



COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 5 of the Provisional Agenda

AD HOC EXPERT TEAM ON BIODIVERSITY FOR FOOD AND AGRICULTURE

First Session

Rome, 2–4 July 2024

MONITORING THE IMPLEMENTATION OF THE FRAMEWORK FOR ACTION ON BIODIVERSITY FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. The Commission on Genetic Resources for Food and Agriculture (Commission), at its Nineteenth Regular Session, invited Members to implement the Framework for Action on Biodiversity for Food and Agriculture (FA BFA)¹ and the Commission's Global Plans of Action² (GPAs) in harmony with the Kunming-Montreal Global Biodiversity Framework (KM GBF), including by integrating the implementation of the FA BFA and the GPAs into national policies and actions plans on the conservation and sustainable use of biodiversity, including National Biodiversity Strategies and Action Plans (NBSAPs), as appropriate.³
2. The Commission recommended that monitoring of the implementation of the FA BFA build on existing indicators, including those developed under the aegis of the Commission and those currently being developed for the KM GBF.⁴
3. This document discusses options for, and limitations to, the monitoring of the implementation of the FA BFA building on existing indicators, including those developed under the aegis of the Commission and those currently being developed for the KM GBF.

II. EXISTING INDICATORS AND DATABASES FOR MONITORING THE IMPLEMENTATION OF THE FRAMEWORK FOR ACTION ON BIODIVERSITY FOR FOOD AND AGRICULTURE

4. Multiple indicators and databases, including those developed under the aegis of the Commission and those currently under discussion for monitoring the implementation of the KM GBF, exist for monitoring the implementation of many of the actions of the FA BFA. *Appendix 1* lists over 75 indicators and databases that are relevant to the monitoring of the actions of the FA BFA, several of which are relevant to more than one action. Several indicators identified are resource indicators targeting specific components of biodiversity for food and agriculture (BFA), such as genetic resources for food and agriculture (GRFA), aquatic species or forest resources, and are particularly relevant to Strategic Priority Area 1.
5. No indicators could be identified for 13 out of the 57 actions of the FA BFA, as per the following breakdown:
 - (i) Strategic Priority Area 1: Characterization, assessment and monitoring of biodiversity for food and agriculture – 1 action;
 - (ii) Strategic Priority Area 2: Management of biodiversity for food and agriculture – 1 action;
 - (iii) Strategic Priority Area 3: Institutional frameworks for biodiversity for food and agriculture – 11 actions.
6. There remain key gaps in the scope of indicators related to associated biodiversity and wild foods, the implementation of biodiversity-friendly practices and BFA overall as a subcategory of biodiversity. There also appears to be an imbalance across the strategic priority areas of the FA BFA, with many actions under Strategic Priorities 3.1 and 3.3 being particularly challenging to monitor through existing indicators and databases. Overall, there is no indicator for monitoring the degree of implementation of the FA BFA itself or its strategic priority areas.
7. Developing process indicators, based for example on questions addressed to National Focal Points, could help in collecting information and monitoring the implementation of the FA BFA and its Strategic Priority Areas.

¹ FAO. 2022. *Framework for Action on Biodiversity for Food and Agriculture*. FAO Commission on Genetic Resources for Food and Agriculture. Rome. <https://doi.org/10.4060/cb8338en>

² <https://www.fao.org/cgrfa/policies/global-instruments/global-plans-of-action/en>

³ CGRFA-19/23/Report, paragraph 36.

⁴ CGRFA-19/23/Report, paragraph 39.

III. DEVELOPMENT OF COMPLEMENTARY INDICATORS

8. According to the report on *The State of the World's Biodiversity for Food and Agriculture*,⁵ lack of data on BFA often constrains the planning and prioritization of effective measures for its conservation, restoration and sustainable use. The extent and nature of knowledge gaps vary across the components of BFA, with domesticated species, species harvested from the wild, and ecosystems of importance to food and agriculture such as forests, relatively well documented in inventories compared to associated-biodiversity species (species that live in and around production systems and provide regulating and supporting ecosystem services), particularly microorganisms and invertebrates.

9. The regional workshops on taking action on BFA held in Africa,⁶ Asia and the Pacific,⁷ Latin America and the Caribbean,⁸ and the Near East and North Africa⁹ highlighted the need for indicators for monitoring:

- (i) the status of associated biodiversity (focusing, *inter alia*, on soil biodiversity and pollinators) and relevant regulating and supporting ecosystem services – to complement the existing monitoring schemes for plant, animal, forest and aquatic genetic resources;
- (ii) the implementation of biodiversity-friendly practices;
- (iii) components of BFA for which no indicators have yet been established; and
- (iv) the use of traditional knowledge and practices.

10. *Appendix I* also lists key gaps in existing indicators for monitoring the FA BFA. Such gaps could potentially be filled through the improvement of existing indicators and/or the generation of new indicators.

IV. GUIDANCE SOUGHT

11. The Expert Team may wish to:

- (i) review and, as appropriate, revise the compilation of existing indicators and databases against the strategic priorities and actions of the FA BFA (*Appendix I*); and
- (ii) identify actions of the FA BFA for which no indicators are currently available and recommend the development of indicators for such actions, as appropriate, for review by the Expert Team at its next Session.

⁵ FAO. 2019. *The State of the World's Biodiversity for Food and Agriculture*. J. Bélanger & D. Pilling (eds.). FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome.

<https://doi.org/10.4060/CA3129EN>

⁶ CGRFA/ET-BFA-1/24/4/Inf.4.

⁷ CGRFA/ET-BFA-1/24/4/Inf.5.

⁸ CGRFA/ET-BFA-1/24/4/Inf.2.

⁹ CGRFA/ET-BFA-1/24/4/Inf.3.

APPENDIX 1

PRELIMINARY COMPILATION OF EXISTING AND POTENTIAL NEW INDICATORS/DATABASES FOR MONITORING THE IMPLEMENTATION OF THE FRAMEWORK FOR ACTION ON BIODIVERSITY FOR FOOD AND AGRICULTURE

Actions	Existing indicators/databases	Potential new indicators/databases
Strategic Priority Area 1. Characterization, assessment and monitoring of biodiversity for food and agriculture		
Strategic Priority 1.1 Improve availability of, and access to, information on biodiversity for food and agriculture		
1.1.1 Improve the inventory, monitoring and characterization of associated biodiversity and wild foods, including at population level, as appropriate.	<ul style="list-style-type: none"> • Proportion of fish stocks within biologically sustainable levels (SDG Indicator 14.4.1; GBF Indicator 5.1) • Red List Index (wild relatives of domesticated species) (GBF complementary indicator) • Red List Index (pollinating species) (GBF complementary indicator) • Red List Index (species used for food and medicine) (GBF complementary indicator) • Living Planet Index for utilized species (GBF component indicator) • FAO International Network of Food Data Systems (INFOODS) – Food composition database for biodiversity version 4.0 – BioFoodComp4.0 • Global Soil Biodiversity Observatory (GLOSOP) (<i>under development</i>) • FishStat • Fisheries and Resources Monitoring System (FIRMS) • Global Forest Resources Assessment (FRA) • Soil biodiversity index – Global Soil Biodiversity Atlas • Red List Index of fungi – The Global Fungal Red List Initiative • Nematode abundance and function group distribution – a global database of soil nematode abundance and functional group composition 	<ul style="list-style-type: none"> • Extent of national inventories on associated biodiversity and wild foods (number and list of countries that have national inventories of associated biodiversity and wild foods) • Existence and extent of national information systems on associated biodiversity and wild foods (number and list of countries that have national information systems on associated biodiversity and wild foods)

Actions	Existing indicators/databases	Potential new indicators/databases
<p>1.1.2 Improve the assessment of how BFA, including associated biodiversity and wild foods, is being managed and, as appropriate, the monitoring of the extent to which management practices and approaches contributing to its sustainable use and conservation are being adopted, taking into account indigenous and local knowledge, as relevant, and the characteristics of local production systems.</p>	<p><i>Indicators listed for Activity 1.1.1 are relevant to measuring the outcomes of the implementation of the FA BFA.</i></p> <p>In addition:</p> <ul style="list-style-type: none"> • AquaGRIS – a global information system for aquatic genetic resources • Domestic Animal Diversity Information System (DAD-IS) • World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS) • Framework for Ecosystem Restoration Monitoring (FERM) • Global Forest Resources Assessment • SilvaGRIS – a global information system for forest genetic resources (under development) 	<ul style="list-style-type: none"> • Extent of monitoring of the adoption of biodiversity-friendly practices • Extent of adoption of biodiversity-friendly practices • Effectiveness of biodiversity-friendly practices
<p>1.1.3 Improve the assessment and, as appropriate, monitoring of drivers of change and their effects on BFA.</p>	<ul style="list-style-type: none"> • Index of coastal eutrophication potential (SDG 14.1.1a; GBF Headline indicator [HI] 7.1) • Aggregated total applied toxicity (GBF HI 7.2; <i>under development</i>) • Cropland nutrient balance (GBF component indicator) • Rate of invasive alien species establishment (GBF HI 6.1) • Database on Introductions of Aquatic Species (DIAS) • Proportion of fish stocks within biologically sustainable levels (SDG Indicator 14.4.1; GBF Indicator 5.1) • Red List Index (impacts of fisheries) (GBF complementary indicator) • Red List Index (impacts of utilization) (GBF complementary indicator) • Proportion of agricultural area under productive and sustainable agriculture (SDG 2.4.1; GBF HI 10.1) • Progress towards sustainable forest management (SDG 15.2.1; GBF HI 10.2) • Living Planet Index for utilized species (GBF component indicator) • Annual forest area change rate • Forest area as a proportion of total land area 	<ul style="list-style-type: none"> • Existence and extent of national information systems on drivers of change and their effects on BFA • Impacts of climate change on BFA

Actions	Existing indicators/databases	Potential new indicators/databases
1.1.4 Take action to reduce knowledge gaps on the roles of BFA in the supply of ecosystem services, including on how these are influenced by management practices in the food and agriculture sector.	<ul style="list-style-type: none"> • Services provided by ecosystems (GBF HI B.1) – possible disaggregation includes by realm and by ecosystem functional group 	<ul style="list-style-type: none"> • Number of countries that have taken action to reduce knowledge gaps on the roles of BFA in the supply of ecosystem services • Effectiveness of biodiversity-friendly practices for the supply of ecosystem services
1.1.5 For all relevant components of BFA, take action to reduce gaps in knowledge on their nutritional contents and their potential significance in efforts to improve food security, nutrition and health, including gaps in knowledge related to cultural and social aspects of their use.	<ul style="list-style-type: none"> • Indicator on food composition – a count of the number of biodiverse foods with at least one value available for a nutrient or bioactive component. This provides a rough picture of the global availability of compositional data for biodiverse foods. • Indicator on food consumption – a count of the number of biodiverse foods reported by a survey instrument. This shows the extent to which biodiverse foods are featured in food consumption tools. • FAO International Network of Food Data Systems (INFOODS) – Food composition database for biodiversity version 4.0 – BioFoodComp4.0 	
1.1.6 As relevant, identify priority species, ecosystems or ecosystem services for assessment and monitoring at national level.		<ul style="list-style-type: none"> • Extent of national prioritization of species, ecosystems and ecosystem services particularly important for food and agriculture (number and list of countries that have identified priorities)

Actions	Existing indicators/databases	Potential new indicators/databases
<p>1.1.7 In strengthening and streamlining assessment and monitoring programmes for BFA, use and integrate – as relevant, and to the extent feasible – existing assessment and monitoring systems (e.g. those developed for the SDGs, CBD or the FAO Commission on Genetic Resources for Food and Agriculture) and existing data and indicators, at national, regional and global levels, and explore the potential of indicators that serve multiple purposes.</p>	<p><i>Existing indicators listed for Activities 1.1.1–1.1.5 are relevant for strengthening and streamlining</i></p>	
<p>1.1.8 Taking into account relevant initiatives and existing tools, methodologies and frameworks, strengthen existing and/or develop new tools, standards and protocols for the inventory, assessment and monitoring of BFA and support the development of voluntary international reference frameworks.</p>	<ul style="list-style-type: none"> • AquaGRIS – a global information system for aquatic genetic resources • Domestic Animal Diversity Information System (DAD-IS) • World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS) • Global Soil Biodiversity Observatory (GLOSOB) (<i>under development</i>) • SilvaGRIS – a global information system for forest genetic resources (<i>under development</i>) 	<ul style="list-style-type: none"> • Information on the state of development of tools, standards and protocols for the inventory, assessment and monitoring of BFA
<p>1.1.9 Support the improvement of global, regional, national and local information systems for BFA.</p>	<ul style="list-style-type: none"> • AquaGRIS – a global information system for aquatic genetic resources • Domestic Animal Diversity Information System (DAD-IS) • World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS) • Global Soil Biodiversity Observatory (GLOSOB) (<i>under development</i>) • SilvaGRIS – a global information system for forest genetic resources (<i>under development</i>) 	<ul style="list-style-type: none"> • Global information system on associated biodiversity and wild foods

Actions	Existing indicators/databases	Potential new indicators/databases
<p>1.1.10 For aspects of the assessment and monitoring of BFA, strengthen the role of citizen scientists, indigenous peoples and local communities, and other participatory research stakeholders, as appropriate.</p>	<ul style="list-style-type: none"> • Growth in species occurrence records accessible through the Global Biodiversity Information Facility (GBF complementary indicator) – analysis could potentially be disaggregated by species of particular relevance • Growth in marine species occurrence records accessible through the Ocean Biodiversity Information System (GBF complementary indicator) – analysis could potentially be disaggregated by species of particular relevance 	
<p>2.1.1 When developing or implementing approaches to the management of BFA, identify and take into account drivers of change affecting BFA and associated ecosystem services.</p>	<ul style="list-style-type: none"> • <i>See Actions 1.1.3 and 2.1.2</i> 	
<p>2.1.2 Promote sustainable food and agricultural production practices and approaches, including integrated management approaches at production system, ecosystem, landscape and seascape levels, that make sustainable use of, conserve and restore BFA while improving livelihoods and supporting economic performance, healthy ecosystems and the supply of ecosystem services.</p>	<ul style="list-style-type: none"> • Proportion of fish stocks within biologically sustainable levels (SDG Indicator 14.4.1; GBF indicator 5.1) • Proportion of agricultural area under productive and sustainable agriculture (SDG 2.4.1; GBF HI 10.1) • Progress towards sustainable forest management (SDG 15.2.1; GBF HI 10.2) • Proportion of forest area with a long-term management plan (sub-indicators) • Forest area under an independently verified forest management certification scheme (sub-indicators) • Trends in area under conservation agriculture • Trends in area under organic agriculture (also FAOSTAT) • Status of implementation of the ecosystem approach to fisheries • Number of countries with policies on agroecology • Trends in area under agroforestry • Cropland nutrient balance (GBF component indicator) 	<ul style="list-style-type: none"> • Extent of adoption of biodiversity-friendly practices • Effectiveness of biodiversity-friendly practices

Actions	Existing indicators/databases	Potential new indicators/databases
2.1.3 Promote measures to reduce the risks to and impacts on BFA from the inappropriate use of chemical pesticides and veterinary medicines and from the excess use of fertilizers.	<ul style="list-style-type: none"> • Index of coastal eutrophication potential (SDG 14.1.1a; GBF HI 7.1) • Aggregated total applied toxicity (GBF HI 7.2; <i>under development</i>) • Cropland nutrient balance • Management of fertilizers (SDG 2.4.1 sub-indicator; GBF HI 10.1 sub-indicator) • Management of pesticides (SDG 2.4.1 sub-indicator; GBF HI 10.1 sub-indicator) 	<ul style="list-style-type: none"> • Extent of application of mitigation measures that reduce risks to and impacts on BFA from the inappropriate use of chemical pesticides and veterinary medicines and from the excess use of fertilizers • Impacts of veterinary medicines on BFA
2.1.4 Promote measures to reduce the risk and impact of overgrazing and to enhance and promote best practices in rangeland management.	<ul style="list-style-type: none"> • Global Livestock Environmental Assessment Model (GLEAM) 	<ul style="list-style-type: none"> • Proportion of rangelands under sustainable management
2.1.5 Identify, and develop methodologies based on, best management practices (including those based on indigenous and local knowledge) that contribute to the sustainable use and conservation of BFA, and develop tools and guidance to facilitate their implementation, as appropriate.	<ul style="list-style-type: none"> • <i>See Action 2.1.2</i> 	
2.1.6 Promote, where relevant, agricultural inputs and practices based on the use of BFA, in particular associated biodiversity, for pest control and nutrient management.	<ul style="list-style-type: none"> • Index of coastal eutrophication potential (SDG 14.1.1a; GBF HI 7.1) • Aggregated total applied toxicity (GBF HI 7.2; <i>under development</i>) • Cropland nutrient balance 	<ul style="list-style-type: none"> • Extent of adoption and effectiveness of biodiversity-based practices for pest control • Extent of adoption and effectiveness of biodiversity-based practices for nutrient management

Actions	Existing indicators/databases	Potential new indicators/databases
2.1.7 Develop and implement strategies, plans and actions to manage soil biodiversity to ensure soil health and soil fertility.	<ul style="list-style-type: none"> • Global Soil Biodiversity Observatory (GLOSOB) (<i>under development</i>) • Soil organic carbon stock (SDG 15.3.1 sub-indicator) • Prevalence of soil degradation (SDG 2.4.1 sub-indicator; GBF HI 10.1 sub-indicator) 	<ul style="list-style-type: none"> • Existence, and extent of implementation, of strategies, plans and actions for managing soil biodiversity to ensure soil health and soil fertility
2.1.8 Promote, as appropriate, production systems that serve several purposes, including the sustainable use, conservation and restoration of BFA, the supply of food and other products, and the supply of a range of other ecosystem services.	<ul style="list-style-type: none"> • <i>See Action 2.1.2</i> 	<ul style="list-style-type: none"> • Extent of adoption, and effectiveness, of production systems that serve several purposes, including the sustainable use, conservation and restoration of BFA, the supply of food and other products, and the supply of a range of other ecosystem services
2.1.9 Improve, where appropriate, landscape structure, and connectivity in particular, to provide habitats for associated biodiversity and wild food species.	<ul style="list-style-type: none"> • Red List of Ecosystems (GBF component indicator) • Ecosystem Integrity Index (GBF component indicator; <i>under development</i>) • Forest fragmentation index (GBF complementary indicator) • Global Forest Resources Assessment (FRA) 	
2.2.1 Identify priority species, ecosystems and ecosystem services for conservation and restoration and establish targets or goals relative to these priorities at national level.	<p>Global datasets that can support the identification and prioritization of breed, species and ecosystems include:</p> <ul style="list-style-type: none"> • Red List of Ecosystems • Ecosystem Integrity Index (<i>under development</i>) • Red List Index • Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction (SDG Indicator 2.5.2) 	<ul style="list-style-type: none"> • Extent of national prioritization of species, ecosystems and ecosystem services particularly important for food and agriculture (number and list of countries that have identified priorities)

Actions	Existing indicators/databases	Potential new indicators/databases
2.2.2 Strengthen conservation programmes, in particular <i>in situ</i> and on-farm conservation, focusing on associated biodiversity and wild foods, and seek to optimize complementarity between <i>in situ</i> and <i>ex situ</i> conservation approaches, where appropriate.		<ul style="list-style-type: none"> Extent of national <i>in situ</i> (including on-farm) conservation programmes [for BFA][for associated biodiversity and wild foods]
2.2.3 Establish or strengthen effective infrastructure, including at the local level, for the <i>ex situ</i> conservation of BFA, including micro-organisms, invertebrates and other components of associated biodiversity, and wild foods, and improve documentation and overviews of collections within countries.	<ul style="list-style-type: none"> Number of plant genetic resources for food and agriculture secured in medium- or long-term conservation facilities (SDG Indicator 2.5.1.a; GBF component indicator) Number of animal genetic resources for food and agriculture secured in medium or long term conservation facilities (SDG Indicator 2.5.1.b; GBF component indicator) 	<ul style="list-style-type: none"> Extent of national <i>ex situ</i> conservation programmes for associated biodiversity (including microorganisms and invertebrates) and wild foods
2.2.4 Maintain, develop or expand designated areas, such as protected areas (including International Union for Conservation of Nature Categories 5 and 6), relevant UNESCO sites and other effective area-based conservation measures, for BFA and related ecosystem services, as well as Globally Important Agricultural Heritage Systems.	<ul style="list-style-type: none"> Coverage of protected areas and other effective area based conservation measures (SDG 14.5.1 and 15.4.1; GBF HI 3.1) – disaggregated by relevant realm and by ecosystem functional group Coverage of Globally Important Agricultural Heritage Systems 	

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.1.1 Raise awareness, at all levels, of the importance of BFA, of the ecosystem services it provides and of the need for its sustainable use, conservation and restoration, including by supporting regional and international awareness-raising campaigns, with a view to strengthening support from governments, institutions and other relevant stakeholders. Develop relevant capacity to support these efforts, as required.</p>	<ul style="list-style-type: none"> • Number of countries that have taken significant action to strengthen capacity-building, development and access to and transfer of technology and to promote the development of and access to innovation and technical and scientific cooperation (GBF binary indicator; <i>under development</i>) 	<ul style="list-style-type: none"> • Extent of implementation of awareness-raising on the importance of BFA • Extent of national assessments of the capacity-building needs related to BFA (number and list of countries that have undertaken national assessments)
<p>3.1.2 Improve capacity for research on BFA, in particular soil biodiversity and other associated biodiversity, wild foods and ecosystem services, including through the formation of multi-, inter- and transdisciplinary research teams and by strengthening mechanisms for cooperation and exchange of information between scientists and producers and other stakeholders involved in the management of BFA. Promote innovative ways of building capacity, for example through the use of information and communication technologies and through participatory approaches involving, inter alia, indigenous and local communities of traditional-knowledge holders.</p>	<ul style="list-style-type: none"> • Number of countries that have taken significant action to strengthen capacity-building, development and access to and transfer of technology and to promote the development of and access to innovation and technical and scientific cooperation (GBF binary indicator; <i>under development</i>) 	<ul style="list-style-type: none"> • Extent of national assessments of capacity-building efforts and needs related to [research on] BFA (number and list of countries that have undertaken national assessments)

Actions	Existing indicators/databases	Potential new indicators/databases
3.1.3 Improve the communication of research findings on BFA, and promote their uptake and use by producers and policymakers.		<ul style="list-style-type: none"> Extent of awareness-raising efforts communicating research findings on BFA and promoting their uptake and use by producers and policymakers
3.1.4 Assess gaps and strengthen the teaching of all relevant areas of knowledge related to BFA in universities, schools and in professional and informal education and training, targeting various stakeholders, including citizen scientists, and promoting interdisciplinary skills.		<ul style="list-style-type: none"> Extent of national assessments of needs related to the teaching of all relevant areas of knowledge related to BFA (number and list of countries that have undertaken national assessments)
3.1.5 Promote opportunities for ongoing training and education for farmers, fisherfolk, livestock keepers and forest dwellers, including via farmer field schools, producer group extension programmes or community- based organizations, to strengthen the sustainable use and conservation of BFA and the ecosystem services it supports.	<ul style="list-style-type: none"> Number of countries that have taken significant action to strengthen capacity-building, development and access to and transfer of technology and to promote the development of and access to innovation and technical and scientific cooperation (GBF binary indicator; <i>under development</i>) 	<ul style="list-style-type: none"> Extent of efforts to promote opportunities for ongoing training and education of food and agricultural producer to strengthen the sustainable use and conservation of BFA and the ecosystem services it supports
3.1.6 Strengthen research-related policy frameworks for BFA to ensure support for long-term research activities, and increase the availability of human, physical and financial resources for this purpose.	<ul style="list-style-type: none"> Number of countries that have taken significant action to strengthen capacity-building, development and access to and transfer of technology and to promote the development of and access to innovation and technical and scientific cooperation (GBF binary indicator; <i>under development</i>) 	<ul style="list-style-type: none"> Number of countries that have taken significant action to strengthen research-related policy frameworks for BFA Number of countries that have taken significant action to increase the availability of human, physical and financial resources for BFA research

Actions	Existing indicators/databases	Potential new indicators/databases
3.1.7 Promote, through various means (e.g. increasing recognition, including through adequate remuneration, providing adequate infrastructure, such as laboratories, and logistical support), education and research in the field of BFA.	<ul style="list-style-type: none"> • Volume of official development assistance flows for scholarships by sector and type of study 	<ul style="list-style-type: none"> • Extent of education and research in the field of BFA
3.1.8 Strengthen capacity to use assessment and monitoring systems, including by improving the dissemination of information to users.	<ul style="list-style-type: none"> • Growth in species occurrence records accessible through the Global Biodiversity Information Facility (GBF complementary indicator) – analysis could potentially be disaggregated by species of particular relevance • Growth in marine species occurrence records accessible through the Ocean Biodiversity Information System (GBF complementary indicator) – analysis could potentially be disaggregated by species of particular relevance 	<ul style="list-style-type: none"> • Extent of efforts to strengthen capacity to use assessment and monitoring systems for BFA.
3.1.9 Promote awareness raising and sharing of information on BFA-friendly management practices and approaches, including through the use of participatory techniques (for instance community-made videos, photo, stories and infographics).		<ul style="list-style-type: none"> • Extent of awareness-raising and information-sharing on BFA-friendly management practices and approaches
3.1.10 Promote research, including interdisciplinary, transdisciplinary, cross-cultural and participatory research, on BFA and its roles in agrifood systems and on management practices and approaches that contribute or potentially contribute to the sustainable use, conservation and restoration of BFA.	<ul style="list-style-type: none"> • Volume of official development assistance flows for scholarships by sector and type of study (GBF complementary indicator) 	<ul style="list-style-type: none"> • Extent and efficiency of research programmes, including interdisciplinary, transdisciplinary, cross-cultural and participatory research, on BFA and BFA-friendly management practices and approaches

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.2.1 Inventory and review existing legislative, administrative and policy frameworks relevant to the sustainable use, conservation and restoration of BFA, with a view to identifying gaps, weaknesses or inefficiencies. In reviewing and, as relevant, updating them, consider options for adequately mainstreaming all components of BFA and addressing drivers of change, as well as cross-sectoral considerations, as appropriate.</p>	<ul style="list-style-type: none"> Number of countries integrating biodiversity and its multiple values into policies, regulations, planning, development processes, poverty eradication strategies and, as appropriate, national accounts, within and across all levels, across all sectors, and progressively aligning all relevant public and private activities and fiscal and financial flows with the goals and targets of this framework (GBF binary indicator; <i>under development</i>) 	<ul style="list-style-type: none"> Extent of national inventories and/or reviews of existing legislative, administrative and policy frameworks relevant to the sustainable use, conservation and restoration of BFA
<p>3.2.2 In reviewing and, as relevant, updating legislative, administrative and policy frameworks for the management of BFA, ensure that they are aligned, to the extent feasible, with the SDG Framework and promote the contributions of BFA and its management to efforts to meet the SDGs.</p>		<ul style="list-style-type: none"> Extent of national inventories and/or reviews of existing legislative, administrative and policy frameworks relevant to the sustainable use, conservation and restoration of BFA [including for their alignment with the SDGs]
<p>3.2.3 Encourage the governing bodies of relevant international organizations to consider – as appropriate and consistent with their respective mandates – the importance of BFA and the ecosystem services it supplies when revising global agreements on biodiversity and on crop and livestock production, forestry, fisheries and aquaculture.</p>		<ul style="list-style-type: none"> Extent to which relevant international organizations include BFA on the agendas of governing body meetings

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.2.4 Promote the implementation of studies, including participatory assessments, that identify the use and non-use values of BFA and the ecosystem services it provides – and of other relevant economic analyses – including by developing and standardizing economic methodologies and tools. Such studies should, as far as possible, build on existing information and assessments.</p>	<ul style="list-style-type: none"> • Integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting (SDG 15.9.1b; GBF component indicator) 	
<p>3.2.5 Promote the integration of the outcomes of economic analyses, including valuation studies, into conservation strategies and other aspects of BFA management.</p>	<ul style="list-style-type: none"> • Integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting (SDG 15.9.1b; GBF component indicator) • Number of countries integrating biodiversity and its multiple values into policies, regulations, planning, development processes, poverty eradication strategies and, as appropriate, national accounts, within and across all levels, across all sectors, and progressively aligning all relevant public and private activities and fiscal and financial flows with the goals and targets of this framework (GBF binary indicator; <i>under development</i>) 	
<p>3.2.6 Document and map existing incentive schemes and other economic instruments related to the management of BFA across the environmental and food and agriculture sectors and the public, non-governmental and private sectors. Where gaps, weaknesses or inefficiencies are identified, address them by developing new instruments or strengthening or harmonizing existing instruments, as appropriate and in a</p>	<ul style="list-style-type: none"> • Positive incentives in place to promote biodiversity conservation and sustainable use (GBF HI 18.1) • Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed (disaggregation by sector) (GBF HI 18.2) 	

Actions	Existing indicators/databases	Potential new indicators/databases
manner fully consistent with relevant international agreements and obligations.		
3.2.7 Promote and incentivize – in a manner fully consistent with relevant international agreements and obligations – production systems that sustainably use and conserve BFA, including markets, sustainable sourcing policies and value chains for products from production systems that favour the conservation and sustainable use of BFA.	<ul style="list-style-type: none"> • Positive incentives in place to promote biodiversity conservation and sustainable use (GBF HI 18.1) • Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed (disaggregation by sector) (GBF HI 18.2) • Monetary value of payments for ecosystem services (GBF component indicator) 	
3.2.8 Eliminate, phase out or reform incentives harmful to biodiversity, in a manner fully consistent with other relevant international agreements and obligations, taking into account national socio-economic conditions.	<ul style="list-style-type: none"> • Positive incentives in place to promote biodiversity conservation and sustainable use (GBF HI 18.1) • Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed (disaggregation by sector) (GBF HI 18.2) 	
3.2.9 Adapt policies and investment decisions in the various sectors of food and agriculture in a way that reduces ecosystem degradation and promotes the sustainable management of biodiversity and sustainable production systems.		<ul style="list-style-type: none"> • Extent of domestic funding targeting biodiversity in the context of agricultural-related activities.

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.2.10 Promote sustainable consumption and production patterns, including through applying circular economy and other relevant approaches to resource-use efficiency, in order to support the sustainable use, conservation and restoration of BFA.</p>	<ul style="list-style-type: none"> • Food Waste Index (GBF component indicator) • Material Footprint per Capita (GBF component indicator) • Global Environmental Impacts of Consumption (GBF component indicator) • Ecological Footprint (GBF component indicator) 	

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.2.11 Promote, as appropriate, the implementation of access and benefit-sharing measures for GRFA as a means of improving the sustainable use of these resources, raising awareness of their roles and values and building capacity to strengthen research, education and training for their sustainable use and conservation, while recognizing the special nature and distinctive features of GRFA.</p>	<ul style="list-style-type: none"> • Monetary benefits received in accordance with applicable internationally agreed Access and Benefit-sharing instruments (GBF HI C.1) • Non-monetary benefits arising from applicable international access and benefit-sharing instruments (GBF HI C.2) • Total number of internationally recognized certificates published in the Access and Benefit-sharing Clearing-House (GBF component indicator) • Total number of transfers of crop material from the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture received in a country (GBF complementary indicator; SDG 15.6.1 sub-indicator) • Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits (SDG Indicator 15.6.1) • Number of users that have provided information relevant to the utilization of genetic resources to designated checkpoints (GBF complementary indicator) • Number of checkpoint communiqués published in the Access and Benefit-sharing Clearing-House (GBF complementary indicator) • Number of internationally recognized certificates of compliance for non-commercial purposes in the Access and Benefit-sharing Clearing-House (GBF complementary indicator) 	
<p>3.2.12 Enhance national frameworks for the assessment and monitoring of BFA, in particular associated biodiversity and wild foods, engaging national agencies and strengthening interagency coordination.</p>		<ul style="list-style-type: none"> • Extent of national frameworks for the assessment and monitoring of BFA (number and list of countries that have adopted national frameworks for the assessment and monitoring of BFA)

Actions	Existing indicators/databases	Potential new indicators/databases
3.2.13 In planning and implementing designated areas, such as protected areas and other effective area-based conservation measures, raise awareness of, and take into account, as relevant, the roles of components of BFA.	<ul style="list-style-type: none"> • Coverage of Globally Important Agricultural Heritage Systems 	
3.2.14 Support the mainstreaming of conservation, restoration and sustainable use of BFA into food value chains.	<ul style="list-style-type: none"> • Number of countries integrating biodiversity and its multiple values into policies, regulations, planning, development processes, poverty eradication strategies and, as appropriate, national accounts, within and across all levels, across all sectors, and progressively aligning all relevant public and private activities and fiscal and financial flows with the goals and targets of this framework (GBF binary indicator; <i>under development</i>) 	<ul style="list-style-type: none"> • Extent of BFA mainstreaming across food value chains
3.3.1 Inventory and describe national and regional institutions with mandates related to the management of BFA to enable the establishment or strengthening of relevant coordination mechanisms.		<ul style="list-style-type: none"> • Extent of national inventories of institutions with mandates related to the management of BFA
3.3.2 Improve cooperation on BFA between relevant stakeholders, including producers, researchers, consumers and policy-makers within the sectors of food and agriculture and natural resources management and more widely, in order to facilitate the development of more relevant and effective BFA-related policies and to support participatory innovation and transfer of knowledge.	<ul style="list-style-type: none"> • Number of countries taking action toward the full, equitable, inclusive, effective and gender-responsive representation and participation, in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by, women, and girls, children and youth and persons with disabilities, and the full protection of environmental human rights defenders (GBF binary indicator; <i>under development</i>) 	

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.3.3 Strengthen existing and/or establish new networks, including at national and regional levels, linking users and communities that manage associated biodiversity and ecosystem services on-farm and in situ, research institutes, scientists and other relevant stakeholders, inter alia to facilitate the sharing of data and of best practices.</p>	<ul style="list-style-type: none"> Number of countries taking action toward the full, equitable, inclusive, effective and gender-responsive representation and participation, in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by, women, and girls, children and youth and persons with disabilities, and the full protection of environmental human rights defenders (GBF binary indicator; <i>under development</i>) 	
<p>3.3.4 Further develop and strengthen international cooperation to mainstream BFA within and beyond agriculture sectors. Disseminate examples of successful cooperation.</p>		
<p>3.3.5 Further develop and strengthen international cooperation, including triangular and South–South cooperation, to foster capacity- building, technical assistance and technology transfer related to the management of BFA, especially in and to developing countries.</p>	<ul style="list-style-type: none"> Number of countries that have taken significant action to strengthen capacity-building, development and access to and transfer of technology and to promote the development of and access to innovation and technical and scientific cooperation (GBF binary indicator; <i>under development</i>; this indicator includes the following question: <i>Has your country established partnerships to foster joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capabilities including through South-South, North-South and triangular cooperation?</i>) 	

Actions	Existing indicators/databases	Potential new indicators/databases
<p>3.3.6 Promote facilitated access to GRFA and the sharing of benefits arising from their use through implementation of relevant international instruments and/or other domestic regulatory mechanisms, considering the importance of such monetary and non-monetary benefits to the conservation and sustainable use of GRFA, especially in developing countries, and the special nature of GRFA and its distinctive features.</p>	<ul style="list-style-type: none"> • Monetary benefits received in accordance with applicable internationally agreed Access and Benefit-sharing instruments (GBF HI C.1) • Non-monetary benefits arising from applicable international access and benefit-sharing instruments (GBF HI C.2) • Total number of internationally recognized certificates published in the Access and Benefit-sharing Clearing-House • Number of internationally recognized certificates of compliance for non-commercial purposes in the Access and Benefit-sharing Clearing-House 	
<p>3.3.7 Explore opportunities to increase support, including financial, for activities related to BFA, including research, innovation, monitoring and assessment, sustainable use and conservation, outreach, training and capacity-building.</p>	<ul style="list-style-type: none"> • Positive incentives in place to promote biodiversity conservation and sustainable use (GBF HI 18.1) 	<ul style="list-style-type: none"> • Extent of domestic funding that targets biodiversity within agricultural-related activities • Volume of official development assistance flows for biodiversity in the agricultural sectors
<p>3.3.8 Identify opportunities for efficient use of resources, for example by promoting synergies and cooperation between projects at national and regional levels.</p>		<ul style="list-style-type: none"> • Extent of efforts to identify opportunities for efficient use of resources
<p>3.3.9 Support the funding strategies of the FAO Commission on Genetic Resources for Food and Agriculture's sectoral Global Plans of Action and the implementation of its Multi-year Programme of Work.</p>		<ul style="list-style-type: none"> • Extent of voluntary financial contributions for the implementation of the Commission's sectoral Global Plans of Action and its Multi-year Programme of Work

Actions	Existing indicators/databases	Potential new indicators/databases
3.3.10 Contribute to the implementation of the international initiatives for the conservation and sustainable use of soil biodiversity and of pollinators.	<ul style="list-style-type: none">• Red List Index (pollinating species) (GBF complementary indicator)• Global Soil Biodiversity Observatory (GLOSOB) (<i>under development</i>)	