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MAINSTREAMING OF BIODIVERSITY ACROSS SECTORS INCLUDING AGRICULTURE, FORESTS AND FISHERIES

Note by the Executive Secretary

I. INTRODUCTION

1. In its multi-year programme of work (decision XII/31), the Conference of the Parties decided, inter alia, to consider at its thirteenth meeting, among other issues: Further consideration of the implications of the findings of the *Global Biodiversity Outlook* and fifth national reports; strategic actions to enhance national implementation, in particular through mainstreaming and the integration of biodiversity across relevant sectors, including agriculture, forests and fisheries; and implications of the post-2015 United Nations development agenda and the sustainable development goals and of other relevant international processes for the future work of the Convention.

2. At its nineteenth meeting, further to decision XII/1 and with a view to contributing to the preparations for the thirteenth meeting of the Conference of the Parties on the above-mentioned issues, the Subsidiary Body on Scientific, Technical and Technological Advice reviewed the main implications and findings of the fourth edition of the *Global Biodiversity Outlook* and its underlying technical reports as well as additional information from the fifth national reports and other submissions, and adopted recommendation XIX/1.

3. At its nineteenth meeting, the Subsidiary Body had before it a document that provided information on the context for mainstreaming under the Convention, an overview of issues related to the integration of biodiversity across relevant sectors, including agriculture, forests and fisheries, and a list of potential next steps to promote mainstreaming (UNEP/CBD/SBSTTA/19/2). This information remains relevant to the present discussion; some key conclusions are briefly noted in section II of the present note.

4. Also available to SBSTTA-19, as information documents, were draft in-depth studies on agriculture, forests, fisheries and aquaculture. The Executive Secretary was requested, in recommendation XIX/1, to arrange for the peer review of these documents, to revise them in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and other relevant organizations, taking into

* UNEP/CBD/SBSTTA/20/1/Rev.1.

** UNEP/CBD/SBI/1/1/Rev.1.

consideration relevant information on indigenous peoples and local communities, and to make them available to SBSTTA-20 and SBI-1. Accordingly, the updated studies are available.[1] In addition, as also requested in recommendation XIX/1, the report of the International Workshop on Biodiversity Mainstreaming hosted by the Government of Mexico is available (SBSTTA/20/INF/52).

5. An additional information note provides a list of some key tools and guidance on mainstreaming biodiversity into sectors (UNEP/CBD/SBSTTA/20/INF/55). FAO has provided an information note on guidance for the achievement of Aichi Biodiversity Target 7 for food and agriculture (UNEP/CBD/SBSTTA/20/INF/53) and guidance on building a common vision for sustainable food and agriculture (UNEP/CBD/SBSTTA/20/INF/54).

6. The revised information documents and reviewed comments from partners and outcomes from the International Workshop on Biodiversity Mainstreaming were drawn upon in preparing the present note. Section III summarizes pressures from productive sectors on biodiversity as the rationale for mainstreaming, section IV discusses opportunity for incorporating biodiversity considerations into these sectors. Suggested recommendations are provided in section V.

7. The present note is complemented by a document on strategic actions to enhance mainstreaming of biodiversity across sectors, prepared for the Subsidiary Body on Implementation at its first meeting (UNEP/CBD/SBI/1/5/Add.2).

II. THE INTEGRATION OF BIODIVERSITY ACROSS RELEVANT SECTORS, INCLUDING AGRICULTURE, FORESTS AND FISHERIES

8. Addressing the indirect and direct drivers of biodiversity loss requires a focus on primary sectors (agriculture, forests, fisheries and aquaculture). These sectors both impact on biodiversity and are dependent on biodiversity. Demand for the goods and services produced by these sectors is projected to increase over the coming decades as a result of population growth, increasing average wealth and other demographic changes. Mainstreaming biodiversity considerations across these sectors is essential in ensuring not only the conservation and sustainable use of biodiversity but also the continued vitality of these sectors. There is a large potential for more biodiversity-friendly management measures in these sectors, and, to a large extent, biodiversity-based solutions have a significant part to play in these measures. A range of stakeholders will need to be engaged to promote these measures and achieve mainstreaming.

9. The technical arguments for the integration of biodiversity into sectors, including agriculture, forests and fisheries, are broadly accepted. However, major challenges to the mainstreaming of biodiversity into these sectors remain. There are a number of options for enhanced work under the Convention to further promote the mainstreaming of biodiversity within and across sectors. These include developing comprehensive and coherence policy frameworks, engaging indigenous peoples and local communities and stakeholders effectively, enhancing coordination and information flows across sectors, leveraging support from partner organizations, improving awareness of the importance and benefits of biodiversity mainstreaming and making greater use of international frameworks for sustainable development. Further, additional technical guidance on biodiversity mainstreaming may be needed, particularly on issues related to spatial planning and management to promote integrated landscape and seascape approaches, on the integration of biodiversity into various sectors with direct or indirect dependencies on biodiversity, and methods for altering incentives (including economic and social incentives) that may lead to changes in behaviour and help to address obstacles related to political economy, human behaviour and institutional issues.

[1] Biodiversity, food systems and agriculture (UNEP/CBD/SBSTTA/20/INF/49), Forests (UNEP/CBD/SBSTTA/20/INF/50), Fisheries and aquaculture (UNEP/CBD/SBSTTA/20/INF/51),

III. KEY IMPLICATIONS OF AGRICULTURE, FORESTS AND FISHERIES, FOR THE STATEGIC PLAN FOR BIODIVERSITY 2011–2020

10. Developments in, forestry, fisheries and agriculture largely shape the status of biodiversity. Forest biodiversity harbours two thirds of all terrestrial animal and plant species, and it has an important role in ensuring the provision of food, wood, fibre, fuel and medicine and in maintaining ecosystem processes that contribute to human well-being. They are also the source for over 5,000 commercially traded products, ranging from pharmaceuticals to timber and clothing.[2] More people than ever before rely on fisheries and aquaculture for food and as a source of income. Aquaculture (fish farming) holds promise in responding to surging demand for food which is taking place due to global population growth. Agriculture delivers substantial benefits, including underpinning food security and nutrition as well as poverty reduction, and contributes to biodiversity conservation. In particular in developing countries, the sector remains the chief source of livelihood in most rural areas and it is widely regarded as a route out of poverty. The contribution of indigenous peoples and local communities, and farmers, to maintaining agro-biodiversity is significant. The benefits of farming to biodiversity conservation beyond agro-biodiversity can also be significant.

11. Forests, fisheries and agriculture depend on biodiversity in various ways and at multiple scales. Biodiversity is the source of the components of production, which includes crops, livestock, farmed fish, harvested wild biodiversity, and the genetic diversity within these allows for adaptation to current needs and adaptability to future ones. A diversity of species, varieties and breeds, as well as wild sources of fish, plants, bushmeat, insects and fungi, underpins dietary diversity and good nutrition. Biodiversity is also essential for food production systems and for sustaining ecosystem services, including soil fertility, water and nutrient cycling, seed dispersal, decomposition, pollination, carbon storage, protecting water courses, pest control and disease regulation.

12. The growing demand for agricultural, forests and fisheries commodities, associated with projections of population growth, increasing wealth and shifts in consumption patterns, highlight the need for increased agricultural, forestry and fisheries productivity while limiting expansion into natural areas in order to reduce pressures on the environment and avoiding negative impacts on biodiversity. In addition, a high proportion of food is currently wasted post-production and addressing this loss would have major benefits including by reducing pressures on resources and biodiversity. Restoring the significant amount of currently degraded lands could also increase food production and restore forests, biodiversity and ecosystem services.

13. There is a consensus that modern agriculture, fisheries, aquaculture and forestry practices have resulted in significant impacts on biodiversity, with adverse impacts on ecosystem services. Addressing trends in food systems is therefore crucial in determining the success of the Strategic Plan for Biodiversity 2011-2020. By 2050, the impacts of the direct drivers of biodiversity loss associated with agriculture, fisheries, aquaculture and forestry are projected to be greater than the anticipated impacts of climate change on biodiversity, at least for terrestrial and freshwater ecosystems.[3] The impacts of the direct drivers of biodiversity loss are also probably more easily addressed in the short to medium term. Harmful practices and poor management threaten the sustainability of these sectors, and some options, for example those involving large-scale expansion of biofuels, to mitigate climate change have significant implications for demands made on agricultural systems, and hence on biodiversity.

14. Future projections for 2050, based on current trends, suggest a number of outcomes with negative implications for human well-being. The scenarios suggest growing demand for fertile land for agriculture, including bioenergy, resulting in increased pressure on natural terrestrial habitats and large declines in

[2] Secretariat of the Convention on Biological Diversity. 2009. *Sustainable Forest Management, Biodiversity and Livelihoods: A Good Practice Guide*. Montreal, Canada, 47 + iii pages.

[3] See *Global Biodiversity Outlook, fourth edition*, Figure 21.5 of GBO-4 (page 137, English version) and Figure 4.16 (page 82) of CBD Technical Series No. 78 - *Progress Towards the Aichi Biodiversity Targets: An Assessment of Biodiversity Trends, Policy Scenarios and Key Actions.*

biodiversity. The scenarios also suggest the collapse of many wild fisheries, and their replacement by aquaculture, resulting in a possible increase in pollution, a larger demand for high protein feed and further competition for land. They further point to increased climate change, leading to biodiversity loss, ecosystem change with disruption of food production systems, and increased water scarcity in many regions. At local and landscape scales, declines in biodiversity are already undermining agricultural productivity, most notably regarding soil health. On the regional scale, combinations of drivers could push some ecosystems beyond tipping points. However, despite this grim outlook, there are a number of possible solutions to avoid the impacts suggests in these scenarios.

IV. OPPORTUNITY FOR INCORPORATING BIODIVERSITY CONSIDERATIONS INTO AGRICULTURE, FORESTS AND FISHERIES

15. Holistic planning and a common a vision of the intersectoral synergies are required to make agriculture, forests and fisheries more productive and sustainable through the implementation of more sustainable policies and practices. Expansion of agriculture and forestry activities is usually at the expense of forests and the potential pollution generated could impact fisheries. A holistic vision of sustainability must look beyond the trade-offs: it must explore opportunities for creating synergies and minimizing competition between sectors.

16. There is a large potential for more biodiversity-friendly production methods, and mainstreaming is more likely to succeed if biodiversity is aligned with the core values and economic interests of relevant actors, notably producers. This requires the sectors to be more aware of the values of biodiversity, the importance of well-functioning ecosystems, the opportunities that biodiversity provides as well as the possible risks of biodiversity loss to their operations. A key tool should therefore be the identification, and removal, of constraints to positive behavioural change by producers. For example, there are many examples of rapid uptake of improved practice, often led by farmers, usually prompted by reinforcing links between improved sustainability and farm profitability.

17. Knowledge of agriculture, forest and fisheries biodiversity has advanced tremendously in the past 20 years. This knowledge points to the need for three mutually reinforcing outcomes — ecological intensification of production, improved diversity in agricultural systems and landscapes, and sustainable consumption. All Parties need to focus on all three outcomes, but specific opportunities will vary with national circumstances. All three outcomes are already prominent on the agendas and actions of a number of national, regional and global forums and organizations. Although there is progress in all these areas, it is currently at an insufficient scale and receives too little government or private sector support.

A. Ecological intensification of production

18. Ecosystem services provide a means to simultaneously improve resource use efficiency, improve the nutritional value of food, reduce externalities, and promote biodiversity conservation and sustainable use. For high-input intensively farmed systems, this could include the rehabilitation of the ecological foundation of farming, including restoring landscape diversity, which can promote sustainable production and, in some cases, increase it. This is the rationale behind the widely promoted approach of "ecological intensification" of crop and livestock production,[4] a knowledge-intensive process that requires optimal management of nature's ecological functions and biodiversity to improve agricultural system performance, efficiency and livelihoods. Ecological intensification proposes landscape approaches[5] that make effective use of the natural functions that ecosystems offer. Landscape approaches emphasize adaptive management, stakeholder involvement and multiple objectives.

[4] For example, FAO's *Save and Grow*: http://www.fao.org/ag/save-and-grow/ ; https://www.bioversityinternational.org/fileadmin/user_upload/research/BVIs/BVI_B_-_Productive_and_resilient_farms_and_forests/Productive_resilient_farms_forests_factsheet.pdf; and, http://www.fao.org/agriculture/crops/thematic-sitemap/theme/biodiversity/ecological-intensification/en.

[5] Ten principles for a landscape approach to reconciling agriculture, conservation and other competing land uses http://www.pnas.org/content/110/21/8349.

19. Knowledge regarding policy coherence and alignment is a major gap to the ecological intensification of production. The ways in which agricultural biodiversity can improve ecosystem-regulating and -supporting services is still poorly understood in terms of how to achieve real benefits in different production systems. Resolving this gap will necessitate a programme of integrated trans-disciplinary research, which fully involves producers, and links methods of production to the adoption of practices that support biological functions in production systems.

20. Safeguarding and monitoring biodiversity and reversing biodiversity loss is crucial for sustainable agriculture, forests and fisheries. Addressing future challenges in production and other societal goals requires ecosystem services to be maintained or enhanced. Yet, these same services are currently being degraded and projections for future agriculture, fisheries, aquaculture, and forestry demand and supply based on current models generally do not account for potential negative feedback on biodiversity from the loss of biodiversity and ecosystem services. However, a number of possible tools exist to help address this challenge. For example, FAO's Sustainable Forest Management Tool Box and the Voluntary Guidelines for the Sustainable Management of Natural Tropical Forests developed by the International Tropical Timber Organization offer useful guidance on integrating biodiversity conservation into forest landscape planning and management.

B. Biodiversity maintained in production landscapes

21. Production landscapes need to maintain a mix of species and habitats and diversity across landscapes and seascape. Biodiversity is necessary for sustainability and to ensure that intensification does not lead to unsustainable increases in inputs. It is also a significant supplement to other conservation efforts focusing on protecting natural habitats. Maintaining a diversity of genetic resources in production systems is essential. In particular, improving the resilience of agriculture and landscapes is an important benefit of maintaining or restoring this biodiversity. Greater productivity, carbon sequestration, retention of nutrients, and the greater ability to resist and recover from various forms of stress, including pests, diseases, droughts and floods, are among the effects of increased biological diversity in agricultural systems noted in a recent review.[6] Further, a recent study of highly simplified and intensive mono-cropping systems demonstrates that landscape diversification not only delivers biodiversity benefits but also improves water, nutrient and soil management as well as simultaneously increases crop production.[7] Ecological intensification approaches can also significantly reduce pre-harvest food losses while reducing the need for damaging external inputs as demonstrated by ongoing work in China, Ecuador, Morocco and Uganda to determine how planting different varieties of the same crop can reduce pest and disease damage.[8]

22. A significant barrier to maintaining biodiversity in production landscapes is the false dichotomy regarding the appropriate agricultural approach (high-input, low-diversity, industrial-scale agriculture versus high-diversity, low-input, smaller-scale farming systems, sometimes also referred to as "land sparing" versus "land sharing").[9] The debate, however, tends to ignore the efficiency gains available even in high-input systems through ecological intensification. It is also often oversimplified, is based on unrealistic assumptions, ignores the realities of indigenous peoples and local communities, and often overlooks the contribution of biodiversity to food, nutrition, ecosystem functions and resilience.[10]

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[6] Cardinale, B.J., Duffy, J.E., Gonzalez, A., Hooper, D.U., Perrings, C., et al. 2012. Biodiversity loss and its impact on humanity. *Nature*. doi: 10.1038/nature11148.

[7] Liebman, M., Schulte, L.A. 2015. Enhancing agroecosystem performance and resilience through increased diversification of landscapes and cropping systems. *Elementa: Science of the Anthropocene*. 3: 000041. doi: 10.12952/journal.elementa.000041. elementascience.org.

[8] http://www.bioversityinternational.org/research-portfolio/agricultural-ecosystems/pests-and-diseases/.

[9] See for example: Phalan, B., Onial, M., Balmford, A. & Green, R.E. (2011). Reconciling Food Production and Biodiversity Conservation: Land Sharing and Land Sparing Compared. *Science* 333, 1289-1291.

[10] See Platform for Agrobiodiversity Research. *Land Sparing and Land Sharing: Perspectives of Indigenous Peoples and Rural Communities*. Available at http://agrobiodiversityplatform.org/files/2013/11/PAR-Land-sparingsharing1.pdf.

Developing and applying common criteria for sustainability, including the utilization of enhanced ecosystem services, could help to reduce the polarization of this issue.

C. Sustainable consumption – reduced resources waste

23. Promoting sustainable consumption can help to address increasing pressures on production systems. In the case of agriculture, approximately 40 per cent of current production is wasted through post-production losses. It is estimated that roughly 30 per cent of the total projected loss of terrestrial biodiversity by 2050 could be avoided by eliminating food waste. Reducing food waste should therefore be a priority action to reduce biodiversity loss and should be embedded in biodiversity strategies. However, the challenges to reducing food and resource waste vary significantly between countries and depend on the specific conditions and local situations. Generally, in developing countries, major losses arise as a result of poor infrastructure throughout the supply chain. In developed countries, infrastructure related losses tend to be lower, and most waste occurs at the level of retailers and consumers.

24. Certification can be a useful tool for promoting sustainable consumption by strengthening the conservation of biological diversity and ensuring environmentally, socially and economically sustainable management through appropriate management measures. The area under forest management certification has increased in recent years; however, this has largely been where markets are interested in promoting the certification of timber and non-timber forest products. Also, there is significant progress in using sustainability criteria and standards, and certification schemes, through supply chains for some major commodities, notably for soy, palm oil and biofuels,[11] although these still do not cover the majority of production in each commodity. These provide a useful model for application to a broader set of commodities and supply chains.

25. One major barrier to promoting sustainable consumption is the large number of actors that need to be involved. Tools to alleviate this problem include awareness raising, consensus building across stakeholders, effective participation and dialogue in policy development. There are four broad categories of stakeholders in which behavioural change is required – producers, consumers, and the private and public sectors.

26. Consumers create the demand for products. There may be additional opportunities for leveraging the power of consumer choice by emphasizing the food security, health and biodiversity, the costs and benefits of consumer choices. However, there are challenges in creating behavioural change. Although achieving sustainable diets may be particularly challenging, as it requires significant consumer behavioural change, it also has the potential to be particularly effective. Significant partners in this area are public health institutions, as unsustainable diets, characterized by low diversity of foods with high proportions of meat and processed foods, are also unhealthy and are projected to have impacts on public health.[12] Ways and means to achieve sustainable diets primarily involve influencing supply chains and consumer choice, including promoting traditional, local or national food cultures that are often both more sustainable and healthy.

27. The private sector could be instrumental in contributing to the behavioural change required to promote sustainable consumption and production patterns. Corporate social responsibility programmes and the increasing recognition that business sustainability depends on a range of biodiversity-relevant ecosystem services means that at least some business models have reduced conflicts between profitability and biodiversity conservation. Major food marketing chains, in particular, can be very influential. In the

[11] Roundtable on sustainable biomaterials: http://rsb.org; the Global Bioenergy Partnership http://www.globalbioenergy.org; the Round Table for Sustainable Soy http://www.responsiblesoy.org/en/; Roundtable for Sustainable Palm Oil http://www.rspo.org/about; European Food Sustainable Consumption and Production Roundtable: http://www.food-scp.eu; Progress in this regard for biofuels was considered at SBSTTA-16, leading to recommendation XVI/13, and background information provided for this is summarized in CBT Technical Series 65: https://www.cbd.int/doc/publications/cbd-ts-65-en.pdf.

[12] See *Connecting Global Priorities: Biodiversity and Human Health – A State of Knowledge Review.* Secretariat of the CBD and WHO. 2015. https://www.cbd.int/health/SOK-biodiversity-en.pdf.

agriculture sector, the main barriers are the conflicting interests between seed, pesticide, fertilizer and machinery producing and marketing companies and biodiversity objectives.

28. The public sector remains indispensable in creating an enabling environment for sustainable consumption through an appropriate mix of regulations and incentives. The establishment of inter-ministerial taskforces, cross-agency joint programming, planning and funding, integrated land use planning, accountable governance, multi-purpose incentives, and shared information and monitoring systems are examples of measures that allow for cooperation between stakeholders. Governments should continue to support these actions. Many policy and non-policy tools are in the hands of Governments to contribute to this. These may relate to incentive measures, such as better targeting of subsidies, or the elimination, phasing out or reformation of harmful subsidies and other incentives[13] as well as further investments in research and knowledge infrastructure and capacity-building. Public procurement strategies could also be better oriented towards creating demand for sustainable products.

29. Globalization, trade and displacement effects remain weakly covered in national strategies. Progress in improved sustainability at the national level can be offset (globally) by increasing external footprints arising from increasing reliance on imported commodities. An example is the increasing dependency of domestic livestock production on imported feedstock in some countries. Attention to sustainability measures in supply chains for major commodities will contribute to addressing this problem.

30. A recent evaluation notes that resilience to climate change is a significant gap in agricultural policies, recommending that an overarching aim of policymakers should be to "future-proof" the sector, to help it face multiple challenges.[14] The modelling underpinning the fourth edition of the *Global Biodiversity Outlook* did not factor in the implications of climate change for natural resource requirements relating to agriculture. Integrating resilience into food and agriculture and enabling agriculture to contribute optimally to climate change mitigation and adaptation are key components of sustainability. Some practical tools and guidance are already available on this topic.[15] The Scientific and Technical Advisory Panel of the Global Environment Facility (GEF) has also commissioned work on a resilience, adaptation and transformation framework that seeks to develop a tool to move the topic from theory to practice.[16] The CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS) also has a major focus on embedding resilience into food and agriculture and facilitating agriculture to contribute to climate change mitigation and adaptation and provides considerable enabling policy guidance on this.[17] CCAFS and the Platform for Agrobiodiversity Research (PAR) recently collaborated with the FAO Commission on Genetic Resources for Food and Agriculture to develop the Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning,[18] which were endorsed by the Commission. The Commission subsequently invited

[13] Modalities for the full operationalization of Aichi Biodiversity Target 3 (incentives and subsidies) were considered further at SBSTTA-18 and by the Working Group on Review of Implementation at its fifth meeting (see UNEP/CBD/SBSTTA/18/11 and UNPE/CBD/WGRI/5/4/Add.1).

[14] Agricultural Policy Monitoring and Evaluation: Highlights 2015. OECD Paris. http://www.oecd.org/tad/agricultural-policies/monitoring-evaluation-2015-highlights-july-2015.pdf.

[15] For example: FAO-Adapt www.fao.org/docrep/014/i2316e/i2316e00.pdf ; Climate-Smart Agriculture: Policies, Practices and Financing for Food Security, Adaptation and Mitigation www.fao.org/docrep/013/i1881e/i1881e00.htm ; Climate-Smart Agriculture (CSA) sourcebook www.fao.org/docrep/018/i3325e/i3325e.pdf; Developing a Climate-Smart Agriculture at the country level lessons from recent experience: www.fao.org/docrep/016/ap401e/ap401e.pdf.

[16] O'Connell, D., Walker, B., Abel, N., Grigg, N. (2015) The Resilience, Adaptation and Transformation Assessment Framework: From Theory to Application. CSIRO, Australia. http://www.stapgef.org/the-resilience-adaptation-and-transformation-assessment-framework/.

[17] https://ccafs.cgiar.org/.

[18] Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning. Report of the Fifteenth Regular Session of the Commission on Genetic Resources for Food and Agriculture. Rome, 19-23 January 2015. Appendix D. http://www.fao.org/3/a-mm660e.pdf

the CGRFA Secretary to transmit the Guidelines to UNFCCC and other relevant international bodies.[19] One very good tool to promote climate-smart agricultural practices is to include them in the national adaptation plans that countries are developing under UNFCCC and guidance on how to do so is available,[20] as is guidance on the role and importance of genetic resources and agricultural biodiversity in coping with climate change.[21] Other relevant implementation tools include the FAO Global Plan of Action on Forest Genetic Resources.

V. SUGGESTED RECOMMENDATION

31. The Subsidiary Body on Scientific, Technical and Technological Advice may wish to recommend that the Conference of the Parties at its thirteenth meeting adopt a decision along the following lines:

The Conference of the Parties,

Recalling Articles 6(b) and 10(c) of the Convention,

Also recalling decision XII/1, in which it noted, from among the general conclusions of the fourth edition of the *Global Biodiversity Outlook*,[22] that attaining most of the Aichi Biodiversity Targets would require the implementation of a package of actions, typically including legal or policy frameworks, socioeconomic incentives aligned with such frameworks, public and stakeholder engagement, monitoring, and enforcement, and that coherence of policies across sectors and the corresponding government ministries is necessary in order to deliver an effective package of actions,

Recognizing that agriculture, forests, fisheries and aquaculture are sectors that depend on biodiversity, including its components, as well as the ecosystem functions and services that it underpins, that these sectors also impact on biodiversity through various drivers, and that the consequent loss of biodiversity can impact negatively on these sectors, potentially undermining previous increases in goods and services and threatening food security and the provision of ecosystem services that are vital to humanity,

Recognizing the central role of the ecosystem approach and the precautionary approach in guiding all activities relevant to agriculture, forests, fisheries and aquaculture undertaken in the context of the Convention,

Also recognizing the relevant guidance provided in the programmes of work under the Convention, in particular the programmes of work on agricultural biodiversity, forest biodiversity and marine and coastal biodiversity,

1. *Recognizes* the opportunity arising from an integrated and holistic implementation of the 2030 Agenda for Sustainable Development,[23] the Strategic Plan for Biodiversity 2011-2020[24] and the Reviewed Strategic Framework 2010-2019 of the Food and Agriculture Organization of the United Nations[25] to simultaneously achieve food security and improved nutrition, water security, poverty reduction, climate change, disaster risk reduction, health and biodiversity objectives and that these are interdependent and mutually supportive;

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[19] http://agrobiodiversityplatform.org/par/2015/01/20/cgrfa-15-regular-session-updates/; https://ccafs.cgiar.org/publications/agricultural-biodiversity-climate-change-adaptation-planning-analysis-national#.VbuHOfn5U3l.

[20] http://www.bioversityinternational.org/news/detail/promoting-genetic-diversity-in-agriculture-through-national-adaptation-plans/.

[21] http://www.fao.org/publications/card/en/c/0099d145-f240-4e61-b30e-3d210972ceb8/ and http://agrobiodiversityplatform.org/blog/wp-content/uploads/2010/05/PAR-Synthesis_low_FINAL.pdf.

[22] https://www.cbd.int/gbo4/.

[23] General Assembly resolution 70/1 of 25 September 2015 on "Transforming our world: the 2030 Agenda for Sustainable Development", annex.

[24] Conference of the Parties decision X/2, annex.

[25] Conference of FAO, Thirty-eighth Session, Rome, 15-22 June 2013, C 2013/7.

2. *Also recognizes* that transformational change, including through mutually supportive policy, legal, technical and financial measures in these sectors, is required to meet agreed sustainable development objectives;

3. *Welcomes* the voluntary guidance on Building a Common Vision for Sustainable Food and Agriculture[26] and *encourages* Parties and invites other Governments apply this guidance, as appropriate, in support of an integrated approach to sustainability across agriculture, forests and fisheries, recognizing the interdependencies between these sectors;

4. *Also welcomes* the global plans of action adopted by the Commission on Genetic Resources for Food and Agriculture of the Food and Agriculture Organization of the United Nations on plant, livestock and forest genetic resources;

5. *Notes* the relevance of the Plan of Action on Customary Sustainable Use of Biological Diversity in enabling indigenous peoples and local communities to contribute to addressing biodiversity considerations in agriculture, forests, fisheries and aquaculture;

6. *Urges* Parties, and other Governments to strengthen their efforts to mainstream biodiversity into the agriculture, forests, fisheries and aquaculture sectors at all levels and scales, including by involving relevant stakeholders and by reflecting biodiversity in sectoral standards;

7. *Urges* Parties and other Governments to implement cross-sectoral strategies and integrated landscape and seascape management to curb biodiversity loss, including by reducing negative impacts from agriculture, forestry, fisheries, aquaculture, while identifying potential measures to contribute to the health and resilience of ecosystems;

8. *Notes* the Food and Agriculture Organization's *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*,[27] and *encourages* Parties and invites other Governments to make use of this guidance, as appropriate, to review and, as necessary, adjust, land and other resource tenure or stewardship issues;

9. *Urges* Parties and other Governments to align financial incentives and performance-based payments with national biodiversity objectives to reduce habitat loss, degradation and fragmentation, and to channel public and private sources of finance into practices that improve the sustainability of production while reducing biodiversity loss and promote the restoration of critical ecosystems in a way that provides for local community needs, does not cause harm to other ecosystems, and complies with applicable legal environmental regulations;

10. *Also urges* Parties and other Governments to enhance monitoring of resource use in agriculture, forests fisheries and aquaculture, and to improve public access to monitoring data;

11. *Further urges* Parties and other Governments to promote educational and public awareness campaigns to minimize food waste and to promote healthy diets with due consideration of their sustainability;

12. *Urges* Parties and other Governments to provide opportunities for discussion and mutual learning among different stakeholder groups within and between sectors to facilitate the identification of synergies and trade-offs and the negotiation of common solutions;

13. *Also urges* Parties and other Governments to make broader use of existing certification schemes for sustainably produced goods from agriculture, forestry and fisheries, and to promote the further development of certification schemes to fill current gaps, ensuring that the conservation and sustainable use of biodiversity are reflected in the criteria for certification, and consider reflecting existing internationally accepted voluntary standards in national requirements;

[26] UNEP/CBD/SBSTTA/20/INF/54.

[27] Food and Agriculture Organization of the United Nations, 2012. Available at http://www.fao.org/docrep/016/i2801e/i2801e.pdf.

14. *Encourages* international organizations, including the Global Environment Facility, the World Bank and relevant regional development banks, to support mechanisms, including certification schemes, payment for environmental services, national capital accounting, environmental and social safeguards and access and benefit-sharing agreements for the integration of biodiversity into productive sectors, and to promote tools, standards and guidelines in a manner that provides incentives for actors to take measures for biodiversity conservation and sustainable use and modify practices that may be degrading biodiversity;

15. *Invites* the Food and Agriculture Organization of the United Nations, in cooperation with other relevant partners, and avoiding duplication of effort, to support the implementation of the present decision and other relevant policies and measures, consistent with the Strategic Plan for Biodiversity 2011-2020,[24] the Reviewed Strategic Framework 2010–2019 of the Food and Agriculture Organization of the United Nations[25] and the 2030 Agenda for Sustainable Development;[23]

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16. *Recognizes* the importance of biodiversity to food security and nutrition and its role in human health;

17. *Recalls* that, in decision IX/1, it agreed that the programme of work on agricultural biodiversity, including its three international initiatives, continued to provide a relevant framework to achieve the objectives of the Convention;

18. *Also recalls* that one of the conclusions of the fourth edition of the *Global Biodiversity Outlook*[22] and its supporting assessments is that addressing the pressures on biodiversity resulting from food systems will be crucial in the success of the Strategic Plan for Biodiversity 2011–2020,[24] and that urgent action to achieve sustainable food systems is needed;

19. *Notes* that the growing demand for food and agricultural commodities, associated with population growth, increasing wealth and shifts in consumption patterns, will have an impact on biodiversity unless it is appropriate addressed;

20. *Notes* that a high proportion of food is currently wasted post-production and that reducing this loss will have a major benefits, such as the alleviation of pressures on resources, including biodiversity;

21. *Also notes* that restoring currently degraded agricultural systems can increase food production and restore biodiversity and ecosystem services important for agriculture and other needs;

22. *Invites* the Food and Agriculture Organization of the United Nations, its Commission on Genetic Resources for Food and Agriculture and its Committee on Agriculture:

(a) To consider and further support the development and implementation of measures, guidance and tools to promote the mainstreaming of biodiversity in the crop, livestock and food sectors;

(b) To place the transition to sustainable food and agriculture as a standing item on the agendas of these bodies;

(c) To report on progress to relevant bodies under the Convention;

23. *Encourages* Parties and other Governments to develop clear legal or policy frameworks for land use that reflect national biodiversity objectives, with procedures for spatial planning at various scales and levels of governance to, inter alia, promote sustainable increases in the productivity of existing agricultural land and rangeland while enhancing ecosystem services, including those services that contribute to agricultural production (such as pollination, pest control, water provision and erosion control), while also protecting natural habitats and promoting connectivity in the landscape;

24. *Urges* Parties and *invites* other Governments promote the conservation and use of biodiversity as part of an approach towards “ecological intensification” of agriculture, with enhanced use

of diverse and well-adapted crops and crop varieties and the conservation of associated biodiversity in agricultural landscapes, including pollinators and pest-control organisms, reducing or replacing chemical inputs, where feasible;

25. *Encourages* Parties and other Governments to put in place regulatory and/or incentive measures to increase the efficiency of use of water, fertilizer and pesticides, and to avoid their inappropriate use, for example, by promoting integrated pest management, and to reduce waste at all stages of production and consumption in the food system, including reducing post-harvest losses;

26. *Also encourages* Parties and other Governments to restore, maintain or build the ecological basis of farming, including through the conservation and restoration of biodiversity and ecosystem services in agricultural landscapes, including genetic resources for food and agriculture and their landraces and wild relatives as a key pathway to achieving sustainable productivity and nutritional gains;

27. *Further encourages* Parties and other Governments to support agricultural development models that are consistent with the Reviewed Strategic Framework 2010-2019 of the Food and Agriculture Organization of the United Nations[25] and to implement the principles for responsible investment in agriculture and food systems approved by the Committee on World Food Security in October 2014,[28] noting in particular the importance of small-scale family farming and pastoralism in view of its dominance in terms of food security and nutrition, poverty reduction, social equity in farming and biodiversity conservation efforts;

Forests

28. *Recognizes* the role of forest biodiversity in contributing to human well-being through production of food, wood, fibre, fuel, medicine, clean water, and oxygen and their contribution to ecosystem processes;

29. *Notes* Economic and Social Council resolution 2015/33, in which the Council acknowledged different visions, approaches, models and tools of sustainable forest management;

30. *Also notes* the elements of the Durban Declaration,[29] from the XIV World Forestry Congress, promoting the need for a deeper understanding of the integral role of biodiversity in forest ecosystem functioning;

31. *Recognizes* the contributions of other members of the Collaborative Partnership on Forests to fully operationalize sustainable forest management while ensuring biodiversity conservation;

32. *Encourages* Parties and other Governments and other relevant stakeholders to contribute to the preparation of the 2017-2020 Strategic Plan of the international arrangement on forests;

33. *Urges* Parties and other Governments to create enabling conditions for the adoption of responsible forest management practices, and *encourages* forest enterprises and forest owners to appropriately integrate biodiversity into the development and use of certification schemes, or other voluntary and appropriate mechanisms;

34. *Also urges* Parties and other Governments to develop or enhance monitoring of the impacts and implications of forest programmes on biodiversity;

35. *Further urges* Parties and other Governments to exert efforts to enhance the awareness of all stakeholders and their involvement in the development and implementation of policies and strategies for forest management;

36. *Urges* Parties and other Governments to strengthen their efforts to establish, maintain and develop well-managed national or regional forest protected area networks with managed buffer zones,

[28] http://www.fao.org/cfs/cfs-home/activities/resaginv/en/

[29] http://www.fao.org/fileadmin/user_upload/wfc2015/Documents/Durban_Declaration_1.pdf.

where appropriate, applying spatial and land use-planning tools to identify areas of particular importance to forest biodiversity;

Fisheries and aquaculture

37. *Recognizes* that healthy marine, coastal and inland waters ecosystems and biodiversity are essential to achieving sustainable increases and improved resilience in the provision of food and livelihoods;

38. *Also recognizes* that there are currently many fisheries that are not sustainably managed and aquaculture operations and practices with significant negative impacts on biodiversity and habitats;

39. *Recalls* decision XI/18, *encourages* fisheries management organizations, as the competent bodies to manage fisheries, to further improve, in fisheries management, consideration of biodiversity-related matters and application of the ecosystem approach, including through inter-agency collaboration, and with the full and meaningful participation of indigenous peoples and local communities and a wide range of experts on biodiversity, and *calls for* the capacity and implementation activities of these fisheries management organizations to be enhanced to these ends;

40. *Recalls* decisions X/29 and XI/18, in which it emphasized the importance of collaborating with the Food and Agriculture Organization of the United Nations, regional fisheries bodies and the regional seas conventions and action plans with regard to addressing biodiversity considerations in sustainable fisheries and aquaculture;

41. *Recognizes* the overarching principles of sustainable fisheries and aquaculture stipulated in a number of international instruments, including the United Nations Convention on the Law of the Sea,[30] the 1993 FAO Compliance Agreement,[31] the 1995 United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,[32] the 1995 FAO Code of Conduct for Responsible Fisheries,[33] and that, together with accompanying guidelines and plan of actions, these represent a comprehensive global framework for fisheries policy and management and support mainstreaming of biodiversity in fisheries and aquaculture;

42. *Recalls* paragraph 55 of decision X/29, *encourages* Parties and *invites* other Governments to ratify the FAO Agreement on Port States Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, adopted in 2009, which provides a means of addressing such fishing activities;

43. *Also recalls* decisions X/29, XI/17 and XII/22, and *calls for* further collaboration and information-sharing among of the Secretariat of the Convention on Biological Diversity, the Food and Agriculture Organization of the United Nations, and regional fishery bodies regarding the use of scientific information on areas described to meet the scientific criteria for ecologically or biologically significant marine areas and on vulnerable marine ecosystems in support of achieving various Aichi Biodiversity Targets and in this regard;

44. *Welcomes* the ongoing cooperation between the Food and Agriculture Organization of the United Nations, the International Union for Conservation of Nature and the Executive Secretary, to improve reporting and support for the implementation of Aichi Biodiversity Target 6;

45. *Invites* the Food and Agriculture Organization of the United Nations and the Committee on Fisheries to consider and further support the development and implementation of measures, guidance and tools for promoting the mainstreaming of biodiversity in the fisheries and aquaculture sectors, including the risks of introduction of invasive alien species;

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[30] United Nations, *Treaty Series*, vol. 1833, No. 31363.

[31] http://www.fao.org/docrep/meeting/003/x3130m/X3130E00.htm.

[32] United Nations, *Treaty Series*, vol. 2161, No. 37924.

[33] http://www.fao.org/docrep/005/v9878e/v9878e00.htm.

46. *Invites* Parties and other Governments to use, as appropriate, existing guidance related to the ecosystem approach to fisheries and aquaculture, the Food and Agriculture Organization's Sustainability Assessment of Food and Agriculture Systems Guidelines and the Policy Support Guidelines for the Promotion of Sustainable Production Intensification and Ecosystem Services;[34]

47. *Also invites* Parties and other Governments to improve synergies in managing pressures in seascapes and inland waters landscapes, including through the implementation of the Priority Actions to Achieve Aichi Biodiversity Target 10 for Coral Reefs and Closely Associated Ecosystems;[35]

48. *Urges* Parties and *invites* other Governments to strengthen existing mechanisms of governance of fisheries, and, where necessary, establish such mechanisms, and take biodiversity considerations fully into account when designing and implementing policies for fishing capacity management and reduction;

49. *Requests* the Executive Secretary:

(a) To strengthen collaboration with the Food and Agriculture Organization of the United Nations and other relevant partners in all areas relevant to the implementation of the present decision;

(b) To transmit the present decision for the attention of the Conference and Committees on Agriculture, Fisheries and Forestry of the Food and Agriculture Organization of the United Nations, the Committee on World Food Security, the United Nations Forum on Forests and other relevant bodies;

(c) To prepare and disseminate to Parties, in collaboration with the Food and Agriculture Organization of the United Nations and other relevant partners, further guidance on the concept of "sustainability" in food and agriculture with regard to biodiversity, and to strengthen support for relevant information-sharing and technology transfer among Parties, building on existing initiatives where feasible;

(d) To continue compiling guidance and tools relevant to addressing biodiversity considerations in agriculture, forestry, fisheries and aquaculture, and to make this available through the clearing-house mechanism of the Convention and other relevant means before the fourteenth meeting of the Conference of the Parties.

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[34] Food and Agriculture Organization of the United Nations, *Integrated Crop Management, Vol.19-2013*. http://www.fao.org/ag/ca/CA-Publications/ICM19.pdf

[35] See decision XII/23.