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COMMITTEE ON AGRICULTURE

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**FAO's work on the climate change, biodiversity and food security nexus,
with a focus on scaling up agrifood system solutions for more sustainable
and inclusive development**

Executive Summary

Agrifood system solutions hold the potential to play a central role in the implementation of commitments made in the Paris Agreement¹ and the Biodiversity Plan.² There is a clear opportunity to accelerate progress in sustainable development and building resilient agrifood systems by leveraging solutions that concurrently address biodiversity loss, climate change and food insecurity, the so-called food–biodiversity–climate nexus approach.

FAO has extensive experience in providing technical and policy support to Members on the three agendas of food security and nutrition, biodiversity and climate change. Building on this, FAO has the potential to scale up this support in an integrated way to foster more action and finance for the food–biodiversity–climate nexus. In the context of FAO's Strategic Framework 2022-31, the *four betters*,³ and the related Programme Priority Areas (PPAs), this nexus approach will help to address climate change mitigation and adaptation through agrifood systems (BE1); biodiversity and ecosystem services for food and agriculture (BE3); social and economic inequalities and resilient livelihoods (BL1); and agriculture and food emergencies (BL4).

This includes helping Members to develop a coherent set of agrifood system interventions and solutions that can be integrated into their National Biodiversity Strategies and Action Plans (NBSAPs), National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs) and other sustainable agriculture and food system plans. These agrifood system solutions can conserve, restore and sustainably use biodiversity, thereby contributing to Sustainable Development Goals (SDGs) to conserve and sustainably use the oceans, seas and marine resources (SDG 14) and protect, restore and promote sustainable use of terrestrial ecosystems (SDG 15). They also support climate change mitigation and adaptation (SDG 13), with positive outcomes for food security and nutrition (SDG 2), and the achievement of multiple other SDGs.

¹ UNFCCC. The Paris Agreement <https://unfccc.int/process-and-meetings/the-paris-agreement>

² CBD. The Biodiversity Plan <https://www.cbd.int/gbf>

³ FAO's Strategic Framework 2022-31 <https://www.fao.org/strategic-framework/en>

Suggested action by the Committee

The Committee is invited to:

- a) *take note* of the progress made in the implementation of the FAO Strategies and Action Plans on Mainstreaming Biodiversity across Agricultural Sectors and on Climate Change to provide integrated support to Members across the food security and nutrition, biodiversity and climate agendas;
- b) *provide guidance* on proposed priorities for action and investment for a more integrated food–biodiversity–climate nexus approach across FAO’s work;
- c) *invite* FAO to scale up support for the food–biodiversity–climate nexus approach, including through an in-depth study on agrifood system interventions and solutions that bring together multiple benefits and associated technical and policy support.

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I. Introduction

1. Agrifood systems depend on biodiversity and a stable climate. Biodiversity loss and climate change therefore present significant challenges to agrifood systems, threatening to reduce agricultural productivity and thus the availability, accessibility and quality of food, and impairing the capacity of countries to achieve SDG 2. The impacts of climate change on ecosystems, their functions and services have cascading impacts on the four dimensions of food security (availability, accessibility, utilisation and stability).⁴ Impacts of biodiversity loss and climate change also disproportionately affect marginalized and poorer people or groups,⁵ due to a stronger reliance on agrifood systems and ecosystem services for their livelihoods and well-being, as well as less access to land tenure, productive resources, services, local institutions and economic opportunities. These pre-existing conditions and vulnerabilities will perpetuate and reinforce inequalities as impacts from climate change and biodiversity loss unfold,^{6,7} and can dis-incentivize agrifood producers to adopt sustainable practices.

2. Unsustainable practices in agrifood systems are one of the primary global drivers of biodiversity loss and climate change.⁸ Biodiversity is declining faster than at any time in human history,⁹ while 21–37 per cent of total greenhouse gas emissions could be attributed to the global agrifood systems, therefore reinforcing their vulnerability.¹⁰ A food–biodiversity–climate nexus approach considers these three global goals simultaneously, fostering opportunities for accelerated progress and actively seeking triple-win solutions (Figure 1). Such an integrated approach can deliver multiple benefits, encourage the efficient use of limited financial resources, help to better manage risks and uncertainties, and build long-term resilience of agrifood systems.

3. The conservation, restoration and sustainable use of biodiversity, including at the genetic and ecosystem levels, are crucial for climate change adaptation and resilience and thus for food security and nutrition now and in the future. Healthy ecosystems are more resilient and capable to adapt and thus able to store and capture carbon in the future, contributing to climate change mitigation. On the other hand, some climate actions can have detrimental effects on biodiversity and/or on food security. This can be the case, in particular, for some actions that could lead to maladaptation or for some mitigation actions that would compete for land with biodiversity or food production with the potential to contribute to biodiversity loss or exclude and adversely affect vulnerable groups, such as women and rural communities.^{11,12}

4. In the context of FAO’s Strategic Framework 2022-31, this nexus approach will contribute to the implementation of its PPAs for a *better environment* (BE) and a *better life* (BL), that are specifically addressing: climate change mitigation and adaptation through agrifood systems (BE1);

⁴ FAO. 2015. *Climate change and food security: risks and responses*. Rome.

<https://openknowledge.fao.org/server/api/core/bitstreams/a4fd8ac5-4582-4a66-91b0-55abf642a400/content>

⁵ FAO. 2023. *The State of Food and Agriculture 2023 – Revealing the true cost of food to transform agrifood systems*. Rome. <https://doi.org/10.4060/cc7724en>

⁶ Ibid.

⁷ FAO. 2024. *The unjust climate – Measuring the impacts of climate change on rural poor, women and youth*. Rome. <https://doi.org/10.4060/cc9680en>

⁸ Pörtner, H.O. et al. 2021. *Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change (Version 5)*. Bonn, Germany, IPBES Secretariat. <https://doi.org/10.5281/zenodo.5101125>

⁹ IPBES. 2019. *Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. <https://doi.org/10.5281/zenodo.3831673>

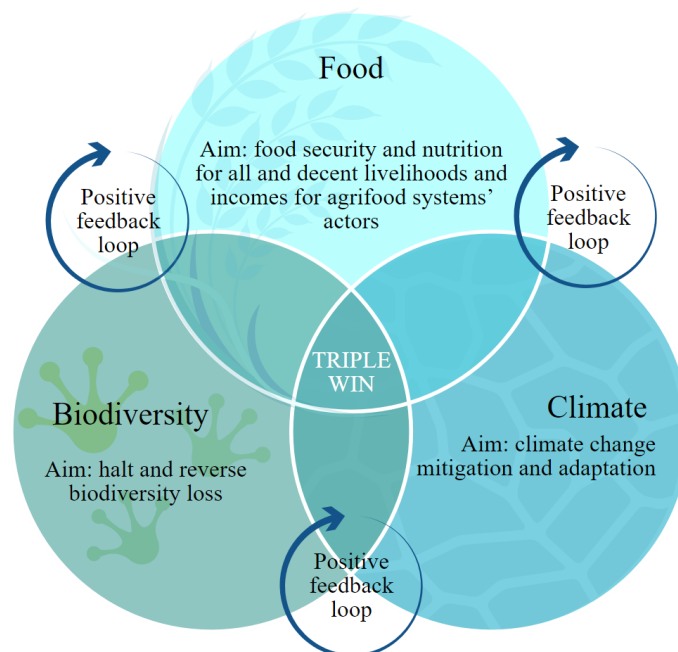
¹⁰ IPCC. 2019. *Climate Change and Land. An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. https://www.ipcc.ch/site/assets/uploads/sites/4/2022/11/SRCCL_SPM.pdf

¹¹ Pörtner, H.O. et al. 2021. *Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change (Version 5)*. Bonn, Germany, IPBES Secretariat. <https://doi.org/10.5281/zenodo.5101125>

¹² Pingault, N., Licona Manzur, C., Meybeck, A., Gitz, V., Baral, H., Bernoux, M., Crumpler, K., Duchelle, A.E., Drieux E. & Thomas, R.P. 2024. *Land use and the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security*. Environment and Natural Resources Management Working Paper, No. 99. Rome, FAO and CIFOR. <https://doi.org/10.4060/cd0981en>

biodiversity and ecosystem services for food and agriculture (BE3); social and economic inequalities and resilient livelihoods (BL1); and agriculture and food emergencies (BL4).

Figure 1. The food–biodiversity–climate nexus



II. Multilateral progress within the food–biodiversity–climate nexus

Implementation of the FAO Strategies and Action Plans on Mainstreaming Biodiversity across Agricultural Sectors and on Climate Change

5. The FAO Council, at its 163rd Session, adopted the *FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors* (Biodiversity Strategy).¹³ It aims to mainstream biodiversity across agricultural sectors and reduce the negative impacts of agriculture on biodiversity, to promote sustainable agricultural practices and to conserve, enhance, preserve and restore biodiversity as a whole. Its implementation is reported to the relevant Governing and Statutory Bodies and is updated periodically to reflect evaluation outcomes and new global agreements, including those under the UN Convention on Biological Diversity (CBD) and the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA).

6. The *2021–23 Action plan for the implementation of the FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors*¹⁴ was successfully implemented, with many of the completed activities related to the food-biodiversity-climate nexus. Document COAG/2024/INF/5 reports on the implementation of the Biodiversity Strategy and its Action Plans.

7. The 2024–27 Action Plan¹⁵ builds on the experience of the previous Action Plan and is fully aligned with the Biodiversity Plan, and its actions and deliverables are mapped to the targets of the Biodiversity Plan. It also complements and is fully aligned with other FAO strategies and policies,

¹³ FAO. 2020. *FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/ca7722en>

¹⁴ FAO. 2021. *2021-23 Action Plan for the Implementation of the FAO Strategy on Mainstreaming Biodiversity across Agricultural Sectors*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cb5515en>

¹⁵ FAO. 2024. *Action Plan for the implementation of the FAO Strategy on Mainstreaming Biodiversity Across Agricultural Sectors 2024–2027*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cd0709en>

including the *Framework for Action on Biodiversity for Food and Agriculture* and the *FAO Strategy on Climate Change 2022–2031* (Climate Change Strategy).¹⁶

8. The Climate Change Strategy was endorsed by the FAO Council in June 2022 to better align FAO's climate action with the Strategic Framework 2022–31 and other FAO Strategies. It articulates FAO's vision for agrifood systems around three main pillars of action: strengthening global and regional climate policy and governance; developing countries' capacities for climate action; and scaling up climate action on the ground. The Strategy also encourages key guiding principles for action, such as science and innovation, inclusiveness, partnerships, and access to finance.

9. The Climate Change Strategy and its Action Plan 2022–2025¹⁷ consider the interlinkages among climate change, biodiversity loss and land degradation, and advocates for sustainable agrifood practices to identify solutions to all environmental crises, while also contributing to food security and sustainable development. The alignment with the Biodiversity Strategy is reflected in the strategy and action plan.

FAO's ongoing work on the food-biodiversity-climate nexus

10. The food–biodiversity–climate nexus is reflected in other FAO instruments, such as the Commission on Genetic Resources for Food and Agriculture (CGRFA, and its key publications, including the *Framework for Action on Biodiversity for Food and Agriculture* (FA BFA),¹⁸ endorsed by the Council in 2021,¹⁹ and the *Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning*.²⁰ In 2023, at its Nineteenth Regular Session, the CGRFA noted the high degree of mutual supportiveness of the *Kunming-Montreal Global Biodiversity Framework* (Biodiversity Plan) and the CGRFA's FA BFA and its Global Plans of Action.

11. The International Treaty on Plant Genetic Resources for Food and Agriculture hosted in FAO promotes the conservation and sustainable use of plant genetic diversity and makes fundamental contributions to helping achieve food security for all, while supporting researchers and farmers adapt their crops to climate change.

12. The *Integrating Agriculture in National Adaptation Plans* (NAP–Ag) programme, led by FAO and the United Nations Development Programme (UNDP),²¹ supports Least Developed Countries (LDCs) and developing countries to identify and integrate climate adaptation measures in the agriculture sectors (crops, livestock, forestry, fisheries and aquaculture) into relevant national planning and budgeting through the formulation and implementation of NAPs. This work shows how planning and implementing ecosystem-based adaptation (EbA) approaches in the agriculture sectors as part of the NAPs process can make key linkages between increasing resilience of sustainable agricultural livelihoods and ecosystem management and conservation, particularly regarding implementing the ecosystem approach to the fisheries sector to support climate change adaptation.²²

13. FAO is leading, together with the UN Environment Programme (UNEP), the UN Decade on Ecosystem Restoration, that aims to halt the degradation of ecosystems and restore them to achieve

¹⁶ FAO. 2022. *FAO Strategy on Climate Change 2022–2031*. Rome.

<https://openknowledge.fao.org/handle/20.500.14283/cc2274en>

¹⁷ FAO. 2023. *FAO Action Plan 2022–2025 for the implementation of the FAO Strategy on Climate Change*. Rome.

<https://doi.org/10.4060/cc7014en>

¹⁸ FAO. 2022. *Framework for Action on Biodiversity for Food and Agriculture*. FAO Commission on Genetic Resources for Food and Agriculture. Rome <https://openknowledge.fao.org/handle/20.500.14283/cb8338en>

¹⁹ CL 168/REP, paragraph 38. <https://openknowledge.fao.org/server/api/core/bitstreams/cc38fb4f-5278-4491-951c-8d86e0e0f278/content>

²⁰ FAO. 2015. *Voluntary guidelines to support the integration of genetic diversity into national climate change adaptation planning* <https://openknowledge.fao.org/handle/20.500.14283/i4940e>

²¹ Integrating Agriculture in National Adaptation Plans (NAP–Ag) programme, is led by FAO and UNDP, and supported by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. <https://www.fao.org/in-action/naps/overview/en/>

²² FAO. 2020. Briefing Note on National Adaptation

Plans <https://openknowledge.fao.org/server/api/core/bitstreams/15f680e2-5c0c-49b2-ab30-70fe16530e27/content>

global goals, in line with the Biodiversity Plan, the Paris Agreement and the SDGs. Additionally, FAO's work on scaling up actions on agriculture and forestry linkages (see COAG/2024/6 and COFO/2024/3) also extends beyond restoration objectives to include the role of forest-based adaptation to address gaps between current adaptation actions and the adaptation needed for reducing climate-related risks and impacts.²³

14. FAO's work on the potential of neglected and underutilized species and crop adaptation to climate change is also presented in document COAG/2024/16.

15. Furthermore, the FAO Science and Innovation Strategy, the Strategy and Vision for FAO's Work in Nutrition, the FAO Policy on Indigenous and Tribal Peoples, the FAO Policy on Gender Equality (2022–30), the FAO Rural Youth Action Plan²⁴ and the FAO Strategy for Private Sector Engagement 2021–2025 support the *four betters* and therefore create a sustainable basis for the implementation of relevant SDGs.

Recent decisions from multilateral fora relevant to agrifood systems

16. At the fifteenth meeting of the Conference of the Parties (COP 15) to the Convention on Biological Diversity (CBD), Parties adopted the *Kunming-Montreal Global Biodiversity Framework* – also known as the Biodiversity Plan – that sets out an ambitious roadmap for a world living in harmony with nature.²⁵ The 23 targets for 2030 address: reducing threats to biodiversity; meeting people's needs through sustainable use and benefit-sharing; and tools and solutions for implementation and mainstreaming.

17. All the targets of the Biodiversity Plan are directly or indirectly related to food and agriculture and, thus, to the mandate of FAO. The Plan also makes linkages, particularly relevant to the nexus approach through Target 8 on minimizing the impacts of climate change on biodiversity and building resilience, and Target 19 on mobilizing USD 200 billion per year for biodiversity, including by optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises.²⁶

18. The twenty-seventh meeting of the Conference of the Parties (COP 27) to the United Nations Framework Convention on Climate Change (UNFCCC) focused on four key themes: mitigation, adaptation, finance and collaboration. It delivered several key decisions, including the establishment of a loss and damage fund²⁷ for countries disproportionately impacted by climate change, as well as the *Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security*.²⁸ Initiatives closely linked with agriculture and food were announced, including the *Food and Agriculture for Sustainable Transformation Initiative*²⁹ (FAST), the *Action on Water Adaptation and Resilience* (AWARe), the *Initiative on Climate Action and Nutrition* (ICAN), and the *Global Waste Initiative 50 by 2050*.

19. At the 28th Session of the UNFCCC COP, Parties made progress on the first Global Stocktake designed to chart the way for fulfilling the Paris Agreement's key goals, including by underlining “*the urgent need to address, in a comprehensive and synergetic manner, the interlinked global crises of climate change and biodiversity loss*” and urged Parties to “[*reduce*] climate impacts on ecosystems and biodiversity and [*accelerate*] the use of ecosystem-based adaptation and nature-based solutions.”³⁰ Significant progress was made on issues related to agrifood systems, including the global goal on adaptation and on operationalization of the multilateral loss and damage fund. The

²³ Libert-Amico, A., Duchelle, A.E., Cobb, A., Peccoud, V. & Djoudi, H. 2022. *Forest-based adaptation: Transformational adaptation through forests and trees*. Rome, FAO. <https://doi.org/10.4060/cc2886en>

²⁴ FAO. 2022. *Rural Youth Action Plan*. Rome. <https://doi.org/10.4060/cc0583en>

²⁵ CBD/COP/DEC/15/4. <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf>

²⁶ Ibid.

²⁷ UN Climate Press Release. 2022. <https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries>

²⁸ FAO. Climate Change <https://www.fao.org/climate-change/action-areas/climate-negotiations/sharm-el-sheikh-joint-work/en>

²⁹ FAO. FAST Partnership <https://www.fao.org/climate-change/action-areas/access-to-climate-finance/fast/en>

³⁰ FCCC/PA/CMA/2023/L.17 https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf

United Arab Emirates also launched the *Declaration on sustainable agriculture, resilient food systems and climate action*, endorsed by 159 countries, to strengthen efforts to “integrate agriculture and food systems into NAPs, NDCs, Long-term Strategies, National Biodiversity Strategies and Action Plans (NBSAPs), and other related strategies before the convening of COP 30.”³¹ Additionally, the *Just Transition Pathways Work Programme* was established with the objective to assist countries in achieving equitable transitions to a low-emissions and climate-resilient future, promoting actions that simultaneously address and diminish inequalities.

20. Additionally, both the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) have reported that agrifood solutions can simultaneously support building resilience and adaptation, mitigate greenhouse gas emissions, promote the sustainable use of biodiversity and contribute to food security. For example, agroforestry has the potential to increase food security for 1.3 billion people including by increasing soil nitrogen available to crops by 46 per cent, reducing soil erosion rates by up to 50 per cent and increasing soil carbon storage by 21 per cent, while at the same time boosting ecosystem services.³² Potential benefits achieved from examples of sustainable agrifood practices and approaches on food security, biodiversity, and climate change mitigation and adaptation are provided in the Annex to the present document.

III. Priorities for action and investment to better integrate the food–biodiversity–climate nexus

Priorities for action to better integrate the food–biodiversity–climate nexus

21. Support the alignment of climate and biodiversity policies at all scales, building upon the national reporting mechanisms set up under the CBD and UNFCCC.
- a. Parties to the CBD are required, by COP 16 (October 2024), to revise or update their NBSAPs to be aligned with the Biodiversity Plan. Similarly, under the Paris Agreement, each Party is required to communicate their NDC once every five years, increasing ambition over time.
 - b. Agrifood system solutions offer an opportunity to increase coherence across NBSAPs and NDCs, and other relevant national plans and legislation (e.g. NAPs, Food Systems Pathways and Land Degradation Neutrality commitments). The development of each plan is often the responsibility of a specific ministry, which can result in parallel and fragmented decision-making.
 - c. The development of a coherent set of agrifood system interventions and solutions that could be inserted into the relevant national plans and legislation can accelerate progress and deliver multiple benefits, encourage the efficient use of limited financial resources, help manage risks and uncertainties, and improve long-term resilience.
 - d. Participation from agrifood stakeholders can be improved, through engagement in policy development at all stages, and by integrating their views and needs.
22. Improve capacities to develop national policies and implement action plans addressing the food–biodiversity–climate nexus in agrifood systems and relevant global instruments as applicable.
- a. Implementation of national action plans in agrifood systems is hindered by insufficient technical knowledge of, or experience with, practices and approaches that improve long-

³¹ [UN Climate Change. COP 28 UAE Declaration](https://www.cop28.com/en/food-and-agriculture) <https://www.cop28.com/en/food-and-agriculture>

³² FAO. 2022. The State of the World’s Forests <https://www.fao.org/3/cb9360en/online/src/html/land-restoration-productivity-agroforestry.html>; <https://www.unep.org/resources/ecosystem-restoration-people-nature-climate>; FAO. 2022. The State of the World’s Forests 2022. Forest pathways for green recovery and building inclusive, resilient and sustainable economies. Rome, FAO. <https://doi.org/10.4060/cb9360en>

- term efficiency and productivity of food systems while supporting biodiversity and climate objectives.
- b. Strengthening institutional capacities – including through technical and policy assistance, and promoting facilitated access to information, knowledge, training, research, education, financing and innovative technologies, could support the delivery of co-benefits across relevant national action plans.
 - c. To scale up good practices and approaches, efforts are needed to build evidence of their impacts with standardized and representative metrics of productivity, biodiversity loss and climate change.
23. Improve availability of, and access to, data and information on biodiversity and climate in the context of agrifood systems and support the monitoring of relevant national action plans.
- a. Data and information on biodiversity and climate in the context of agrifood systems are often fragmented, absent or not easily accessible, as well as not disaggregated by social categories and groups. This impacts national and global assessments, monitoring and evaluation of policies and practices, and evidence-based policy development that balance economic, social and environmental objectives.
 - b. FAO is the custodian of over 20 indicators in the Monitoring Framework of the Biodiversity Plan, many of which are primarily used to measure progress towards the SDGs.³³
 - c. FAO's NDC Tracking Tool,³⁴ operational since 2022 and openly available, allows users to collect information required to track progress made in implementing a country's NDC. The results provide insights into implementation achievements, shortcomings and potential areas for further enhancing an NDC, and can support policymakers in scaling ambition in their national strategies and plans.

Priorities for investment to better integrate the food–biodiversity–climate nexus

24. Invest in agrifood solutions which prioritize synergies and provide maximum co-benefits for food security and nutrition, biodiversity and climate action (see Annex for examples).
- a. FAO has demonstrated its leadership in promoting a food-biodiversity-climate nexus approach through its work on restoration and ecosystem-based adaptation across productive ecosystems, as reported in document COAG/2020/INF/13. It will be important to expand on this work and invest in these solutions, particularly in relation to the recent work carried out by FAO in multilateral processes as described in section II.
 - b. The transformation of agrifood systems requires increased international, domestic and private finance, greater cooperation between the public and private sectors, and the adoption of holistic cross-sectoral approaches to optimize delivery of multilateral environmental agreements.
 - c. NBSAPs, for example, often lack the financial resources necessary for implementation and thus remain theoretical planning documents. Sustained financial resources for investment in agrifood systems transformation are needed to ensure the effective implementation of biodiversity actions on the ground.
25. Leverage and access new sources of funding to deliver triple wins.
- a. Global financing mechanisms, such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF), increasingly recognise the importance of integrated solution

³³ CBD/COP/DEC/15/5 <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-05-en.pdf>

³⁴ NDC Partnership. Tracking Tool <https://ndcpartnership.org/knowledge-portal/climate-toolbox/ndc-tracking-tool>

planning. The new strategic plan of the GCF (2024-2027), for example, focuses on the importance of solutions that deliver multiple and equitable benefits. Whilst the mechanism is focused on climate change, it now has a target for 120 to 190 million hectares to be conserved, restored or brought under sustainable management, offering an opportunity to leverage this finance for the food–biodiversity–climate nexus.

- b. However, “existing funding mechanisms for climate and biodiversity are both underfunded and not well integrated,”³⁵ and thus diversifying financial resources remains a significant opportunity for enabling a nexus approach. An FAO analysis on global trends for climate-related development finance revealed that the share of finance addressing agrifood systems had been continuously decreasing, from about 40 per cent of the total in 2000 to less than 20 per cent in 2021.³⁶
- c. Target 19 of the Biodiversity Plan focuses on reforming incentives harmful to biodiversity, which are particularly prevalent in the agricultural sectors. Repurposing agricultural subsidies represents a multi-billion-dollar opportunity to transform agrifood systems.³⁷
- d. Additionally, FAO is actively engaged in expanding existing partnerships and forging new ones at different levels, so that a variety of stakeholders and constituencies can be represented and take an active role.

26. FAO is uniquely positioned to support its Members to better integrate the food–biodiversity–climate nexus, including by working closely with international conventions and instruments, in particular the three Rio Conventions, the CBD, UNFCCC and the United Nations Convention to Combat Desertification (UNCCD), and maintaining coordination with the governments of its Members.

³⁵ Portner et al. (2021). *Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change (Version 5)*. <https://doi.org/10.5281/zenodo.5101125>

³⁶ Galbiati, G.M. and Bernoux, M. 2022. *Climate-related development finance in the agriculture and land use sector between 2000 and 2020 – Brief update*. <https://openknowledge.fao.org/handle/20.500.14283/cc3651en>

³⁷ FAO, UNDP and UNEP. 2021. *A multi-billion-dollar opportunity – Repurposing agricultural support to transform food systems*. Rome, FAO. <https://openknowledge.fao.org/handle/20.500.14283/cb6562en>

Annex:**Selected compilation of potential benefits achieved from sustainable agrifood practices and approaches on food security, biodiversity, and climate change mitigation and adaptation**

Practice or approach	Food security potential ³⁸	Biodiversity impact (positive unless otherwise stated) ³⁹	Climate change mitigation potential ⁴⁰	Climate change adaptation potential ^{41,42}
Ecosystem, landscape and seascape approaches				
Coastal and marine ecosystems	No global estimates	Medium/High	0.5-1.38 GtCO ₂ e ^{a-1}	No global estimates
Improved livestock management	>1,000 million people	Medium	0.2-2.4 GtCO ₂ e ^{a-1}	1-25 million people
Improved cropland management	>1,000 million people	Medium	1.4-2.3 GtCO ₂ e ^{a-1}	>25 million people
Improved and sustainable forest management	Positive impact on <100 million people	High	0.4-2.1 GtCO ₂ e ^{a-1}	>25 million people
Improved grazing land management	>1,000 million people	Medium	1.4-1.8 GtCO ₂ e ^{a-1}	1-25 million people
Plot level practices and approaches				
Agroforestry	<1,300 million people	High	0.1-5.7 GtCO ₂ e ^{a-1}	2300 million people
Reduced soil erosion	633 million people/year	Low	Source of 1.36-3.67 to sink of 0.44-3.67 GtCO ₂ e ^{a-1}	<3200 million people
Agricultural diversification	>1,000 million people	High	>0	>25 million people
Use of local seeds⁴³	>100 million	No global estimates	No global estimates	Unquantified but likely to be many millions
Demand changes				
Dietary change	821 million people	High ⁴⁴	0.7-8 GtCO ₂ e ^{a-1} (land)	No global estimates
Reduced post-harvest losses	1,000 million people	Medium/High	4.5 GtCO ₂ e ^{a-1}	320-400 million people
Reduced food waste (consumer or retailer)	700–1000 million people	Medium/High	0.8-4.5 GtCO ₂ e ^{a-1}	No global estimates
Fisheries, aquaculture and dietary shifts	No global estimates	Medium/High	0.48-1.24 GtCO ₂ e ^{a-1}	No global estimates

Source: Elaboration by FAO, 2024

³⁸ Smith P. *et al.* 2020. *Which practices co-deliver food security, climate change mitigation and adaptation, and combat land degradation and desertification?* Glob Change Biol. 26: 1532–1575. <https://doi.org/10.1111/gcb.14878>

³⁹ Pörtner, H.O. *et al.* 2021. *Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change (Version 5.)*. Bonn, Germany, IPBES Secretariat. <https://doi.org/10.5281/zenodo.5101125>

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Estimated number of people more resilient to climate change from intervention.

⁴³ Source for all figures: Smith P. *et al.* 2020. *Which practices co-deliver food security, climate change mitigation and adaptation, and combat land degradation and desertification?* Glob Change Biol. 26: 1532–1575. <https://doi.org/10.1111/gcb.14878>

⁴⁴ Due to land sparing.