Biodiversity and Human Development at the Manchester Metropolitan University and a Senior Research Associate with CIFOR. She has more than 30 years' experience in academic research and teaching in conservation science and has published over 200 peer-reviewed articles and 9 books.

Mr François Pythoud is Special Envoy for International Sustainable Agriculture from the Swiss Federal Office for Agriculture. From 2016 to 2018, he was Chair of the FAO Committee on Agriculture. He currently serves as the Chair of the Commission on Genetic Resources for Food and Agriculture.

Mr Tony Simons is the Director General of World Agroforestry and Executive Director of CIFOR-ICRAF. His past experience spans the private sector, academia, and donor agencies. He is passionate about the transformative and profitable change that the private sector can bring to development.

Mr Luca Montanarella is Senior Expert at European Commission's Joint Research Centre where he leads the portfolio of soil-related projects. He chaired the Intergovernmental Technical Panel on Soils for six years and was Co-Chair of the IPBES Land Degradation and Restoration Assessment.

Ms Alzbeta Klein is Director-General of the International Fertilizer Association, the global fertilizer association with more than 400 members in 70 countries and a mission to help feed the world sustainably.

Mr Andrew Cunningham is Professor of Wildlife Epidemiology and the Deputy Director of Science at the Zoological Society of London. He also serves as a member of the FAO/OIE/UNEP/WHO One Health High-Level Expert Panel.

Ms Estrella Penunia is Secretary General of the Asian Farmers' Association for Sustainable Rural Development. The Association currently has 13 million family farmers as members, engaged in the production of crops and livestock, fisheries, forestry, herding and pastoralism.

Mr David Boyd is Associate Professor of law, policy, and sustainability at the University of British Columbia. In 2018, he was appointed as UN Special Rapporteur on human rights and the environment. He has advised many governments on environmental, constitutional, and human rights policy and co-chaired Vancouver's effort to become the world's greenest city by 2020.

Mr João Campari is Global Leader of Food Practice at WWF, and Chair of Action Track 3 of the UN Food Systems Summit. His career in international development has focused on balancing agricultural production and conservation.

Ms Sara J. Scherr is an agricultural and natural resource economist who founded the non-profit EcoAgriculture Partners, the Landscapes for People, Food and Nature' network, and the collaborative 1000 Landscapes for 1 Billion People initiative. Hers is a prominent voice promoting locally led regeneration of agricultural landscapes for food security, rural livelihoods, and ecosystem health.

Mr Lucas Garibaldi is a Professor and research scientist at the Universidad Nacional de Rio Negro, Argentina. He is the Director of the Institute of Natural Resources, Agroecology and Rural Development. He was one of the coordinating lead author of the IPBES Pollination Assessment.

Mr Ray Hilborn is Professor of Aquatic and Fishery Science at the University of Washington. His research focuses on how to best manage fisheries to provide sustainable benefits to human society. He is also interested in the role of fish in the global food system and the comparative environmental cost of different foods.

Mr Percy Summers is Senior Director of Science and Development for Conservation International – Peru. He leads the Sustainable Landscapes Partnership for Peru and grows native fruits using sustainable methods in the foothills of the Yanachaga-Chemillen National Park.

Mr Josef Garvi is Executive Director of Sahara Sahel Foods, Niger – a social enterprise that supports greening efforts in the Sahel. He grew up in Niger, where at a young age he became passionate about greening the drylands through food-bearing, naturally drought-resistant plants.

Ms Catherine Lovelock is Professor of Biological Sciences at the University of Queensland, Australia. Her research focusses on the ecology of coastal and marine plant communities and providing knowledge to underpin the conservation and restoration of these ecosystems.

Mr Luís Gustavo Barioni is an Agronomist and Animal Scientist from Embrapa, Brazil. His research experience includes interactions between animal production systems and climate change, with an emphasis on systems modelling.

Mr FAN Shenggen is Dean of Global Food Economics and Policy and Chair Professor at China Agricultural University. He is also a member of the Global Panel on Agriculture and Food Systems for Nutrition, and the Council of Advisers of the World Food Prize. In 2014, Mr FAN received the Hunger Hero Award from the World Food Programme in recognition of his commitment and leadership in fighting hunger. An economist, he has been Director General of the International Food Policy Research Institute (IFPRI) since 2009.

Ms Shakuntala Haraksingh Thilsted is the WorldFish Global Lead for Nutrition and Public Health. She was awarded the 2021 World Food Prize for her pioneering research, critical insights, and landmark innovations in developing holistic and nutrition-sensitive approaches to aquatic food systems, including fisheries and aquaculture.

Ms Bibi Ameenah Firdaus Gurib-Fakim was the 6th President and first female President of the Republic of Mauritius. She is an entrepreneur, Professor of Organic Chemistry, biodiversity scientist, and author of books on herbal medicine and sustainable development. She created the first ever database on the medicinal plants of Mauritius and then translated it into an enterprise prior to joining the Presidency.

Appendix 3: Joint report of the co-chairs

Biodiversity, Food and Agriculture: Vital Partners for People, Planet, and Prosperity

Joint Report of the co-chairs of the Global Dialogue on the Role of Food and Agriculture in the Post-2020 Global Biodiversity Framework

H.E. Nosipho Nausca Jean Ngcaba, Ambassador and Permanent Representative of South Africa to FAO

H.E. Marie-Therese Sarch, Ambassador and Permanent Representative of the United Kingdom of Great Britain and Northern Ireland to FAO

H.E. Thanawat Tiensin, Ambassador and Permanent Representative of Thailand to FAO

H.E. Miguel Jorge García Winder, Ambassador and Permanent Representative of Mexico to FAO

The Global Dialogue on the Role of Food and Agriculture in the Post-2020 Global Biodiversity Framework was convened virtually by the Food and Agriculture Organization of the United Nations (FAO) and the Secretariat of the Convention on Biological Diversity (CBD) on 6 and 7 July 2021. This Joint Report presents the co-chairs' summary of the Global Dialogue.

The Global Dialogue was a follow-up to the Multi-stakeholder Dialogue on Biodiversity Mainstreaming across Agricultural Sectors, with the purpose of discussing the role of the food and agriculture sectors¹ as part of the post-2020 global biodiversity framework. The meeting report and this joint report of the co-chairs will be brought to the attention of the Parties to the Convention on Biological Diversity in advance of the 15th Conference of the Parties in Kunming, China, and other relevant meetings and processes.

The global dialogue was opened, and closed, by interventions from FAO's Director-General, Mr. QU Dongyu, and the Executive Secretary of the CBD, Ms. Elizabeth Maruma Mrema. The dialogue featured 36 speakers, including leaders and champions of biodiversity and of the food and agriculture sectors in policy, science, and practice, representing a wide range of stakeholder groups and world regions, and working across the crop, livestock, forestry, fisheries, and aquaculture sectors. More than 950 participants contributed to the dialogue, including by submitting questions for panellists and speakers, through discussion in the webinar chat, and by responding to online polls. The Global Dialogue concluded with a High-level Segment on initiatives and approaches to mainstream biodiversity conservation and sustainable use in the food and agricultural sectors, featuring the participation of ministers and representatives of regional organizations and international development institutions.

The first session of the global dialogue focused on meeting people's needs through the sustainable use of biodiversity, highlighting the indivisible links between people and nature, and the contributions of Indigenous Peoples, family farmers and other actors of the agricultural sectors, to the sustainable management of ecosystems and biodiversity.

The second session was devoted to the discussion of how the sustainable management of biodiversity across ecosystems, landscapes and seascapes, and its restoration, contribute to achieving better production, better nutrition, a better environment, and a better life.

¹ The term "agriculture" and its derivatives include crop and livestock production, fisheries and aquaculture, marine products, forestry, and primary forestry products.

On day 2, we had the opportunity to address developments in and progress of the post-2020 global biodiversity framework and learn from different initiatives and approaches that are being implemented around the globe to support biodiversity for food and agriculture.

The dialogue provided a rich and vast number of ideas, experiences, and examples, all of which coincided in recognising the important role that biodiversity has for the future of humankind and the negative impacts that many of the current production systems have on biodiversity; concluding with the urgent need to transform food systems, institutions and policies if we are to reverse current trends.

To help organize these learnings and ideas, we identified four clusters that encompass the discussions. In the following sections we present a brief summary of each of these clusters and end our report with a series of conclusions to help to transform this dialogue into action for the sustainable use, protection, and preservation of biodiversity.

Cluster 1: Current state of affairs and the loss of biodiversity:

- a. It is evident that we are facing a process of accelerated biodiversity loss and that the sustainability of our future will depend a great deal on our ability to reverse this trend.
- b. Beyond its intrinsic value, biodiversity is essential for meeting people's sustainable development needs and improving planetary health. The sustainable use, conservation, and restoration of biodiversity provide critical contributions to the implementation of the 2030 Agenda and FAO's new strategic framework.
- c. Biodiversity, including the diversity of genetic resources, species, and ecosystems, delivers services that underpin the production of food, fibre, feed, and fuel, making an essential contribution to food security, nutrition, and livelihoods.
- d. The conservation and restoration of ecosystems contribute significantly to climate mitigation and provide a protective effect against emerging infectious diseases. Conversely, habitat destruction could increase the risk of future pandemics.
- e. Biodiversity and ecosystem services contribute significantly to economic prosperity and wellbeing. Through environmental degradation and climate change, we risk the collapse of ecosystem services, which would imply a significant loss in quality of life and GDP.
- f. The hidden costs of biodiversity loss and degradation are not yet accounted for in economic transactions throughout agri-food systems. Improved metrics are urgently needed to support policy, investment and business decision-making, and to monitor progress.

Cluster 2: The Role of Human Rights:

- a. Human rights and the health of the biosphere are deeply intertwined, and they depend on each other. Therefore, without securing basic human rights, especially for those living in rural areas, Indigenous Peoples, women and the elderly, the biosphere's health will continue to be in danger.
- b. Human rights to life, health, food, a healthy environment, water, an adequate standard of living, and culture are threatened by biodiversity loss and conversely, inadequate provision of these rights forces millions of people to look for sustenance increasing their impact on biodiversity and natural resources.
- c. Biodiversity is the basis of many livelihoods. Small-scale producers, family farmers, local communities, and Indigenous Peoples primarily rely on biodiversity and natural resources. Many of these groups maintain a strong connection to the natural environment through hunting, herding, fishing and gathering. Indigenous

Peoples, local communities, pastoralists, small-scale producers and family farmers – often the guardians of local biodiversity – are disproportionately impacted by climate change and the loss of biodiversity.

Cluster 3: Impacts of current agricultural, livestock, fisheries and forestry practices and consumption patterns.

- a. It was clear from all the discussions that one of the major and most important threats to biodiversity comes from current agricultural, livestock, fisheries, and aquaculture production systems.
- b. Direct causes include overexploitation of wild species, agricultural pollution from pesticides and fertilizers, and deforestation associated with agricultural expansion, especially monocultural production to supply global commodities.
- c. These threats are exacerbated by public support to agriculture, including agricultural subsidies coupled to production outputs and inputs, such as fossil fuels, pesticides, and fertilizers. It is estimated that of USD 720 billion provided annually in public support to agriculture, only 17 percent is delivered in ways that promote sustainable production and resilience. Only 5 percent of public support is provided as green subsidies.
- d. Food loss and waste creates an enormous strain on natural resources. An estimated 14 percent of all food is lost, and 17 percent is wasted, representing additional pressure on biodiversity.
- e. Climate change is also a direct driver of biodiversity loss and exacerbates other pressures. We know that the agricultural sectors are both vulnerable to climate change and generate one-fifth of greenhouse gas emissions. The climate and biodiversity crises need to be addressed in tandem, and the sustainable transformation of agri-food systems is a critical part of the solution to address these simultaneously.
- f. Current agri-food systems and diets are a significant driver of non-communicable disease, including malnutrition in all its forms. The simplification of production and consumption that focuses on a small number of commodities threatens food diversity and nutrition and undermines the resilience and adaptation of agri-food systems to climate change.
- g. Concerns were expressed about the impact of unsustainable forms of livestock production and wild meat consumption on biodiversity, climate, and the emergence of zoonoses. However, it was also highlighted that customary wildlife harvesting, small-scale livestock production, and pastoralism make critical contributions to the nutrition, resilience, and livelihoods of many communities in the Global South.
- h. A shift towards diets that are healthier, diversified, more sustainable and less wasteful is essential. It was emphasised that solutions need to be tailored to regional, national, and local contexts. As an example, in situations where there is an overconsumption of livestock products, restoring the balance between plant- and animal- based protein can provide win-wins by increasing planetary and human health. Alternative insect and sustainable ocean products can also contribute, alongside a reduction in food loss and waste. A call to act collectively to find a balance was stressed by many of the participants (CBD COP 15, UNFCCC COP 26, the UN Food Systems Summit, and the Nutrition for Growth Summit can all help).

Cluster 4: Moving forward:

- a. Inequities in agri-food systems prevent the realisation of human rights and hurt sustainability. When the rights of Indigenous Peoples, local communities, women, youth, small-scale producers, and family farmers are recognised and protected, and when they have access to tenure and economic opportunities, they can make enormous contributions as custodians of biodiversity. Not only is their empowerment and increased agency critical, but also the full recognition of their human rights.

- b. The best way to move forward is to look for sustainable and context-specific solutions that support biodiversity, avoiding “one-size-fits-all” solutions, and using experiences that have demonstrated their transformative potential across regions and sectors.
- c. It is imperative to work towards the revival and promotion of traditional and underutilised food sources in terrestrial and aquatic systems. Many of these species and varieties have the potential to strengthen food security and nutrition while providing environmental benefits and enhancing resilience.
- d. Work towards the transformation of current production systems with the use of agroecological and other innovative practices based on scientific and indigenous knowledge. These include diversified and integrated/circular production systems such as agroforestry, crop–livestock and integrated aquaculture systems. Diversified, innovative and agroecological production systems are knowledge intensive. Scaling up these systems requires a wider range of approaches to research and extension that are more participatory, working across disciplines, and integrating traditional and local knowledge to co-create innovations.
- e. Transform fisheries management towards more sustainable production and the implementation of the ecosystem approach to fisheries.
- f. Increase resource-use efficiency and make judicious use of production inputs and land, including through sustainable nutrient management.
- g. Better use of genetically diversified varieties and populations is a way to reduce risk and increase overall production stability while protecting biodiversity.
- h. Since in many situations, institutional barriers act to lock in unsustainable practices, it is imperative to continue to work towards the implementation of transformative changes to enable and accelerate the scaling up of sustainable and biodiverse production and consumption.
- i. Implement measurement and data collection process that provide clear estimates of the economic costs of biodiversity losses. Mainstream natural capital accounting to ensure that investment decisions integrate these hidden costs and consider the risks of biodiversity loss and ecosystem degradation.
- j. Policy interventions that “push and pull” provide a key opportunity for governments to encourage a shift from production practices that harm biodiversity to more sustainable alternatives. In different contexts these may include regulations, incentives, taxes, payments for ecosystem services, or public procurement schemes.
- k. Value chain initiatives and markets that reward producers for sustainable management of biodiversity have a powerful scaling potential. Examples include voluntary initiatives and new regulatory requirements to remove deforestation from international value chains.
- l. Integrating sustainability considerations into nutritional guidelines can provide a tool to support transitions, based on the national context.
- m. Collective action to address biodiversity loss and support the provisioning of ecosystems services requires deeper levels of cross-sectoral and multi-actor collaboration. Landscape partnerships and other territorial approaches have proven successful in bringing together multiple actors to facilitate joint planning, investment and implementation of sustainability initiatives that integrate biodiversity and production objectives.

- n. There is a need to increase and sustain investments in the sustainable use, conservation, and restoration of biodiversity in productive landscapes and seascapes, including directing greater support to small-scale producers and their food systems. Options for financing investments include re-directing existing subsidies that are harmful to biodiversity, and carbon financing schemes, including emerging blue carbon initiatives to restore and protect coastal ecosystems, such as mangroves, with production, resilience, and climate mitigation benefits.

Conclusions

- a. At the global level, we need to combine our efforts and focus on multilateral cooperation. There is a need to better align ambition and action for food security and biodiversity, and to promote a coordinated approach to address biodiversity loss, climate change, and land and ecosystem degradation.
- b. The UN common approach to integrating biodiversity and nature-based solutions for sustainable development is a welcome development to strengthen policy and programme planning and delivery between the Rome-based agencies, and as One UN.
- c. Acting as a neutral platform for the agricultural sectors, and through its existing sectoral and intergovernmental bodies, FAO should stand ready to support the implementation of the post-2020 framework, including through the development of normative instruments related to biodiversity in the agricultural sectors.
- d. COP 15 in Kunming, China, is a vital opportunity and we must reach a consensus that delivers an ambitious and robust post-2020 framework that is also balanced and pragmatic. Specific recommendations for the design and implementation of the framework that were discussed during the global dialogue included:
 - Integrating human rights and landscape and ecosystem approaches as guiding principles;
 - Addressing both sustainable production and consumption, recognising the need for a shift towards more sustainable and healthy diets;
 - Recognising the importance of genetic resources diversity for the sustainable transformation of food and agriculture; and
 - Ensuring adequate resource mobilization and financing, with options including repurposing harmful agricultural subsidies and the possibility of a specific biodiversity financing mechanism for low-income countries based on the model of the Paris Agreement.
- e. The implementation of the post-2020 framework will depend on full participation across the agricultural sectors – but they also need to be supported by the wider public as consumers and citizens. We all have a responsibility to contribute.
- f. The post-2020 framework should seek to apply existing instruments, tools and guidance developed by FAO and other specialized institutions, specifically targeting the agricultural sectors.
- g. Monitoring and reporting on the post-2020 framework should build synergies with the SDGs, including their indicators and targets. FAO is the custodian agency of 21 SDG indicators, including indicators related to sustainable agriculture and biodiversity in agri-food systems.

CONTACT
US

Office of Climate Change, Biodiversity and Environment
Biodiversity@fao.org

Food and Agriculture Organization of the United Nations
Rome, Italy

