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UPDATED SCIENTIFIC ASSESSMENT OF PROGRESS TOWARDS SELECTED AICHI BIODIVERSITY TARGETS AND OPTIONS TO ACCELERATE PROGRESS

Note by the Executive Secretary

BACKGROUND

1. In decision [XII/1](#), the Conference of the Parties welcomed the fourth edition of the *Global Biodiversity Outlook* and recognized that there had been encouraging progress towards meeting some elements of most [Aichi Biodiversity Targets](#) but, in most cases, the progress would not be sufficient to achieve the targets unless further urgent and effective action was taken to reduce the pressures on biodiversity and to prevent its continued decline.
2. In decision [XIII/30](#), the Conference of the Parties requested the Executive Secretary, subject to the availability of resources, to prepare, in collaboration with members of the Biodiversity Indicators Partnership and other relevant partners, for the consideration of the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting held prior to the fourteenth meeting of the Conference of the Parties, updated scientific assessments of progress towards Aichi Biodiversity Targets, focusing in particular on those targets on which the least progress had been made and making use of available data and the indicators contained in the annex to decision [XIII/28](#), as appropriate, as well as other information sources used for the fourth edition of the *Global Biodiversity Outlook*. In the same decision, the Executive Secretary was requested to develop options to accelerate progress towards the achievement of those targets which have been identified as the least advanced.
3. At its sixth session, the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) approved the summaries for policymakers of the reports on the regional assessment of biodiversity and ecosystem services for Africa, the Americas, Asia and the Pacific and Europe and Central Asia and accepted the individual chapters of the assessment reports and their executive summaries. Similarly, it also approved the summary for policymakers of the land degradation and restoration assessment. In line with the procedures set out in decision [XII/25](#), the Subsidiary Body on Scientific, Technical and Technological Advice is invited to consider these assessments with regard to the relevance of their findings for the work of the Convention, and for the development, as appropriate, of recommendations to the Conference of the Parties.
4. Section I of the present document provides updated scientific information related to the progress towards the attainment of the Aichi Biodiversity Targets and has four subsections which summarize information from scientific literature, information related to indicators, information from the IPBES regional assessment and information from the IPBES thematic assessment on land degradation. Section II

* [CBD/SBSTTA/22/1](#).

identifies possible options to accelerate progress towards the Aichi Biodiversity Targets, and section III provides a draft recommendation for the consideration of the Subsidiary Body on Scientific, Technical and Technological Advice. Information on the indicators for which updated data points have become available since 2014 is contained in annex I, and a summary of options to accelerate progress towards the attainment of the Aichi Biodiversity Targets is contained in annex II.

5. The present document is complemented by an information document¹ which details the scientific information, including references, reviewed for the preparation of the present document. Further, information on progress towards the Aichi Biodiversity Targets based on the fifth national reports and national biodiversity strategies and actions plans has been made available to the Subsidiary Body on Implementation at its second meeting.² Further, in response to recommendation [XXI/1](#), four information documents related to scenarios for the 2050 Vision for Biodiversity, originally prepared for the twenty-first meeting of the Subsidiary Body, will be revised and reissued.³ Also, in response to paragraphs 6 and 7 of the same recommendation, the [Cambridge Conservation Initiative](#) organized a workshop to advance the understanding of the requirements for an evidence base to underpin the development of a possible post-2020 global biodiversity framework. The results of this meeting have also been made available as an information document.⁴

I. UPDATED SCIENTIFIC INFORMATION

A. Summary of information from scientific literature

6. Scientific literature primarily from peer-reviewed journals published between 2014, the year the fourth edition of the *Global Biodiversity Outlook* was published, and 2018, was reviewed in order to develop an updated assessment of progress towards the Aichi Biodiversity Targets. The scientific literature considered in this assessment is summarized for each Aichi Biodiversity Target in information document CBD/SBSTTA/22/INF/10.

7. For a number of Aichi Biodiversity Targets, there has been relatively little global-level information that has become available in last four years. This is particularly the case for those targets which address socioeconomic issues, such as Targets 1, 2, 3 and 18. This gap points to the need to encourage the greater involvement of the social sciences in helping to assess progress towards the Aichi Biodiversity Targets. Further, for Targets 16, 17 and 20, relatively little information has been published in scientific publications. These targets will be further considered, along with Target 3, at the second meeting of the Subsidiary Body on Implementation.

8. The mid-term assessment of progress towards the attainment of the Aichi Biodiversity Targets, undertaken in 2014 and contained in the fourth edition of the *Global Biodiversity Outlook*, concluded that, with the exception of Target 16 on the Nagoya Protocol, no target was on track to be completely met. Seven targets (Targets 1, 7, 11, 17, 18, 19 and 20) had at least one element for which some progress was being made but not at a rate that would not allow the target to be reached. Seven targets (Targets 2, 3, 4, 6, 9, 13 and 15) had at least one element for which no overall progress was being made, and five targets (Targets 5, 8, 10, 12 and 14) had at least one element which was moving away from the target.

9. The information that is available from the scientific literature does not suggest that there have been any overall changes to the assessment of progress towards the attainment of the Aichi Biodiversity Targets as presented in the fourth edition of the *Global Biodiversity Outlook*. However, the information does suggest that some progress has been made, for example with regard to the restoration of different

¹ CBD/SBSTTA/22/INF/10.

² CBD/SBI/2/2 and its two addenda.

³ The revised information documents are “Summary of the shared socioeconomic pathways” (CBD/SBSTTA/21/INF/2/Rev.2), “Use of biodiversity scenarios at local, national and regional scales” (CBD/SBSTTA/21/INF/3/Rev.1), “Summary of the shared socioeconomic pathways” (CBD/SBSTTA/21/INF/4/Rev.1), “Multiscale, cross-sectoral scenarios for nature futures: the positive visions for biodiversity, ecosystem services, and human well-being” (CBD/SBSTTA/21/INF/18/Rev.1).

⁴ CBD/SBSTTA/22/INF/10.

types of ecosystems, the improved management of fisheries, the rate of forest loss and regulations on plastic bags. In addition, a number of studies have been published which suggest that the situation for some aspects of biodiversity is deteriorating, including the provision of certain types of ecosystem services, species extinctions and the rate of loss of some types of habitats. Similarly, a number of studies looking at scenarios and models of biodiversity loss suggest that, unless business-as-usual trends change, there will be continued and ongoing loss of biodiversity for the foreseeable future.

10. Overall, the recent scientific literature suggests that the conclusions reached in the fourth edition of the *Global Biodiversity Outlook*, that current progress will not be sufficient to achieve the Aichi Biodiversity Targets by 2020, and that additional action is required to keep the [Strategic Plan for Biodiversity 2011-2020](#) on course, remain valid. The scientific literature also suggests that the assessment of progress towards the Aichi Biodiversity Targets contained in the fourth edition remains valid. This conclusion is consistent with what has been observed from the assessment and analysis of information contained in the fifth national reports and the national biodiversity strategies and action plans which have been developed, updated or revised since the adoption of the Strategic Plan for Biodiversity 2011-2020.

11. There is often a delay between the time when an intervention is taken and changes become discernible in biological, socioeconomic and political systems. In addition, there is often a delay between the time when information is collected and when this information becomes available in a publication. For example, while this review has focused on research published after 2014, many of the data sets and information on which these publications are based were collected prior to this.

B. Summary of information from indicators

12. The fourth edition of the *Global Biodiversity Outlook* made use of 55 indicators. Of these indicators, 29 have had additional data points added since the fourth edition was published. In addition, a further 17 indicators not used in the fourth edition have been identified as being relevant in assessing progress towards the Aichi Biodiversity Targets (see annex I). Of these 46 indicators,⁵ 19 showed trends that could be considered positive for biodiversity and one had a trend which was unclear. The remainder were negative. All of the 19 indicators showing positive trends related to the responses Parties are taking to conserve and sustainably use biodiversity. The 26 indicators showing trends negative for biodiversity were related to the status of biodiversity, the pressures on it and the benefits it provides. Further, for those indicators that were used in the fourth edition and have updated data points, the overall direction of the trend has not changed. This information suggests, as reported in the fourth edition, that biodiversity is continuing to decline even though the responses to biodiversity loss are increasing.

C. Summary of information from IPBES regional assessments

13. At its sixth plenary meeting, the Intergovernmental Science Policy Platform approved the summaries for policymakers of regional and subregional assessments of biodiversity and ecosystem services for Africa, the Americas, Asia and the Pacific, and Europe and Central Asia and accepted the chapters of the assessments and their executive summaries.⁶ The key messages from the assessments identify various issues relevant to the implementation of the Strategic Plan for Biodiversity 2011-2020, the possible development of a post-2020 global biodiversity framework and the implementation of the Convention on Biological Diversity more generally.

14. All of the assessments emphasize the importance of biodiversity for human well-being and sustainable development and note that each of the regions harbours unique biodiversity. However, all of the assessments also indicate that the status of biodiversity continues to decline, though some progress has been made in specific ecosystems or specific locations. This decline is resulting in the decline of ecosystem services and therefore should be regarded as a threat to sustainable development and human well-being.

⁵ Seven of these indicators are not currently included in the list of indicators welcomed by the Conference of the Parties in decision XIII/28.

⁶ Accessible from <https://www.ipbes.net/outcomes>.

15. The assessments observe that the pressures on biodiversity across the regions continue to increase. The main pressures on biodiversity continue to be habitat change, climate change, invasive alien species, pollution, and unsustainable use; however, the relative importance of these varies among regions. In most of the regions, it is noted that climate change is expected to be the main pressure on biodiversity in the future. These direct drivers are affected by such things as population growth, urbanization, socio-political and cultural pressures (indirect drivers). Further, it is noted in the assessments that the direct drivers of biodiversity loss often interact among themselves and with the indirect drivers, augmenting their overall severity.

16. In all of the regions, it is noted that actions have been taken to conserve and sustainably use biodiversity. However, it is also noted that these actions have, for the most part, been insufficient. It is further observed that, while various plans and strategies have been developed for the conservation and sustainable use of biodiversity, these have not generally been translated into actions.

17. The regional assessments identify various actions which could be taken to improve the status and trends of biodiversity. The actions identified could be broken down into several types, including legislative, regulatory, incentives and rights-based. However, it was also observed that the actions that are taken would result in trade-offs between different societal priorities which will need to be balanced. Further some of these trade-offs can occur over different time scales. As a result, there is a need to pay greater attention to issues associated with policy “leakage” and “spillover” effects. Further, the actions identified are general and would need to be tailored to specific national contexts and scales in order to allow for their effective implementation. Overall, the actions identified in the summaries point to the need for transformational changes in the way societies interact with biodiversity and in the way they manage these interactions.

18. A conclusion across the four assessments is the need for governance systems which are capable of addressing biodiversity issues in a coherent manner. The need to better integrate or mainstream biodiversity issues across all sectors of society is also noted. The means of accomplishing this which were identified in the assessments are: (a) the greater use of participatory approaches to management; (b) building the capacity of stakeholders to be able to meaningfully participate in decision-making processes; (c) improving the awareness of biodiversity through enhanced communication and education; (d) enhancing biodiversity research and monitoring; and (e) improving access to financial resources and technologies. However, the assessments also note that there is no single approach to governance and that governance needs be contextualized to national circumstances.

19. The regional assessments also considered various scenarios which identify possible pathways for development. Those pathways which assumed that decisions regarding biodiversity were taken in a proactive manner and which adopted holistic approaches resulted in more positive outcomes than those that did not. Further, the pathways explored in the assessment show that mixes of different policies — including legal, regulatory, economic and social instruments — will be required in order to bring about desired changes. The most effective scenarios, in terms of biodiversity conservation and sustainable use, emphasized the mainstreaming of biodiversity into subnational and local development pathways and long-term social transitions or behavioural change through education, knowledge sharing and participatory decision-making.

20. The regional assessments identified several information gaps which, if addressed, would improve the ability to assess biodiversity and to take more effective actions for its conservation and sustainable use. Among the gaps identified were information on the impacts of biodiversity loss on people’s quality of life and ecosystem services, the non-material values of biodiversity, the links between the indirect and direct drivers of biodiversity loss, information on the contributions of indigenous peoples and local communities to biodiversity, and more information on how to mainstream biodiversity effectively. Some of the regional assessments also identified the need for more geographically relevant information and the need for information on specific ecosystems, such as those related to the marine environment. The African assessment also noted that the limited information on Africa is a challenge.

21. Specifically, with regard to scenarios and modelling, the need for more integrated scenarios was noted, as was the need for the better quantification of the possible pathways that exist. The need for scenarios which consider multiple direct and indirect drivers of biodiversity loss and which better reflect ecosystem services was also noted. It was also observed that there is a need for scenarios which can be adapted to specific national and regional circumstances.

22. The key messages from the regional summaries for policymakers of the regional and subregional assessments of biodiversity and ecosystem services for Africa, the Americas, Asia and the Pacific, and Europe and Central Asia are consistent with the conclusion from the fourth edition of the *Global Biodiversity Outlook*, recent deliberations under the Convention on Biological Diversity and the evidence from recent scientific literature on progress towards the Aichi Biodiversity Targets noted above. They provide further evidence that the pressures on biodiversity are increasing, that its status is decreasing and that, while actions are being taken, they are not yet sufficient to halt the loss of biodiversity. Further, while there are regional differences, current biodiversity trends in all regions show a threat to prospects for long-term sustainability and make it highly unlikely that the Aichi Biodiversity Targets will be reached if the current pathway is maintained. The regional summaries also highlight the need to better internalize global commitments, such as the Aichi Biodiversity Targets, into national actions and to integrate biodiversity across sectors. The observations that several pathways exist to bring about the conservation and sustainable use of biodiversity while meeting other societal objectives, that different policy mixes will be required and that actions and measures need to be tailored to national circumstances and priorities are also consistent with the findings of the Subsidiary Body in its recommendation XXI/1.

D. Summary of information from land degradation

23. At its sixth plenary meeting, IPBES approved the summary for policymakers of the land degradation and restoration assessment⁷ and accepted the chapters of the assessment and its executive summary. The assessment concluded⁸ that:

(a) Land degradation is a pervasive, systemic phenomenon: it occurs in all parts of the terrestrial world and can take many forms. Combating land degradation and restoring degraded land is an urgent priority to protect the biodiversity and ecosystem services vital to all life on Earth and to ensure human well-being;

(b) Currently, degradation of the Earth's land surface through human activities is negatively impacting the well-being of at least 3.2 billion people, pushing the planet towards a sixth mass species extinction, and costing more than 10 per cent of the annual global gross product in loss of biodiversity and ecosystem services;

(c) Investing in avoiding land degradation and the restoration of degraded land makes sound economic sense; the benefits generally by far exceed the cost;

(d) Timely action to avoid, reduce and reverse land degradation can increase food and water security, can contribute substantially to the adaptation and mitigation of climate change and could contribute to the avoidance of conflict and migration;

(e) Avoiding, reducing and reversing land degradation is essential for meeting the Sustainable Development Goals contained in Agenda 2030;

(f) Unless urgent and concerted action is taken, land degradation will worsen in the face of population growth, unprecedented consumption, an increasingly globalized economy and climate change;

(g) Widespread lack of awareness of land degradation as a problem is a major barrier to action;

⁷ Accessible from <https://www.ipbes.net/outcomes>

⁸ As represented by the bolded key messages contained in the unedited advance version of the summary for policymakers of the IPBES thematic assessment of land degradation and restoration ([IPBES/6/15/Add.5](#)).

(h) High consumption lifestyles in more developed economies, combined with rising consumption in developing and emerging economies, are the dominant factors driving land degradation globally;

(i) The full impact of consumption choices on land degradation worldwide is not often visible due to the distances that can separate many consumers and producers;

(j) Institutional, policy and governance responses to address land degradation are often reactive and fragmented, and fail to address the ultimate causes of degradation;

(k) Land degradation is a major contributor to climate change, while climate change can exacerbate the impacts of land degradation and reduce the viability of some options for avoiding, reducing and reversing land degradation;

(l) Rapid expansion and unsustainable management of croplands and grazing lands is the most extensive global direct driver of land degradation;

(m) The implementation of known and proven actions to combat land degradation and thereby transform the lives of millions of people across the planet will become more difficult and costly over time. An urgent step change in effort is needed to prevent irreversible land degradation and accelerate the implementation of restoration measures;

(n) Existing multilateral environmental agreements provide a platform of unprecedented scope and ambition for action to avoid and reduce land degradation and promote restoration;

(o) More relevant, credible and accessible information is needed to allow decision makers, land managers, and purchasers of goods to improve the long-term stewardship of land and sustainability of natural resource use;

(p) Coordinated policy agendas that simultaneously encourage more sustainable production and consumption practices of land-based commodities are required to avoid, reduce and reverse land degradation;

(q) Eliminating perverse incentives that promote degradation and devising positive incentives that reward the adoption of sustainable land management practices are required to avoid, reduce and reverse land degradation;

(r) Landscape-wide approaches that integrate the development of agricultural, forest, energy, water and infrastructure agendas, all informed by the best available knowledge and experience, are required to avoid, reduce and reverse land degradation;

(s) Responses to reduce environmental impacts of urbanization not only address the problems associated with urban land degradation, but can also significantly improve quality of life while simultaneously contributing to climate change mitigation and adaptation.

24. The main findings of the assessment further reinforce the urgency for and the importance of addressing land degradation and the impetus behind the initiatives such as the Hyderabad Call for concerted effort on ecosystem restoration⁹ and the Bonn Challenge.¹⁰ It further reinforces the importance of implementing the short-term action plan on ecosystem restoration, adopted by the Conference of the Parties in decision [XIII/5](#).

II. POSSIBLE OPTIONS TO ACCELERATE PROGRESS

25. The fourth edition of the *Global Biodiversity Outlook*, the general conclusions of which were noted by the Conference of the Parties in decision XII/1, identified a set of possible actions to accelerate progress towards each of the Aichi Biodiversity Targets. The scientific information reviewed since the fourth edition was published and the regional and thematic assessments of IPBES suggest that these

⁹ Accessible from <https://www.cbd.int/doc/restoration/Hyderabad-call-restoration-en.pdf>

¹⁰ Accessible from <http://www.bonnchallenge.org/content/challenge>

actions remain relevant and provide further specificity as to how they could be implemented. Possible options to accelerate progress towards the Aichi Biodiversity Targets are further explored below. For these options, the most relevant Aichi Biodiversity Targets are identified. However, in many cases, the options are cross-cutting and would contribute to the attainment of multiple Aichi Biodiversity Targets. A summary of the options to accelerate progress towards the attainment of the Aichi Biodiversity Targets emerging from these assessments and studies is contained in annex II.

26. The various actions identified in the scientific literature point to the need for changes in how biodiversity is viewed by society, how it is valued, and how it is accounted for in the decision-making process. It also points to the need for changes in how actions to address biodiversity loss are developed and implemented and how different societal priorities are balanced. In short, the literature, collectively, points to the need for a transformational change in how society interacts with biodiversity.

27. The need to raise awareness of the importance and conditions of biodiversity was noted in many of the journal articles reviewed. Some articles identified this as an overarching general issue, while others identified specific means of increasing awareness, for example through the use of games or by providing opportunities for people to experience biodiversity in a structured way (Aichi Biodiversity Target 1). Others identified specific issues, such as awareness of the role of genetic resources in climate change adaptation, which should be addressed. The need to bring about behavioural change from individuals, communities, business and Governments has also been identified as a need for effective biodiversity conservation and sustainable use.

28. A number of studies identify the importance of spatial planning techniques in biodiversity conservation and management (Aichi Biodiversity Target 2 as well as Targets 5, 11 and 15). In particular, the use of remote observations and geographic information systems in both monitoring changes in biodiversity and informing decision-making were noted (Target 19). The importance of spatial planning in balancing potential trade-offs related to agricultural land use and in better designing protected areas to cope with the effects of climate change (climate-proofing protected areas) was noted. In the same light, the greater application of environmental-economic accounting, has also been noted in the literature as a means of facilitating more informed decision-making (Target 2).

29. The need for enhanced biodiversity governance has been identified in several publications as a means of improving biodiversity conditions. A mix of governance options, policies and management practices are available; however, there is also a need for coherent approaches which take into account various trade-offs and help to balance competing demands (Aichi Biodiversity Target 2). The importance of multi-stakeholder and multi-level adaptive governance, which, for example, improves the integration of indigenous and local knowledge in governance processes, has been noted (Target 18). Further, many of the sources of information reviewed in the preparation of the present document emphasize that actions to mainstream biodiversity into national planning processes and development policies and across related economic and social sectors are needed in order to improve the status and trends of biodiversity. More specifically, the need to work more effectively with small landholders to adopt more efficient and biodiversity-friendly practices (Target 7), the need to enhance the governance of fisheries (Target 6) and the need to build or further develop the institutional frameworks and capacity to manage animal genetic resources (Target 13) have been identified in scientific literature as possible actions to accelerate progress towards the attainment of the Aichi Biodiversity Targets. The possible role of legislation, for example with regard to regulations on the use of plastic bags, has also been identified (Target 8).

30. The direct and indirect impacts of policies also need to be given further attention. Policy interventions need to take into account causal interactions between, and effects on, distant places and ecosystems. Similarly, actions intended to better address the “footprints” of policy decisions, both within and outside national borders, need to be better considered (Target 4). The potential benefits of taking advantage of possible synergies in the implementation of bilateral and multilateral agreements, protocols and other international and regional initiatives, such as the [2030 Agenda for Sustainable Development](#), at the national level was identified as a possible action to accelerate progress.

31. The need for enhanced cooperation and partnerships, at different scales, on biodiversity issues has been identified as a possible means of accelerating progress towards the conservation and sustainable use of biodiversity. For example, the importance of regional cooperation in both devising and implementing transboundary conservation initiatives has been noted (Target 11). Similarly, partnerships with indigenous peoples and local communities, non-governmental organizations, the private sector and individuals have been identified as a means of pooling resources and knowledge and implementing the Convention more effectively and efficiently (Targets 19 and 20). With regard to indigenous peoples and local communities, the need for more effective participation mechanisms has been identified, as has the need for actions to promote and make better use of protected areas governed by indigenous peoples and local communities (Targets 11 and 18).

32. The use of various nature based solutions to current challenges has also been addressed in the literature. For example, the use of natural strips of land in agricultural systems, removing small areas of agricultural land from production, making greater use of plant diversity, and increasing pollinator diversity in ecosystems have all been identified as possible means of increasing agricultural productivity in an environmentally friendly way (Targets 7, 13 and 14). Further, the use of natural regeneration has been identified as cost-effective action for ecosystem restoration (Target 15). Integrated ecosystem-based approaches for dealing with other challenges have also been recommended under various frameworks including the Paris Agreement on climate change,¹¹ the [Sendai Framework for Disaster Risk Reduction 2015-2030](#) and the Sustainable Development Goals.

33. The importance of effective monitoring has also been noted in many publications (Target 19). Some publications noted this as a general need while others identified more specific monitoring actions. For example, with regard to fisheries, the need to better account for all forms of fishing activity, including small-scale, artisanal and illegal, unreported and unregulated fishing, in management decisions has been noted (Target 6). In the terrestrial environment, the need for better monitoring of genetic diversity, in particular for crop wild relatives, has been identified (Target 13). Additional needs related to monitoring invasive alien species include undertaking actions to prepare and/or diversify species lists where there are gaps for some genera, making greater efforts to identify secondary invasion pathways, and identifying areas at high risk of invasion (Target 9). Similarly, various prioritization and risk analysis schemes for invasive alien species have also been explored in the literature. The applications of such techniques would allow for more effective and targeted actions to address this direct pressure on biodiversity. There is also growing evidence from the literature of the potential value of different DNA sequencing techniques to be able to better identify, monitor and catalogue biodiversity (Target 19). These techniques, which are developing at a rapid pace and are becoming increasingly affordable, have applications that are relevant to many of the Aichi Biodiversity Targets. Overall, it has been observed that enhanced monitoring of various aspects of biodiversity would allow for more informed decision-making and the application of adaptive management.

34. A number of studies have identified how the more efficient use of resources in productive systems could result in positive outcomes for biodiversity. For example, targeting the use or application of agricultural inputs, such as water, fertilizers and pesticides, according to the crop being considered, has been found to improve efficiency in agricultural systems. Similarly making use of nutrients which have accumulated in soils over time rather than applying additional nutrients has been shown to be effective, as has using appropriate ground covers and incentivizing the use crop varieties with lower nutrient requirements. In aquatic environments, the appropriate timing for the introduction of food to aquaculture systems, harvesting products according to tidal patterns and the use of integrated multi-trophic aquaculture have also been found to improve resource use efficiency (Targets 7 and 8).

35. A common theme in much of the research examined for the present document is the need to promote research related to biodiversity. It has been observed that there is a general lack of information related to the socioeconomic issues affecting biodiversity and how they can be effectively addressed

¹¹ Adopted under the United Nations Framework Convention on Climate Change (United Nations, *Treaty Series*, Registration No. I-54113).

(Target 19). In particular, the need for more research on cultural issues and on issues associated with the needs of women and the poor and vulnerable was noted (Target 14). The importance of mechanisms for sharing research findings more effectively was also noted (Target 19).

36. Many of the articles identify various obstacles or challenges that need to be overcome in order to facilitate actions being taken. For example, the cost of certification has been identified as a barrier to the adoption of organic agriculture and to certifying forestry and fisheries as sustainable (Target 7). Financial barriers to the adoption of more efficient technologies or approaches, such as in agriculture, were also identified as being an obstacle to the adoption of sustainable practices (Target 20). The needs identified were generally similar or complimentary to those identified by the Subsidiary Body in its recommendation [XVII/1](#) and subsequently noted by the Conference of the Parties in decision XII/1. Addressing these needs would facilitate actions being taken.

III. CONCLUSION

37. The scientific literature and indicators reviewed as well as the IPBES regional and land degradation assessments provide further evidence of the continuing decline of biodiversity globally. It also identifies various implications of this decline on human well-being. All of the sources of information reinforce the need for urgent and effective actions to reduce the rate of biodiversity loss. In particular, the need to address the underlying causes of biodiversity loss, the need for the greater mainstreaming of biodiversity and the need to consider the direct and indirect impacts of policy decisions have been identified as important challenges to address. The need to further raise awareness of the importance of biodiversity and to bring about behaviour change, the need for the greater use of spatial planning, enhanced biodiversity governance, enhanced cooperation and partnerships, more effective monitoring, the promotion of nature based solutions to various societal challenges, greater promotion of research and the more efficient use of resources have also been noted. Further, it is observed that many biodiversity challenges are interconnected and that bringing about positive change will require coherent approaches. Overall the various sources of information point to the need for a transformation change in how society relates to and interacts with biodiversity.

38. The specific actions needed to implement the Strategic Plan for Biodiversity 2011-2020 and to improve progress towards the Aichi Biodiversity Targets will vary with national circumstances and priorities. As such the information provided in the scientific literature will need to be reviewed and adapted to national circumstances in order for it to meaningfully inform decisions on what actions should be taken nationally to contribute to the attainment of the Aichi Biodiversity Targets. Both of these points have been previously identified by the Conference of the Parties in decision XII/1.

IV. DRAFT RECOMMENDATION

39. The Subsidiary Body on Scientific, Technical and Technological Advice may wish to adopt a recommendation along the following lines:

The Subsidiary Body on Scientific, Technical and Technological Advice

1. *Welcomes* the regional assessments of biodiversity and ecosystem services for Africa, the Americas, Asia and the Pacific, and Europe and Central Asia and the thematic assessment on land degradation of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services;

2. *Takes note* of the review of updated scientific information, including the possible options to accelerate progress towards the achievement of the Aichi Biodiversity Targets;

3. *Requests* the Executive Secretary to consider the regional assessments of biodiversity and ecosystem services for Africa, the Americas, Asia and the Pacific, and Europe and Central Asia and the thematic assessment on land degradation of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services and other relevant information, including the updated scientific assessment of progress towards the Aichi Biodiversity Targets, when preparing documentation related to the post-2020 global biodiversity framework and the fifth edition of the *Global Biodiversity Outlook*;

4. *Recommends* that the Conference of the Parties at its fourteenth meeting adopt a decision along the following lines:

The Conference of the Parties,

Recalling decision [XIII/28](#), in which it decided that the list of indicators for the Strategic Plan for Biodiversity 2011-2020 should be kept under review,

1. *Notes* the additional indicators which have been identified and those which have updated data points, and *encourages* Parties, other Governments, relevant organizations, indigenous peoples and local communities and stakeholders to make use of them, as appropriate;

2. *Encourages* Parties and invites other Governments and relevant organizations to make use of the regional and thematic assessments of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services, including by using them to inform actions at the national level and to develop complementary national, subnational or thematic assessments of biodiversity and ecosystem services;

3. *Encourages* Parties and other Governments to make use of the possible options to accelerate progress towards the Aichi Biodiversity Targets as contained in section II and annex II of the note by the Executive Secretary on an updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress;¹²

4. *Encourages* Parties, other Governments, relevant organizations, indigenous peoples and local communities and stakeholders to share their experiences regarding effective action to implement the Strategic Plan for Biodiversity 2011-2020, including by communicating this information through the sixth national reports;

¹² CBD/SBSTTA/22/5.

*Annex I***UPDATED INDICATOR INFORMATION**

1. A total of 55 indicators were used in the assessment of progress towards the Aichi Biodiversity Targets in the fourth edition of the *Global Biodiversity Outlook*. Since 2014, 29 indicators have had additional data points added. In addition, a further 17 indicators not used in the fourth edition have been identified as being relevant in assessing progress towards the Aichi Biodiversity Targets.¹³ In the table below, the trends of the 46 updated and new indicators are presented.
2. These trends are only those suggested by the indicator and do not represent an assessment of progress towards the Aichi Biodiversity Targets themselves.
3. The assessment of progress towards the attainment of the Aichi Biodiversity Targets contained in the fourth edition of the *Global Biodiversity Outlook* was based on information from the fifth national reports, national biodiversity strategies and action plans, scientific literature and other reports, indicator based extrapolations and model based scenarios.

<i>Indicator</i> ¹⁴	<i>Most relevant Aichi Target</i>	<i>Indicator type</i>	<i>Time period covered by the indicator data</i>	<i>Indicator trend reported in Global Biodiversity Outlook fourth edition in 2014</i> ¹⁵	<i>Current trend suggested by the indicator</i>
Biodiversity Barometer (% of respondents that have heard of biodiversity)	1	Response	2009-2016	Increasing	Increasing
Biodiversity Barometer (% of respondents giving correct definition of biodiversity)	1	Response	2009-2016	Increasing	Increasing
Online interest in biodiversity (proportion of google searches)	1	Response	2004-2016	Decreasing	Decreasing
Percentage of countries that are Category 1 CITES Parties	4	Response	1994-2016	Increasing	Increasing
Red List Index (internationally traded species)	4	State	1988-2016	Not available	Decreasing
Red List Index (impacts of utilization)	4	Pressure	1986-2016	Decreasing	Decreasing
Ecological Footprint (number of earths needed to support human society)	4	Pressure	1961-2012	Increasing	Increasing
Area of tree cover loss	5	State	2001-2016	Not available	Increasing
Wetland Extent Trends Index	5	State	1970-2015	Decreasing	Decreasing

¹³ The updated indicator information was provided through the Biodiversity Indicators Partnership.

¹⁴ Those indicators marked with an asterisk (*) are not currently reflected in the list of indicators welcomed by the Conference of the Parties in decision XIII/28.

¹⁵ For those indicators that were not available at the time the fourth edition of the *Global Biodiversity Outlook* was prepared, the term “not available” is used.

<i>Indicator¹⁴</i>	<i>Most relevant Aichi Target</i>	<i>Indicator type</i>	<i>Time period covered by the indicator data</i>	<i>Indicator trend reported in Global Biodiversity Outlook fourth edition in 2014¹⁵</i>	<i>Current trend suggested by the indicator</i>
Red List index (forest specialists)	5	State	1988-2016	Not available	Decreasing
Wild Bird Index (habitat specialists)	5	State	1968-2014	Decreasing	Decreasing
Marine Stewardship Council certified fisheries (tonnes)	6	Response	1999-2016	Increasing	Increasing
Proportion of fish stocks in safe biological limits	6	State	1974-2013	Decreasing	Decreasing
Marine trophic index*	6	Pressure	1960-2014	Not available	Decreasing
Red List Index (impacts of fisheries)	6	Pressure	1988-2016	Decreasing	Decreasing
Nitrogen use balance*	7	Pressure	1961-2011	Not available	Increasing
Area of agricultural land under organic production	7	Response	1999-2014	Increasing	Increasing
Wild Bird Index (farmland birds)	7	State	1980-2014	Decreasing	Decreasing
Area of forest under sustainable management: total FSC and PEFC forest management certification	7	Response	2000-2016	Increasing	Increasing
Pesticide use	8	Pressure	2000-2011	Not available	Increasing
Red List Index (impacts of pollution)	8	State	1988-2016	Decreasing	Decreasing
Red List Index (impacts of invasive alien species)	9	Pressure	1988-2016	Decreasing	Decreasing
Percentage live coral cover	10	State	1972-2016	Decreasing	Decreasing
Climatic Impact Index for Birds	10	Pressure	1980-2010	Not available	Increasing
Area of mangrove forest cover*	10	State	2000-2014	Not available	Decreasing
Glacial mass balance*	10	State	1957-2015	Decreasing	Decreasing
Mean polar sea ice extent*	10	State	1979-2015	Decreasing	Decreasing
Percentage of marine and coastal areas covered by protected areas	11	Response	1990-2016	Increasing	Increasing
Percentage of terrestrial areas covered by protected areas	11	Response	1990-2016	Increasing	Increasing
Percentage of Key Biodiversity Areas covered by protected areas	11	Response	1980-2017	Not available	Increasing
Red List Index	12	State	1994-2016	Decreasing	Decreasing
Living Planet Index	12	State	1970-2012	Decreasing	Decreasing

<i>Indicator</i> ¹⁴	<i>Most relevant Aichi Target</i>	<i>Indicator type</i>	<i>Time period covered by the indicator data</i>	<i>Indicator trend reported in Global Biodiversity Outlook fourth edition in 2014</i> ¹⁵	<i>Current trend suggested by the indicator</i>
Number of plant genetic resources for food and agriculture secured in conservation facilities	13	Response	1995-2016	Not available	Increasing
Red List Index (wild relatives of farmed and domesticated species)	13	Benefit	1988-2016	Not available	Decreasing
Percentage change in local species richness*	14	State	1970-2014	Not available	Unclear
Red List Index (pollinator species)	14	Benefit	1988-2016	Decreasing	Decreasing
Red List Index (species used for food and medicine)	14	Benefit	1986-2017	Not available	Decreasing
Percentage of global rural population with access to improved water resources	14	Response	1990-2015	Increasing	Increasing
Percentage of countries that have ratified the Nagoya Protocol	16	Response	2011-2017	Not available	Increasing
Percentage of countries with revised NBSAPs	17	Response	2010-2017	Not available	Increasing
Number of biodiversity papers published*	19	Response	1980-2016	Increasing	Increasing
Number of species occurrence records in the Global Biodiversity Information Facility	19	Response	2003-2016	Increasing	Increasing
Species Status Information Index	19	Response	1980-2014	Not available	Increasing
Proportion of known species assessed through the IUCN Red List	19	Response	2000-2017	Not available	Increasing
Official development assistance provided in support of the objectives of the Convention	20	Response	2006-2015	Increasing	Increasing
Funding provided by the Global Environment Facility	20	Response	1991-2016	Increasing	Increasing

*Annex II***POSSIBLE OPTIONS TO ACCELERATE PROGRESS TOWARDS THE ACHIEVEMENT OF THE AICHI BIODIVERSITY TARGETS**

1. The present annex contains information on possible actions that could be taken, depending on national circumstances and priorities, to facilitate the achievement of the Aichi Biodiversity Targets.

2. The possible actions, based on the findings of the IPBES regional and thematic assessments and on the conclusions identified from scientific literature,¹⁶ include:

(a) Increasing access to biodiversity information, including; promoting research on biodiversity, making greater use of the social sciences, developing data sets which can be disaggregated for different ecosystems and at different geographic scales, promoting research on cultural issues and on issues associated with the needs of women and the poor and vulnerable, and developing and promoting mechanisms to share biodiversity information more effectively;

(b) Better integrating or mainstream biodiversity issues across all sectors of society to better account for policy leakages and spillover effects in decision-making and the broader impacts of policy decisions;

(c) Promoting and developing governance systems which address biodiversity issues in a more coherent manner and better internalize global biodiversity commitments, including by improving the integration of indigenous and local knowledge in governance processes, and by better accounting for possible synergies in the implementation of bilateral and multilateral agreements, the Sustainable Development Goals, and other international and regional initiatives at the national level;

(d) Promoting the use of participatory approaches to biodiversity management, including by building the capacity of stakeholders to be able to meaningfully participate in decision-making processes, by working more effectively with small landholders to adopt more efficient and biodiversity-friendly practices and by enhancing cooperation and partnerships with indigenous peoples and local communities, non-governmental organizations, the private sector and individuals;

(e) Improving awareness of biodiversity through enhanced communication and education and taking actions to bring about behavioural change;

(f) Enhancing biodiversity monitoring, including by making greater use of remote observations and geographic information systems;

(g) Improving access to financial and technological resources for the conservation and sustainable use of biodiversity;

(h) Promoting the use and development of scenarios which integrate biodiversity considerations with other societal objectives, including poverty and hunger alleviation and climate change mitigation and adaptation, and which consider multiple direct and indirect drivers of biodiversity loss and better reflect ecosystem services;

(i) Promoting actions which address the underlying causes of biodiversity loss and which will contribute to the attainment of multiple Aichi Biodiversity Targets;

(j) Promoting the greater application of environmental-economic accounting;

(k) Better accounting for the full impact of consumption choices on biodiversity and promoting the more efficient use of resources in productive systems;

¹⁶ The actions identified in this note should be viewed in relation to the guidance already developed by the Conference of the Parties, including decision X/2 on the Strategic Plan for Biodiversity 2011-2020 and its technical rationale (UNEP/CBD/COP/10/27/Add.1), as well as the implementation needs identified by the Conference of the Parties in decision XII/1.

(l) Eliminating perverse incentives that promote biodiversity degradation and devising positive incentives that reward the adoption of sustainable practices;

(m) Promoting the greater use of spatial planning techniques in biodiversity conservation and management;

(n) Promoting the use of nature-based solutions, such as natural restoration, increasing pollinator diversity, including natural land in agricultural systems, and other integrated ecosystem-based approaches, to address societal challenges.
