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### SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

Twenty-second meeting  
Montreal, Canada, 2-7 July 2018

### **REPORT OF THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE ON ITS TWENTY-SECOND MEETING**

The Subsidiary Body on Scientific, Technical and Technological Advice held its twenty-second meeting in Montreal, Canada, from 2 to 7 July 2018. It adopted ten recommendations concerning: (a) digital sequence information on genetic resources; (b) risk assessment and risk management of living modified organisms; (c) synthetic biology; (d) updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress; (e) protected areas and other effective area-based conservation measures; (f) marine and coastal biodiversity; (g) ecosystem-based approaches to climate change adaptation and disaster risk reduction; (h) invasive alien species; (i) conservation and sustainable use of pollinators; and (j) second work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. These are provided in section I of the report.

The draft decisions contained within the recommendations will be submitted to the Conference of the Parties to the Convention on Biological Diversity for consideration at its fourteenth meeting and, where applicable, to the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol and the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol for consideration at their ninth and third meetings, respectively.

The account of the proceedings of the meeting appears in section II of the report.

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# **I. RECOMMENDATIONS ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE AT ITS TWENTY-SECOND MEETING**

## **22/1. Digital sequence information**

*The Subsidiary Body on Scientific, Technical and Technological Advice,*

*Recalling* the coordinated and non-duplicative approach on digital sequence information on genetic resources under the Convention and the Nagoya Protocol adopted in decisions XIII/16 and NP-2/14,

*Noting* the synthesis of views and information on the potential implications of the use of digital sequence information on genetic resources for the three objectives of the Convention and the objective of the Nagoya Protocol,<sup>1</sup>

*Noting also* the fact-finding and scoping study as well as related peer review comments to clarify terminology and concepts and to assess the extent and the terms and conditions of the use of digital sequence information on genetic resources in the context of the Convention and the Nagoya Protocol,<sup>2</sup>

*Noting further* the report of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources,<sup>3</sup>

### **A. Draft decision for the Conference of the Parties to the Convention on Biological Diversity**

1. *Recommends* that the Conference of the Parties to the Convention on Biological Diversity at its fourteenth meeting adopt a decision along the following lines:

*[The Conference of the Parties,*

*Mindful* of the three objectives of the Convention,

*Recalling* Articles 12, 15, 16, 17 and 18 of the Convention and decisions VIII/11, XII/29 and XIII/31,

*[Noting* the reports of discussions on this issue and related issues in other United Nations bodies, such as the Food and Agriculture Organization of the United Nations, the International Treaty on Plant Genetic Resources for Food and Agriculture, the World Health Organization and the World Intellectual Property Organization,]

1. *Notes* that the term “digital sequence information” may not be the most appropriate term to refer to the various types of information on genetic resources, and that it is used as a placeholder until an alternative term is agreed;

[2. *Recognizes* that digital sequence information includes information on nucleic acids and protein sequences as well as information derived from biological and metabolic processes specific to the cells of the genetic resource;]

3. *Recognizes* the importance of digital sequence information on genetic resources for the conservation of biological diversity and the sustainable use of its components while *emphasizing* that the three objectives of the Convention are interlinked and mutually supportive;

[4. *Recognizes* that digital sequence information on genetic resources has important and very positive effects on the conservation of biological diversity and sustainable use of its components as well as for protection of human, animal and plant health and for food security and safety;]

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<sup>1</sup> CBD/SBSTTA/22/INF/2.

<sup>2</sup> CBD/SBSTTA/22/INF/3.

<sup>3</sup> CBD/SBSTTA/22/INF/4.

5. *Recognizes* that the use of digital sequence information on genetic resources and public access to this information contributes to scientific research [that is essential for the characterization, conservation and sustainable use of biological diversity and to food security, food safety and human health] [and provides multiple benefits to society] [which should be shared fairly and equitably];

[6. *Notes* that access to digital sequence information held in public databases is not subject to requirements for prior informed consent;]

[7. *Notes* that the creation of digital sequence information requires initial access to a physical genetic resource, and that, therefore, a benefit arising from the utilization of digital sequence information should be shared fairly and equitably in accordance with the third objective of the Convention, the objective of the Nagoya Protocol and Article 5(1) of the Nagoya Protocol and in a way that directly benefits indigenous peoples and local communities conserving biological diversity so that it serves as an incentive for conservation and sustainable use;]

8. *Recognizes* also that further capacity to use, generate and analyse digital sequence information on genetic resources is needed in many countries and *encourages* Parties, other Governments and relevant organizations to support capacity-building and technology transfer to assist in the use of digital sequence information on genetic resources to contribute to conservation and sustainable use of biodiversity;

[9. *Also recognizes* the need to strike a balance between the interest in open and free access to information on genetic resources and the interest in fair and equitable sharing of benefits with countries and communities providing these genetic resources from which the information was generated which may otherwise not benefit from the results of the research and development activities;]

[10. *Notes* that some Parties have implemented provisions that consider digital sequence information as equivalent to genetic resources;]

[11. *Acknowledges* that mutually agreed terms can cover benefits arising from the commercial use of digital sequence information on genetic resources;]

[12. *Also recognizes* that digital sequence information on genetic resources can facilitate misappropriation if it is used to bypass national access legislation and no alternative benefit-sharing measure is put in place;]

[13. *Acknowledges* that, according to Article 15.7 of the Convention and Article 5 of the Nagoya Protocol, benefits from the commercial use of the results of utilization of digital sequence information on genetic resources arising from access shall be shared in a fair and equitable way;]

[14. *Acknowledges also* that, according to Article 15.2 of the Convention and Article 8 of the Nagoya Protocol, the use of digital sequence information on genetic resources for non-commercial research and development should be subject to simplified measures according to domestic legislation, [taking into account the need to address a change of intent for such research highlighting that it is the sovereign right of a Party on how they wish to create conditions to promote and encourage research];]

[15. *Invites* Parties, other Governments, indigenous peoples and local communities, relevant organizations and stakeholders to facilitate access and support the exchange and use of digital sequence information [to further the three objectives of the Convention][to further the three objectives of the Convention, including for protection of human, animal and plant health and for food security][for purposes of conservation of biological diversity and sustainable use of its components as well as for protection of human, animal and plant health and for food security];]

16. *Invites* Parties, other Governments, indigenous peoples and local communities, and relevant stakeholders to submit views and information to clarify the concept of digital sequence information;

17. *Invites* Parties and other Governments to submit information on how they address digital sequence information in their domestic legislation and other measures related to digital sequence information on genetic resources;

[18. *Decides* to establish an [Ad Hoc Technical Expert Group<sup>4</sup>][open-ended working group] and *requests* the Executive Secretary, subject to the availability of financial resources, to convene a meeting of this group in accordance with the terms of reference contained in the annex;]

[19. *Decides* to establish an open-ended working group to develop modalities for sharing benefits from digital sequence information, including possible multilateral approaches and approaches for publically accessible databases, taking into account the report of the ad hoc technical expert group established pursuant to paragraph 18 above, to meet at least once in the next biennium and to report to the Conference of the Parties at its fifteenth meeting;]

20. *Requests* the Executive Secretary, subject to the availability of financial resources:

(a) To compile and synthesize the views and information submitted;

[(b) To commission a [peer-reviewed] study on ongoing developments in the field of traceability, including how traceability is addressed by databases, and how these could inform discussions on digital sequence information on genetic resources;]

[(c) To commission a [peer-reviewed] study on benefit-sharing associated with digital sequence information, including examining different forms of benefit-sharing for non-commercial and commercial uses and how digitization of information in other sectors has impacted benefit-sharing, including possible lessons from the music, software, publishing and other industries;]

(d) To make the studies and the synthesis of views available for the Parties and for the consideration of the Ad Hoc Technical Expert Group;

(e) To convene a moderated open-ended online forum to support the work of the Ad Hoc Technical Expert Group established in paragraph 10 above in meeting its terms of reference;

[21. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice to consider the outcomes of the Ad Hoc Technical Expert Group and to make a recommendation for the consideration of the Conference of the Parties at its fifteenth meeting;]

22. *Recognizes* that the generation, use and management of digital sequence information is dynamic and subject to technological and scientific developments, and *notes* that regular horizon scanning of developments in the field of digital sequence information on genetic resources is needed for reviewing their potential implications for the objectives of the Convention and the Nagoya Protocol;

23. *Notes* that the issue of digital sequence information on genetic resources is being considered in a number of different international forums, and *requests* the Executive Secretary to continue to engage and collaborate with relevant ongoing processes and policy debates to collect information on current discussions on the use of digital sequence information on genetic resources of relevance to the Convention and the Nagoya Protocol.

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<sup>4</sup> The Ad Hoc Technical Expert Group will be convened in accordance with the modus operandi of the Subsidiary Body on Scientific, Technical and Technological Advice, except that there will be five experts nominated by each of the five regions.

[Annex

# **TERMS OF REFERENCE FOR THE SECOND AD HOC TECHNICAL EXPERT GROUP ON DIGITAL SEQUENCE INFORMATION ON GENETIC RESOURCES**

The Ad Hoc Technical Expert Group shall:

- (a) Take into account:
  - (i) The compilation and synthesis of views and information related to digital sequence information on genetic resources submitted pursuant to decision XIII/16;<sup>5</sup>
  - (ii) The fact finding and scoping study to clarify terminology and concepts and to assess the extent and the terms and conditions of the use of digital sequence information on genetic resources in the context of the Convention and the Nagoya Protocol prepared pursuant to decision XIII/16;<sup>6</sup>
  - (iii) The report of the first Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources;<sup>7</sup>
- (b) Consider the synthesis of views and information and additional studies referred to in paragraph 20 (a), [(b)] and [(c)] of the decision;
- (c) Clarify the concept of digital sequence information in the context of the Convention and the Nagoya Protocol and identify an operational term;
- [(d) Consider how ongoing developments on traceability can inform discussions on digital sequence information on genetic resources;]
- [(e) Consider simplified measures for utilization of digital sequence information on genetic resources;
- (f) Consider mechanisms for the fair and equitable sharing of benefits derived from the commercial utilization of digital sequence information on genetic resources including the specific cases of transboundary situations or for which it is not possible to identify the country of origin of the genetic resource;
- (g) Consider mechanisms to ensure compliance with benefit-sharing obligations from the utilization of digital sequence information on genetic resources as well as subsequent applications and commercialization;]
- (h) Meet at least once face-to-face, subject to the availability of financial resources, prior to the fifteenth meeting of the Conference of the Parties and make use of online tools to facilitate its work, as appropriate;
- (i) Submit its outcomes for consideration by a meeting of the Subsidiary Body on Scientific Technical and Technological Advice to be held prior to the fifteenth meeting of the Conference of the Parties.]]

## **B. Draft decision for the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol**

2. *Recommends* that the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol, at its third meeting, adopt a decision along the following lines:

*[The Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol,*

<sup>5</sup> CBD/SBSTTA/22/INF/2 and addenda 1 and 2.

<sup>6</sup> CBD/SBSTTA/22/INF/3.

<sup>7</sup> CBD/SBSTTA/22/INF/4.

*Mindful* of the objective of the Nagoya Protocol,

[*Recalling* Articles 5(1), 8, 17, 20, 22 and 23 of the Nagoya Protocol,]

*Acknowledging* decision 14/--,

1. *Decides* that the ad hoc technical expert group referred to in paragraph x of decision 14/-- will also serve the Nagoya Protocol;

2. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice to consider the outcomes of the ad hoc technical expert group and to make a recommendation for the consideration of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol at its fourth meeting.]

## 22/2. Risk assessment and risk management of living modified organisms

The Subsidiary Body on Scientific, Technical and Technological Advice recommends that the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol adopt a decision along the following lines:

*The Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety,*

*Recalling* decisions [BS-VII/12](#) and [XII/24](#) recommending a coordinated approach on the issue of synthetic biology,

*Reaffirming* decision XII/24 of the Conference of the Parties urging Parties and inviting other Governments to take a precautionary approach, in accordance with the preamble of the Convention and with Article 14, when addressing threats of significant reduction or loss of biological diversity posed by organisms, components and products resulting from synthetic biology, in accordance with domestic legislation and other relevant international obligations,

1. *Notes* the availability of numerous guidance documents and other resources to support the process of risk assessment, but *recognizes* the gaps and needs identified by some Parties;

2. *Recognizes* the divergence of views among Parties on whether or not additional guidance on specific topics of risk assessment is needed;

3. *Also recognizes* that, as there could be potential adverse effects arising from organisms containing engineered gene drives, before these organisms are considered for release into the environment, research and analysis are needed, and specific guidance may be useful, to support case-by-case risk assessment;

4. *Notes* the conclusions of the Ad Hoc Technical Expert Group on Synthetic Biology that, given the current uncertainties regarding engineered gene drives, the free, prior and informed consent of indigenous peoples and local communities might be warranted when considering the possible release of organisms containing engineered gene drives that may impact their traditional knowledge, innovation, practices, livelihood and use of land and water;

5. *Calls for* broad international cooperation, knowledge sharing and capacity-building to support, inter alia, Parties in assessing the potential adverse effects on the conservation and sustainable use of biodiversity from [living modified organisms produced through genome editing,] living modified organisms containing engineered gene drives and living modified fish, taking into account risks to human health, the value of biodiversity to indigenous peoples and local communities, and relevant experiences of individual countries in performing risk assessment of such organisms in accordance with annex III of the Cartagena Protocol;

6. *Decides* to establish a process for the identification and prioritization of specific issues regarding risk assessment of living modified organisms for consideration by the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol with a view to developing further guidance on risk assessment on the specific issues identified, taking into account annex I;

7. *Also decides* to consider, at its tenth meeting, whether additional guidance materials on risk assessment are needed for [(a) living modified organisms produced through genome editing,] (b) living modified organisms containing engineered gene drives, and (c) living modified fish;

8. *Further decides* to establish an ad hoc technical expert group on risk assessment, composed of experts selected in accordance with the consolidated modus operandi of Subsidiary Body on Scientific, Technical and Technological Advice,<sup>8</sup> in accordance with the terms of reference in annex II;

9. *Decides* to extend the online forum on risk assessment and risk management to assist the ad hoc technical expert group on risk assessment;

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<sup>8</sup> [Decision VIII/10](#), annex III.



10. *Invites* Parties, other Governments, indigenous peoples and local communities, and relevant organizations to submit to the Executive Secretary information relevant to the work of the online forum and Ad Hoc Technical Expert Group;

11. *Requests* the Executive Secretary, subject to the availability of resources:

(a) To commission a study informing the application of annex I to [(i) living modified organisms produced through genome editing,] (ii) living modified organisms containing engineered gene drives and (iii) living modified fish, to facilitate the process referred to in paragraph 5 above, and present it to the open-ended online forum and Ad Hoc Technical Expert Group on Risk Assessment and Risk Management;

(b) To collect and synthesize relevant information to facilitate the work of the online forum and the ad hoc technical expert group;

(c) To assist the lead moderator of the online forum in convening discussions and reporting on the results of the discussions;

(d) To convene a face-to-face meeting of the ad hoc technical expert group on risk assessment;

12. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice to make a recommendation as to whether additional guidance materials on risk assessment are needed for [(i) living modified organisms produced through genome editing,] (ii) living modified organisms containing engineered gene drives, and (iii) living modified fish for consideration by the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol at its tenth meeting.

#### *Annex I*

### **IDENTIFICATION AND PRIORITIZATION OF SPECIFIC ISSUES OF RISK ASSESSMENT OF LIVING MODIFIED ORGANISMS THAT MAY WARRANT CONSIDERATION**

The process for recommending specific issues of risk assessment for consideration by the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety should include a structured analysis to evaluate whether the specific issues fulfil the following:

(a) Are identified by Parties as priorities, taking into account the challenges to risk assessment, particularly for developing country Parties and countries with economies in transition;

(b) Fall within the scope and objective of the Cartagena Protocol;

(c) Pose challenges to existing risk assessment frameworks, guidance and methodologies, for example, the issue at hand has been assessed with existing risk assessment frameworks but pose specific technical or methodological challenges that require further attention;

(d) The challenges in addressing the specific issue are clearly described;  
and considering, inter alia:

(e) The specific issues concerns living modified organisms that:

(i) Have the potential to cause [serious or irreversible] adverse effects on biodiversity, taking into account the urgent need to protect specific aspects of biodiversity, such as an endemic/rare species or a unique habitat or ecosystem, taking into account risks to human health and the value of biological diversity to indigenous peoples and local communities;

(ii) May be introduced into the environment either deliberately or accidentally;

(iii) Have the potential to disseminate across national borders;

(iv) Are already, or are likely to be, commercialized or in use somewhere in the world;

and consider a stock-taking exercise to determine if resources on similar issues have been developed by national, regional and international bodies and, if so, whether such resources may be revised or adapted to the objective of the Cartagena Protocol, as appropriate.

*Annex II*

**TERMS OF REFERENCE FOR THE AD HOC TECHNICAL EXPERT GROUP ON RISK ASSESSMENT**

The Ad Hoc Technical Expert Group on Risk Assessment, taking into account the work undertaken by the Ad Hoc Technical Expert Group on Synthetic Biology, shall:

- (a) Review the study referred to in para 11 (a) above, and perform an analysis on [(i) living modified organisms produced through genome editing,] (ii) living modified organisms containing engineered gene drives and (iii) living modified fish, according to annex I, and supported by the data in the study;
- (b) Consider the needs and priorities for further guidance and gaps in existing guidance identified by Parties in response to decision CP-VIII/12 with regard to specific topics of risk assessment and prepare an analysis;
- (c) Make recommendations on (i) the need for guidance to be developed on risk assessment of [living modified organisms produced through genome editing,] living modified organisms containing engineered gene drives and living modified fish, and (ii) any adjustments to annex I;
- (d) Prepare a report for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice with a view to enabling the Subsidiary Body to prepare a recommendation for consideration by the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety at its tenth meeting.

### 22/3. Synthetic biology

The Subsidiary Body on Scientific, Technical and Technological Advice recommends that the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol adopt a decision along the following lines:

*The Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety,*

*Recalling* decisions XII/24 and XIII/17,

1. *Welcomes* the outcomes of the meeting of the Ad Hoc Technical Expert Group on Synthetic Biology held in Montreal, Canada, from 5 to 8 December 2017;<sup>9</sup>

2. *Recognizes* that synthetic biology is rapidly developing and a cross-cutting issue, with potential benefits and potential adverse effects vis-à-vis the three objectives of the Convention on Biological Diversity;

3. *Agrees* that horizon scanning, monitoring and assessing of developments in the field of synthetic biology[, including those that result from genome editing,] is needed for reviewing new information regarding the potential positive and potential negative impacts of synthetic biology vis-à-vis the three objectives of the Convention and those of its Protocols;

[4. *Decides* to establish a process and modalities for regular horizon scanning, monitoring and assessment of new developments in the field of synthetic biology, and *also decides* to establish a mechanism for regularly reporting the outcomes to the Subsidiary Body on Scientific, Technical and Technological Advice, the Conference of the Parties and the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety;]

5. *Recognizes* the need to conduct an analysis of synthetic biology against the criteria in decision IX/29, paragraph 12, in order to complete the analysis requested in decisions XII/24, paragraph 2, and XIII/17, paragraph 13;

6. *Also recognizes* that developments arising from research and development in the field of synthetic biology may pose challenges to the ability of some countries, especially developing countries, in particular those with limited experience or resources, to assess the full range of applications and potential impacts of synthetic biology on the three objectives of the Convention;

7. *Further recognizes* the role of information and resources under the clearing-house mechanism of the Convention and the Biosafety Clearing-House of the Cartagena Protocol and capacity-building initiatives in assisting those countries;

8. *Emphasizes* the need for a coordinated, complementary and non-duplicative approach on issues related to synthetic biology under the Convention and its Protocols, as well as among other conventions and relevant organizations and initiatives;

9. *Takes note* of the current efforts by Parties, other Governments, relevant organizations and others to inform on development, gaps in knowledge and other matters relevant to the objectives of the Convention in relation to synthetic biology;

10. *Calls upon* Parties and other Governments, taking into account the current uncertainties regarding engineered gene drives, to apply a precautionary approach,<sup>10</sup> in accordance with the objectives of the Convention, [with regard to][and refrain from] the release, including experimental release, of organisms containing engineered gene drives;

11. *Recognizes* that, as there could be potential adverse effects arising from organisms containing engineered gene drives, before these organisms are considered for release into the environment,

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<sup>9</sup> CBD/SBSTTA/22/4, annex.

<sup>10</sup> See decision XIII/17.

research and analysis are needed, and specific guidance may be useful,<sup>11</sup> to support case-by-case risk assessment;

12. *Notes* the conclusions of the Ad Hoc Technical Expert Group on Synthetic Biology<sup>12</sup> that, given the current uncertainties regarding engineered gene drives, the free, prior and informed consent of indigenous peoples and local communities might be warranted when considering the possible release of organisms containing engineered gene drives that may impact their traditional knowledge, innovation, practices, livelihood and use of land and water;

13. *Calls upon* Parties, other Governments and relevant organizations to continue to develop or implement, as appropriate, measures to prevent or minimize potential adverse effects arising from exposing the environment to organisms, components and products of synthetic biology in contained use, including measures for detection, identification and monitoring, in accordance with domestic circumstances or internationally agreed guidelines, as appropriate, with special consideration to the centres of origin and genetic diversity;

14. *Also calls upon* Parties, other Governments and relevant organizations to continue to disseminate information and share, especially through the clearing-house mechanisms of the Convention and the Biosafety Clearing-House, their experiences on scientific assessments of the potential benefits and potential adverse impacts of synthetic biology to biological diversity, including, inter alia, that of specific applications of organisms containing engineered gene drives, and from the use of living modified organisms that have been released into the environment;

15. *Decides* to extend the Ad Hoc Technical Expert Group on Synthetic Biology with renewed membership, taking into account, inter alia, the work on risk assessment under the Cartagena Protocol, to work in accordance with the terms of reference annexed hereto;

16. *Also decides* to extend the Open-ended Online Forum on Synthetic Biology, taking into account the work on risk assessment under the Cartagena Protocol, to support the deliberations of the Ad Hoc Technical Expert Group on Synthetic Biology, and *invites* Parties, other Governments, indigenous peoples and local communities and relevant organizations to continue to nominate experts to take part in the Online Forum on Synthetic Biology;

17. *Invites* Parties, other Governments, indigenous peoples and local communities, and relevant organizations to provide the Executive Secretary with relevant information related to paragraphs (a) to (d) of the annex in order to contribute to the work of the Ad Hoc Technical Expert Group;

18. *Requests* the Executive Secretary, subject to the availability of resources:

(a) To convene moderated online discussions under the Open-ended Online Forum on Synthetic Biology;

(b) To facilitate the work of the Ad Hoc Technical Expert Group on Synthetic Biology by, among other things, collecting and synthesizing and arranging for peer review of relevant information, and convening at least one face-to-face meeting;

(c) To update the Technical Series on Synthetic Biology for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice based on the peer review of scientific information and other relevant information;

(d) To further pursue cooperation with other organizations, conventions and initiatives, including academic and research institutions, from all regions, on issues related to synthetic biology, including the exchange of experiences and information;

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<sup>11</sup> The Subsidiary Body on Scientific, Technical and Technological Advice has recommended that the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety (recommendation 22/2) consider the need for specific guidance on risk assessment of living modified organisms containing engineered gene drives at its tenth meeting.

<sup>12</sup> <https://www.cbd.int/meetings/SYNBIOAHTEG-2017-01>.

(e) To explore ways to facilitate, promote and support capacity-building and knowledge-sharing regarding synthetic biology, taking into account the needs of Parties and of indigenous peoples and local communities, including through necessary funding, and the co-design of information and training materials in the official languages of the United Nations and, where possible, in local languages;

(f) To collaborate and convene discussions, including through the Network of Laboratories for the Detection and Identification of Living Modified Organisms,<sup>13</sup> for sharing experiences on the detection, identification and monitoring of organisms, components and products of synthetic biology, and to continue inviting laboratories, including analytical laboratories, to join the Network;

(g) To ensure the full and effective participation of indigenous peoples and local communities in the discussions and decision-making on synthetic biology, in accordance with decision X/40.

19. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice:

(a) To consider the work of the Open-ended Online Forum and the Ad Hoc Technical Expert Group on Synthetic Biology;

(b) To note the preliminary analysis done by the Executive Secretary<sup>14</sup> and to consider further analyses and advice from the Ad Hoc Technical Expert Group on Synthetic Biology of the relationship between synthetic biology and the criteria set out in decision IX/29, paragraph 12, in order to contribute to the completion of the analysis requested in decision XII/24, paragraph 2;

(c) To submit a recommendation to the Conference of the Parties at its fifteenth meeting.

#### *Annex*

### **TERMS OF REFERENCE FOR THE AD HOC TECHNICAL EXPERT GROUP ON SYNTHETIC BIOLOGY**

The Ad Hoc Technical Expert Group on Synthetic Biology shall:

(a) Provide an advice on the relationship between synthetic biology and the criteria set out in decision IX/29, paragraph 12, in order to contribute to the completion of the assessment requested in decision XII/24, paragraph 2, building on the preliminary analysis prepared by the Executive Secretary in document SBSTTA/22/INF/17;

(b) Take stock of new developments in synthetic biology since the Ad Hoc Technical Expert Group's last meeting in order to support a regular horizon scanning process;

(c) Undertake a review of the current state of knowledge by analysing information, including but not limited to peer-reviewed published literature, on the potential positive and negative environmental impacts, taking into account human health, cultural and socioeconomic impacts, especially with regard to the value of biodiversity to indigenous peoples and local communities, of current and near-future applications of synthetic biology, including those applications that involve organisms containing engineered gene drives, taking into account the traits and species potentially subject to release and the dynamics of their dissemination, as well as the need to avoid duplication with the work on risk assessment under the Cartagena Protocol on Biosafety;

(d) Consider whether any living organism developed thus far through new developments in synthetic biology fall outside the definition of living modified organisms as per the Cartagena Protocol;

(e) Prepare a forward-looking report on synthetic biology applications that are in early stages of research and development, vis-à-vis the three objectives of the Convention, by compiling and analysing information, including but not limited to peer-reviewed published literature;

<sup>13</sup> [http://bch.cbd.int/onlineconferences/portal\\_detection/lab\\_network.shtml](http://bch.cbd.int/onlineconferences/portal_detection/lab_network.shtml).

<sup>14</sup> SBSTTA/22/INF/17.

(f) Prepare a report on the outcomes of its work for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting to be held before the fifteenth meeting of the Conference of Parties.

**22/4. Updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress**

*The Subsidiary Body on Scientific, Technical and Technological Advice,*

*Recalling decision XIII/29,*

1. *Welcomes with appreciation* 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 and restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

2. *Welcomes* the review of updated scientific information, including its conclusions and information gaps summarized in the information document issued by the Executive Secretary<sup>15</sup> and takes note of other related information documents,<sup>16</sup>

3. *Notes* the additional indicators which have been identified and those which have updated data points,<sup>17</sup> and *acknowledges* the contribution of the Biodiversity Indicators Partnership in advancing the work on indicators relevant to the Strategic Plan for Biodiversity 2011-2020;<sup>18</sup>

4. Having reviewed possible options to accelerate progress towards the achievement of the Aichi Biodiversity Targets contained in the annex from a scientific and technical perspective, *invites* the Subsidiary Body on Implementation to consider these options in the context of its deliberations on item 3 of the provisional agenda,<sup>19</sup> on the review of progress in the implementation of the Convention and the Strategic Plan for Biodiversity 2011-2020;

5. *Notes with concern* that the assessments and review referred to in paragraphs 1 and 2 above conclude that:

(a) Progress is still insufficient to achieve the Aichi Biodiversity Targets and corresponding elements of the Sustainable Development Goals;<sup>20</sup>

(b) Information gaps persist, including with regard to incorporating socioeconomic issues and indigenous and local knowledge;

6. *Encourages* Parties to make use of the findings of the assessments of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, updated scientific information, and additional indicators referred to above, as appropriate, in accordance with national circumstances, in the preparation of their sixth national report, among other things;

7. *Invites* the Executive Secretary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, in collaboration with the co-chairs and authors of regional assessments, as appropriate, to make available to the Conference of the Parties at its fourteenth meeting information on the cross-regional analysis of the regional assessments on biodiversity and ecosystem services;

8. *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 of Land Degradation and Restoration 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

<sup>15</sup> CBD/SBSTTA/22/INF/10.

<sup>16</sup> CBD/SBSTTA/22/INF/5, CBD/SBSTTA/22/INF/23, CBD/SBSTTA/22/INF/26, CBD/SBSTTA/22/INF/30, CBD/SBSTTA/22/INF/31, CBD/SBSTTA/22/INF/32, CBD/SBSTTA/22/INF/34, CBD/SBSTTA/22/INF/35

<sup>17</sup> CBD/SBSTTA/22/5, annex I.

<sup>18</sup> Decision [X/2](#), annex.

<sup>19</sup> [CBD/SBI/2/1](#).

<sup>20</sup> See General Assembly resolution [70/1](#) entitled “Transforming our world: the 2030 Agenda for Sustainable Development”.

related to the post-2020 global biodiversity framework and the fifth edition of the *Global Biodiversity Outlook*;

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

*The Conference of the Parties,*

*Deeply concerned* that, despite many positive actions by Parties and others, most of the Aichi Biodiversity Targets are not on track to be achieved by 2020, which, in the absence of further significant progress, will jeopardize the achievement of the mission and vision of the Strategic Plan for Biodiversity 2011-2020<sup>21</sup> and the Sustainable Development Goals,<sup>22</sup>

*Recalling* decisions XIII/5, XIII/28 and XIII/29,

1. *Welcomes with appreciation* 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 of Land Degradation and Restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

2. *Welcomes* the review of updated scientific information, including its conclusions and information gaps, and the possible options to accelerate progress towards the achievement of the Aichi Biodiversity Targets;<sup>23</sup>

3. *Also welcomes* the additional indicators which have been identified and those which have updated data points<sup>24</sup> and acknowledges the contribution of the Biodiversity Indicators Partnership in advancing the work on indicators relevant to the Strategic Plan for Biodiversity 2011-2020;<sup>21</sup>

4. *Encourages* Parties and *invites* other Governments, with a view to informing actions at the national level, to make use of the following, as appropriate:

(a) 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 of Land Degradation and Restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

(b) The review of updated scientific information, including its conclusions, information gaps and possible options to accelerate progress towards the achievement of the Aichi Biodiversity Targets;<sup>25</sup>

(c) The additional indicators relevant to the Strategic Plan for Biodiversity 2011-2020 which have been identified and those which have updated data points;<sup>26</sup>

5. *Urges* Parties and *invites* other Governments, as appropriate, to consider undertaking national assessments of biodiversity and ecosystem functions and services;

6. *Invites* relevant organizations and development partners to support Parties in undertaking national assessments of biodiversity and ecosystem functions and services, noting

<sup>21</sup> Decision [X/2](#), annex.

<sup>22</sup> See General Assembly resolution [70/1](#) entitled “Transforming our world: the 2030 Agenda for Sustainable Development”.

<sup>23</sup> See also CBD/SBSTTA/22/INF/10, INF/22, INF/23, INF/26, INF/30, INF/31, INF/32, INF/34 and INF/35.

<sup>24</sup> CBD/SBSTTA/22, annex I.

<sup>25</sup> CBD/SBSTTA/22/INF/10.

<sup>26</sup> CBD/SBSTTA/22, annex I.



ongoing work in this regard undertaken in the context of BesNET with technical support from the United Nations Environment Programme's World Conservation Monitoring Centre;<sup>27</sup>

7. *Urges* Parties and *invites* other Governments, in accordance with national circumstances, and *invites* relevant organizations, indigenous peoples and local communities and stakeholders to take urgent action by 2020 on those Aichi Biodiversity Targets, or elements thereof, for which progress needs to be accelerated, by carrying out, among other things, the following actions, as appropriate:

(a) For Target 1 advance the development of communication strategies and tools for education and awareness-raising related to biodiversity as a means to promote behavioural change for sustainable consumption, noting that while more biodiversity-related information has been made available it is not reaching the general public;

(b) For Target 3, eliminate, phase out or reform perverse incentives that contribute to biodiversity degradation and devise positive incentives that reward the adoption of sustainable practices;

(c) For Target 5, noting that while the annual rate of net forest loss has been halved, further efforts to address regional forest degradation and deforestation are needed;

(d) For Target 6, enhance efforts to reverse the decline in the sustainability of the world's fisheries;

(e) For Target 7, promote the conservation and sustainable use of soil biodiversity, such as by contributing to the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity coordinated by the Food and Agriculture Organization of the United Nations;<sup>28</sup> and improve enforcement and monitoring of sustainable forest management, particularly in developing countries and tropical regions;

(f) For Target 8, increase actions to reduce pollution, including from excess nutrients;

(g) For Target 9, place more focus on preventing the spread of invasive alien species and to eradicate those already present;

(h) For Target 10, enhance efforts to prevent continued worldwide decrease of live coral cover;

(i) For Targets 11 and 12, noting that not all eco-regions of the world are adequately covered by protected areas, most protected areas are not well connected, and most Parties have not assessed the management effectiveness of the majority of their protected areas, and that global prevention of species loss should focus on specific regions of the world where most species diversity exists and/or where they are the most threatened, focus on the protection, management and conservation of the most significant areas for biodiversity, such as through the initiatives of the Alliance for Zero Extinction and others,<sup>29</sup> through protected areas, other effective area-based conservation measures and specific species conservation measures;

(j) For Target 13, noting that the number of plant genetic resources for food and agriculture secured in conservation facilities shows an increase, enhance actions to avoid further reduction in genetic variation among breeds of farmed and domesticated animals;

<sup>27</sup> See the [report of the global inception and capacity-building meeting on developing capacity for undertaking national ecosystem assessments in IPBES](#) and [Project on "supporting developing country capacity to address science-policy questions through IPBES via the UNDP managed Biodiversity and Ecosystem Services Network \(BES-Net\) and the UNEP-WCMC hosted Sub-Global Assessment Network"](#).

<sup>28</sup> Decisions III/11, V/5 and VIII/23.

<sup>29</sup> CBD/SBSTTA/22/INF/23.

(k) For Targets 14 and 15, step up the implementation of the short-term action plan on ecosystem restoration,<sup>30</sup> drawing on the findings of the Thematic Assessment of Land Degradation and Restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

(l) For Target 18, increase efforts in the protection of and respect for traditional knowledge and make use of information contained in the *Local Biodiversity Outlooks*,<sup>31</sup> inter alia, on the customary sustainable use by indigenous peoples and local communities to contribute to updated reporting on progress in the implementation of the Aichi Biodiversity Targets;

8. *Urges* Parties and *invites* other Governments, and relevant organization to:

(a) Strengthen the capacities of national focal points for the Convention on Biological Diversity and decision makers to make effective use of the findings of the assessments of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

(b) Facilitate integrated approaches to biodiversity research, including on the interactions between indirect and direct drivers of biodiversity loss and their impacts on biodiversity, ecosystem functions and services and human well-being;

9. *Recognizes* that there is a need to make more effective and systematic use of the support mechanisms identified in the Strategic Plan for Biodiversity 2011-2020,<sup>32</sup> to facilitate action on the issues identified in paragraphs 4, 5 and 6;

10. *Requests* the Executive Secretary to communicate through the United Nations system, including the High-level Political Forum on Sustainable Development and relevant multilateral environmental agreements, that failing to achieve the Strategic Plan for Biodiversity 2011-2020 jeopardizes the attainment of the 2030 Agenda for Sustainable Development and, therefore, urgent action is required to achieve the Aichi Biodiversity Targets;

11. *Requests* the Executive Secretary, subject to the availability of resources, to use and analyse the review of scientific information and the outcomes of all IPBES products including the regional assessments on biodiversity and ecosystem services and the Thematic Assessment of Land Degradation and Restoration in the preparation of post 2020 global biodiversity framework under Convention and provide the results of those considerations to a meeting of SBSTTA prior to the fifteenth meeting of the Conference of the Parties.

#### *Annex*

### **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,<sup>33</sup> include:

(a) Making greater use of the social sciences, promoting research on cultural issues and on issues associated with people's quality of life, non-material values of biodiversity, the needs of women and the poor and vulnerable,

<sup>30</sup> Decision XIII/5, annex.

<sup>31</sup> <https://www.cbd.int/gbo/gbo4/publication/lbo-en.pdf>

<sup>32</sup> Decision X/2, section VI.

<sup>33</sup> The actions identified herein 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.

(b) Increasing the generation of, and access to, biodiversity information, including by promoting research on biodiversity and ecosystem functions and services, developing data sets which can be disaggregated for different ecosystems and at different geographic scales, and developing and promoting mechanisms to share biodiversity information more effectively;

(c) Enhancing the monitoring of all aspects of biodiversity and ecosystem functions and services, including by making greater use of remote observations and geographic information systems as well as using technology for species identification and generation of biodiversity information;

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

(e) Better integrating or mainstreaming biodiversity issues within and across all sectors of society, including into national planning and development processes and policy development, to better account for policy leakages and spill-over effects in decision-making and the broader impacts of policy decisions;

(f) Better consideration of the direct and indirect impacts of policies and production and consumption patterns, causal interactions between, and effects on, distant places and ecosystems, and better addressing the implications on biodiversity of policy decisions and production and consumption, both within and outside national borders;

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

(h) 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 and plurality of values 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;

(i) Promoting the use of participatory approaches to biodiversity management, including through the effective participation of indigenous peoples and local communities, and by building the capacity of stakeholders to be able to meaningfully participate in decision-making processes,

(j) Working more effectively with small landholders to adopt more efficient and biodiversity-friendly practices and enhancing cooperation and partnerships with indigenous peoples and local communities, non-governmental organizations, the private sector and individuals;

(k) Improving awareness of biodiversity and the interactions between indirect and direct drivers of biodiversity loss and their impacts on biodiversity, ecosystem functions and services and human well-being through enhanced communication, education and public awareness and taking actions to bring about behavioural and policy change;

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

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

(n) Promoting multiple approaches, including non-monetary approaches, to valuing biodiversity and ecosystem function and services;

(o) Better consideration of the full impact of production and consumption processes along the entire supply chain and product life cycle on biodiversity;

(p) Eliminating perverse incentives that contribute to biodiversity degradation and devising positive incentives that reward the adoption of sustainable practices;

(q) Promoting investment in the development and use of nature-based solutions in order to address societal challenges, including through ecosystem restoration and the rehabilitation of agricultural systems, ecosystem-based adaptation and mitigation and ecosystem-based approaches to disaster risk reduction,

(r) Taking appropriate measures to protect and restore pollinator diversity, abundance and health;

(s) Reducing the costs of certification of sustainable practices and other barriers for marketing products from sustainable production;

(t) Improving efforts to prevent land degradation and to restore degraded lands;

(u) Increasing efforts to achieve a transformational change in society's relationship with biodiversity.

**22/5. Protected areas and other effective area-based conservation measures***The Subsidiary Body on Scientific, Technical and Technological Advice*

1. *Welcomes* the voluntary guidance on the integration of protected areas and other effective area-based conservation measures into the wider land- and seascapes and mainstreaming across sectors, as well as the voluntary guidance on governance and equity, contained in annexes I and II, respectively, to the present recommendation;

2. *Adopts* the following definition of “other effective area-based conservation measures”:

“Other effective area-based conservation measure” means “a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the *in situ* conservation of biodiversity,<sup>34</sup> with associated ecosystem functions and services and, where applicable, cultural, spiritual, socioeconomic, and other locally relevant values”;

3. *Welcomes* the scientific and technical advice on other effective area-based conservation measures contained in annex III to the present recommendation, to be applied in a flexible way and on a case-by-case basis;

4. *Also welcomes* the work of the International Union for Conservation of Nature and other expert bodies in helping to operationalize the concept of other effective area-based conservation measures;

5. *Takes note of* the considerations in achieving Aichi Biodiversity Target 11 in marine and coastal areas, contained in annex IV to the present recommendation;

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

*The Conference of the Parties*

1. *Welcomes* the voluntary guidance on integration of protected areas and other effective areas-based conservation measures into the wider land- and seascapes and on mainstreaming these into sectors, as well as the voluntary guidance on governance and equity, contained in annexes I and II, respectively, to the present draft decision;

2. *Adopts* the following definition of “other effective area-based conservation measures”:

“Other effective area-based conservation measure” means “a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the *in situ* conservation of biodiversity,<sup>35</sup> with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values”;

3. *Welcomes* the scientific and technical advice on other effective area-based conservation measures, contained in annex III to the present draft decision, to be applied in a flexible way and on a case-by-case basis;

4. *Encourages* Parties and *invites* other Governments, relevant organizations, in collaboration with indigenous peoples and local communities, to apply the voluntary guidance contained in annexes I and II, on integration and mainstreaming, and governance and equity of protected areas and other effective area-based conservation measures, as appropriate, in accordance with national circumstances and legislation, and consistent and in harmony with the Convention and other international obligations;

<sup>34</sup> As defined by Article 2 of the Convention on Biological Diversity and in line with the provisions of the Convention.

<sup>35</sup> As defined by Article 2 of the Convention on Biological Diversity and in line with the provisions of the Convention.

5. *Encourages* Parties and *invites* other Governments, relevant organizations, in collaboration with indigenous peoples and local communities, to apply the scientific and technical advice on other effective area-based conservation measures contained in annex III, also taking into account, where appropriate, the 2016 report of the United Nations Special Rapporteur on the rights of indigenous peoples on the theme “indigenous peoples and conservation”<sup>36</sup> and the 2017 report of the United Nations Special Rapporteur on human rights and the environment,<sup>37</sup> including by:

(a) Identifying other effective area-based conservation measures and their diverse options within their jurisdiction;

(b) Submitting data on other effective area-based conservation measures to the United Nations Environment Programme’s World Conservation Monitoring Centre for inclusion in the World Database on Protected Areas;

6. *Encourages* Parties and *invites* other Governments, relevant organizations and indigenous peoples and local communities to take into account the considerations in achieving Aichi Biodiversity Target 11 in marine and coastal areas, as contained in annex IV to the present draft decision, in their efforts to achieve all elements of Aichi Biodiversity Target 11 in marine and coastal areas;

7. *Also encourages* Parties and *invites* other Governments, relevant organizations, and indigenous peoples and local communities to share case studies/best practices and examples of management approaches, governance types and effectiveness related to other effective area-based conservation measures, including experiences with the application of the guidance, through the clearing-house mechanism of the Convention and other means;

8. *Invites* the International Union for Conservation of Nature and the World Conservation Monitoring Centre to expand the World Database on Protected Areas by providing a section on other effective area-based conservation measures;

9. *Invites* the International Union for Conservation of Nature, the Food and Agriculture Organization of the United Nations, and other expert bodies to continue to assist Parties in identifying other effective area-based conservation measures and in applying the scientific and technical advice;

10. *Requests* the Executive Secretary, subject to available resources, and in collaboration with partners, Parties, other Governments, relevant organizations and indigenous and local communities, to provide capacity-building, including training workshops, to enable the application of the scientific and technical advice and guidance contained in the annexes to the present draft decision;

11. *Urges* Parties, and *invites* other Governments, relevant organizations and donors in a position to do so to provide resources for capacity-building, and to support Parties and indigenous peoples and local communities to identify other effective area-based conservation measures and to apply the scientific and technical advice and guidance;

12. *Urges* Parties to facilitate mainstreaming of protected areas and other effective area-based conservation measures into key sectors, such as, inter alia, agriculture, fisheries, forestry, mining, energy, tourism and transportation, and in line with annex I.

<sup>36</sup> Report of the Special Rapporteur of the Human Rights Council on the rights of indigenous peoples, Victoria Tauli-Corpuz ([A/71/229](#)).

<sup>37</sup> Report of the Special Rapporteur of the Human Rights Council on the issues of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, John Knox ([A/HRC/34/49](#)).

*Annex I*

**VOLUNTARY GUIDANCE ON THE INTEGRATION OF PROTECTED AREAS AND OTHER  
EFFECTIVE AREA-BASED CONSERVATION MEASURES INTO WIDER LAND- AND  
SEASCAPES AND MAINSTREAMING ACROSS SECTORS TO CONTRIBUTE,  
INTER ALIA, TO THE SUSTAINABLE DEVELOPMENT GOALS**

**I. CONTEXT**

1. The integration of protected areas into wider landscapes, seascapes and sectors is made up of several components. Habitat fragmentation can have profound impacts on the functioning and integrity of complex ecological systems. The rate and extent of fragmentation, especially of forests, is immense. A 2018 study found that 70 per cent of the global forest cover is only within 1 kilometre of a forest edge (such as a road, or converted land use, such as agriculture), reducing biodiversity by as much as 75 per cent and imperilling ecosystem functioning.<sup>38</sup> Intact habitat is increasingly recognized as essential for the functioning of larger ecological systems, as well as for ecosystem functions and services, including the cycling of water and carbon, and human health.<sup>39</sup>

2. In the programme of work on protected areas, Goal 1.2 states that “By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the ecosystem approach and taking into account ecological connectivity and the concept, where appropriate, of ecological networks.” In decision [X/6](#), the Conference of the Parties, among other things, highlighted for Parties the importance of integrating biodiversity into poverty eradication and development, and in decision [XIII/3](#), among other things, stressed the importance of mainstreaming and integrating biodiversity within and across sectors. In decision [X/31](#), the Conference of the Parties, among other things, invited Parties to facilitate the integration of protected areas in national and economic development plans, where they exist.

3. Protected area integration can be defined as: “the process of ensuring that the design and management of protected areas, corridors and the surrounding matrix fosters a connected, functional ecological network.”<sup>40</sup> Protected area mainstreaming can be defined as the integration of the values, impacts and dependencies of the biodiversity and ecosystem functions and services provided by protected areas into key sectors, such as agriculture, fisheries, forestry, mining, energy, tourism, transportation, education and health.

4. Protected areas safeguard the biodiversity and ecosystems that underpin the Sustainable Development Goals.<sup>41</sup> Protected areas are especially important in achieving goals related to poverty alleviation, water security, carbon sequestration, climate change adaptation, economic development and disaster risk reduction. Protected areas are an essential strategy for the emerging field of nature-based solutions to various global challenges, such as water security.<sup>42</sup> They are particularly important as a nature-based solution for climate mitigation<sup>43</sup> and climate adaptation.<sup>44</sup> Nature could provide at least a

<sup>38</sup> Haddad, N.M. et al. 2015. Habitat fragmentation and its lasting impact on Earth’s ecosystems. *Science Advances*: 1(2): e1500052, Mar 2015. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4643828/>

<sup>39</sup> Watson, J. et al. 2018. The exceptional value of intact forest ecosystems. *Nature Ecology and Evolution* 2, 599-610.

<sup>40</sup> Ervin, J., K. J. Mulongoy, K. Lawrence, E. Game, D. Sheppard, P. Bridgewater, G. Bennett, S.B. Gidda and P. Bos. 2010. Making Protected Areas Relevant: A guide to integrating protected areas into wider landscapes, seascapes and sectoral plans and strategies. CBD Technical Series No. 44. Montreal, Canada: Convention on Biological Diversity, 94 pp.

<sup>41</sup> See for example CBD. 2016. Biodiversity and the 2030 Agenda. Montreal: Secretariat of the Convention on Biological Diversity. Available at <https://www.cbd.int/development/doc/biodiversity-2030-agenda-policy-brief-en.pdf>

<sup>42</sup> See for example: United Nations Development Programme. 2018. Nature for water, Nature for life: Nature-based solutions for achieving the Global Goals. New York, UNDP; available at [www.natureforlife.world](http://www.natureforlife.world).

<sup>43</sup> See Bronson et al., 2017. Natural Climate Solutions. *PNAS*: 114(44): 11645-11650 available at: <http://www.pnas.org/content/114/44/11645>.

<sup>44</sup> Dudley, N. et al. 2009. Natural Solutions – Protected Areas: Helping People Cope with Climate Change. Switzerland: IUCN. Available at: <https://www.iucn.org/content/natural-solutions-protected-areas-helping-people-cope-climate-change>.



third of climate solutions if the planet is to stay under 1.5° C, and protected areas are an essential strategy for achieving this goal.

5. Despite this, the progress of protected area integration and mainstreaming remains slow, with very few countries identifying specific strategies within their national biodiversity strategies and action plans.<sup>45</sup> Urgent action is required by Parties to make progress on both of these aims.

## II. VOLUNTARY GUIDANCE

### A. Suggested steps for enhancing and supporting integration into landscapes, seascapes and sectors

(a) *Review national visions, goals and targets* to ensure that they include elements of integration of protected areas and other effective area-based conservation measures for increasing habitat connectivity and decreasing habitat fragmentation at the landscape and seascape scale;

(b) *Identify key species, ecosystems and ecological processes* for which fragmentation is a key issue and which can benefit from improved connectivity, including those species, ecosystems and ecological processes that are vulnerable to the impacts of climate change;

(c) *Identify and prioritize important areas to improve connectivity* and to mitigate the impacts of fragmentation of landscapes and seascapes, including areas that create barriers and bottlenecks for annual and seasonal species movement, for various life stages, and for climate adaptation, and areas that are important for maintaining ecosystem functioning (e.g., riverine flood plains);

(d) *Conduct a national review* of the status and trends of landscape and seascape habitat fragmentation and connectivity for key species, ecosystems and ecological processes, including a review of the role of protected areas and other effective area-based conservation measures, in maintaining landscape and seascape connectivity, and any key gaps;

(e) *Identify and prioritize the sectors* most responsible for habitat fragmentation, including transportation, agriculture, energy, infrastructure and urban development, and develop strategies to engage them in developing strategies for mitigating the impacts on protected areas and protected area networks including other effective area-based conservation measures, and areas under active restoration programmes;

(f) *Review and adapt landscape and seascape plans and frameworks (both within and across sectors), including, for example, land-use and marine spatial plans, and sectoral plans*, such as subnational land-use plans, integrated watershed plans, integrated marine and coastal area management plans, transportation plans, and water-related plans, in order to improve connectivity and complementarity and reduce fragmentation and impacts;

(g) *Prioritize and implement measures* to decrease habitat fragmentation within landscapes and seascapes and to increase connectivity, including the creation of new protected areas and the identification of other effective area-based conservation measures, as well as indigenous and community conserved areas, that can serve as stepping stones between habitats, the creation of conservation corridors to connect key habitats, the creation of buffer zones to mitigate the impacts of various sectors, to enhance the protected and conserved areas estate, and the promotion of sectoral practices that reduce and mitigate their impacts on biodiversity, such as organic agriculture and long-rotation forestry.

### B. Suggested steps for enhancing and supporting the mainstreaming of protected areas and other effective area-based conservation measures across sectors

(a) *Identify, map and prioritize areas important for essential ecosystem functions and services*, including ecosystems that are important for food (e.g., mangroves for fisheries), for climate

<sup>45</sup> See UNDP. 2016. National Biodiversity Strategies and Action Plans: Natural Catalysts for Accelerating Action on Sustainable Development Goals. Interim Report. United Nations Development Programme. December 2016. UNDP: New York, United States of America. 10017, available at: <https://www.cbd.int/doc/nbsap/NBSAPs-catalysts-SDGs.pdf>



mitigation (e.g., carbon-dense ecosystems, such as forests, peatlands, mangroves), for water security (e.g., mountains, forests, wetlands and grasses that provide both surface and groundwater), for poverty alleviation (e.g., ecosystems that provide subsistence, livelihoods and employment), and for disaster risk reduction (e.g., ecosystems that buffer impacts from coastal storms, such as reefs, seagrass beds, floodplains);

(b) *Review and update sectoral plans* to ensure that the many values provided by protected areas and other effective area-based conservation measures, are recognized and incorporated into sectoral plans;

(c) *Develop targeted communications campaigns* aimed at the various sectors, both government and private, that depend upon the biodiversity and ecosystem functions and services provided by protected areas and other effective area-based conservation measures, including agriculture, fisheries, forestry, water, tourism, national and subnational security, development, and climate change, with the objective of increasing awareness of the value of nature for their sectors;

(d) *Review and revise existing policy and finance frameworks* to identify opportunities to improve the enabling policy and finance environment for sectoral mainstreaming;

(e) *Encourage innovative finance*, including impact investors, insurance companies and others, to identify and finance new protected areas, and restoration of key degraded protected areas to deliver on essential ecosystem functions and services;

(f) *Assess and update the capacities required* to improve the mainstreaming of protected areas, including capacities related to creating enabling policy environments, to spatial mapping of essential ecosystem functions and services, and to assessing the economic values of ecosystem functions and services.

## *Annex II*

### **VOLUNTARY GUIDANCE ON EFFECTIVE GOVERNANCE MODELS FOR MANAGEMENT OF PROTECTED AREAS, INCLUDING EQUITY, TAKING INTO ACCOUNT WORK BEING UNDERTAKEN UNDER ARTICLE 8(J) AND RELATED PROVISIONS**

#### **I. CONTEXT**

1. Governance is a key factor for protected areas to succeed in conserving biodiversity and supporting sustainable livelihoods. Enhancing protected area governance in terms of diversity, quality, effectiveness and equity can facilitate the achievement of Aichi Biodiversity Target 11 and help face ongoing local and global challenges.<sup>46</sup> The achievement of the coverage, representativeness, connectivity and qualitative elements of Target 11 can be facilitated by recognizing the role and contributions of a diversity of actors and approaches for area-based conservation. Such diversity broadens ownership, potentially promoting collaboration and reducing conflict as well as facilitating resilience in the face of change.

2. Governance arrangements for protected and conserved areas that are tailored to their specific context, socially inclusive, respectful of rights, and effective in delivering conservation and livelihood outcomes tend to increase the legitimacy of protected and conserved areas for indigenous peoples and local communities, and society at large.

3. In decision [X/31](#), the Conference of the Parties, among other things, identified Element 2 on governance, participation, equity and benefit-sharing of the programme of work on protected areas as a

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<sup>46</sup> Several studies, including a recent analysis of 165 protected areas from around the world, have found that those sites where *local people* are directly engaged and benefit from the conservation efforts are more effective with respect to both biodiversity conservation and socio-economic development. Oldekop, J.A., et al. (2015). A global assessment of the social and conservation outcomes of protected areas – *Conservation Biology*, 30(1): 133-141.

priority issue in need of greater attention.<sup>47</sup> Since then, Parties have gained experience, and methodologies and tools have been developed to assess governance and design action plans. These have led to an increased understanding of essential concepts, particularly equity.<sup>48</sup>

### A. Voluntary guidance on governance diversity

4. The Convention on Biological Diversity and the International Union for Conservation of Nature (IUCN) distinguish four broad governance types for protected and conserved areas according to which actors have authority and a responsibility to make and enforce decisions: (a) governance by government; (b) shared governance (by various actors together<sup>49</sup>); (c) governance by private individuals or organizations (often land owners and in the form of private protected areas (PPAs)); and (d) governance by indigenous peoples and/or local communities (often referred to as territories and areas conserved by indigenous peoples and local communities (ICCAs) or Indigenous Protected Areas (IPAs)).

5. Diversity of governance pertains primarily to the existence of a range of different governance types and sub-types, in terms of both legal provisions and practices, and their complementarity in achieving *in situ* conservation. The concept of governance type is also relevant for the question whether a given type is appropriate to a specific context.<sup>50</sup>

6. In line with decisions VII/28 and X/31, this voluntary guidance suggests steps that can be followed in relation to the recognition, support, verification and coordination, tracking, monitoring and reporting of areas voluntarily conserved by indigenous peoples and local communities, private landowners and other actors. Particularly in the case of territories and areas under the governance of indigenous peoples and local communities, such steps should be taken with their free, prior and informed consent, consistent with national policies, regulations and circumstances, and based on respect for their rights, knowledge and institutions. In addition, in the case of areas conserved by private landowners, such steps should be taken with their approval and on the basis of respect for the owners' rights and knowledge.<sup>51</sup>

7. Suggested steps for enhancing and supporting governance diversity in national or subnational systems of protected and conserved areas include:

(a) *Develop a high-level policy or vision statement in consultation with stakeholders* that acknowledges a diversity of conservation actors and their contributions to national or subnational systems of protected and conserved areas. Such a statement would help to create the framework for subsequent legislative adaptations. It may also provide encouragement for *in situ* conservation initiatives of actors;<sup>52</sup>

(b) *Facilitate the coordinated management of multiple sites* of different governance types to achieve conservation objectives at larger landscape and seascape scales by appropriate means;

(c) *Clarify and determine the institutional mandates, roles and responsibilities* of all relevant State and non-State actors recognized in the national or subnational protected and conserved areas system, in coordination with other (subnational, sectoral) jurisdictions where applicable;

<sup>47</sup> In this same decision, Parties were invited to establish clear mechanisms and processes for equitable cost and benefit-sharing and for full and effective participation of indigenous and local communities, related to protected areas, in accordance with national laws and applicable international obligations; as well as to recognize the role of indigenous and local community conserved areas (ICCAs) and conserved areas of other stakeholders in biodiversity conservation, collaborative management and diversification of governance types.

<sup>48</sup> CBD/SBSTTA/22/INF/8.

<sup>49</sup> Such as between indigenous peoples and local communities and Governments or between private individuals and Governments.

<sup>50</sup> This is because governance type is about which actor or actors are in the lead for initiating the establishment of, and holding of authority and responsibility for, protected or conserved areas and varies with different contexts of tenure and stakeholder aspirations.

<sup>51</sup> Useful guidance includes: [CBD Technical Series No. 64](#), the [United Nations Declaration on the Rights of Indigenous Peoples](#); Sue Stolton, Kent H. Redford and Nigel Dudley (2014). [The Futures of Privately Protected Areas](#). Gland, Switzerland, IUCN.

<sup>52</sup> Actors such as subnational governments, local governments, landowners, small farmers, non-governmental organizations and other private entities, and indigenous peoples and local communities.

(d) *Conduct a system-level governance assessment as a collaborative multi-stakeholder process.* In large part, such an assessment serves as a gap analysis between an existing national or subnational protected area network and the potentially achievable area-based conservation, if areas presently protected or conserved *de facto* by various actors and approaches were recognized, encouraged and supported to take or share responsibility;<sup>53,54</sup>

(e) *Facilitate the coordinated monitoring and reporting,* on protected and conserved areas under different governance types by appropriate means and in accordance with national legislation, including to the World Database on Protected Areas, and taking appropriate account of their contributions to the elements of Target 11;

(f) *Review and adapt the policy, legal and regulatory framework for protected and conserved areas* on the basis of the opportunities identified in the assessment and in line with decision X/31 to incentivize and legally recognize different governance types;<sup>55</sup>

(g) *Support and secure the protection status* of the protected and conserved areas under all governance types through appropriate means;

(h) *Support national associations or alliances* of protected and conserved areas according to governance types (e.g., ICCA alliance, PPA association) to provide peer support mechanisms;

(i) *Verify the contribution of such areas* to the overall achievement of the country's system of protected areas in terms of coverage and conservation status by mapping and other appropriate means.

## **B. Voluntary guidance on effective and equitable governance models**

8. Effective and equitable governance models for protected and conserved areas are arrangements for decision-making and implementation of decisions in which “good governance” principles are adopted and applied. Good governance principles should be applied irrespective of governance type. Based on the good governance principles developed by United Nations agencies and other organizations, IUCN has suggested governance principles and considerations for the context of protected and conserved areas as guidance for decisions to be taken and implemented legitimately, competently, inclusively, fairly, with a sense of vision, accountably and while respecting rights.<sup>56</sup>

9. The concept of equity is one element of good governance. Equity can be broken down into three dimensions: recognition, procedure and distribution: “Recognition” is the acknowledgement of and respect for the rights and the diversity of identities, values, knowledge systems and institutions of rights holders<sup>57</sup> and stakeholders; “Procedure” refers to inclusiveness of rule- and decision-making; “Distribution” implies that costs and benefits resulting from the management of protected areas must be equitably shared among different actors. The figure below shows the three dimensions. A recently developed framework for advancing equity in the context of protected areas<sup>58,59</sup> proposes a set of principles against which the three dimensions can be assessed.

<sup>53</sup> Useful guidance includes: [IUCN Best Practice Guidelines No. 20](#): Governance of Protected Areas: from Understanding to Action (2013).

<sup>54</sup> Such an assessment also helps identify areas of particular importance for biodiversity, their conservation and protection status, and how and by whom they are governed, indicating opportunities for potential contributions to existing networks. Considerations of economic, social and cultural costs and benefits should be taken into account.

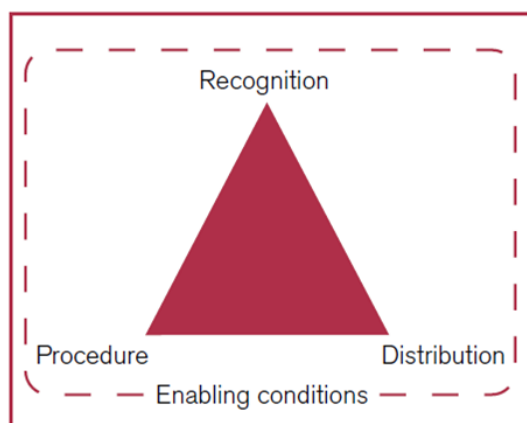
<sup>55</sup> A substantial body of guidance as well as experiences from a number of Parties are available for interested Governments and other stakeholders. Useful guidance includes: [CBD Technical Series No.64](#), Sue Stolton, Kent H. Redford and Nigel Dudley (2014). *The Futures of Privately Protected Areas*. Gland, Switzerland, IUCN; and information document CBD/SBSTTA/22/INF/8.

<sup>56</sup> [IUCN Best Practice Guidelines No. 20](#).

<sup>57</sup> In the context of protected areas, “rights holders” are actors with legal or customary rights to natural resources and land. “Stakeholders” are actors with interest and concerns over natural resources and land.

<sup>58</sup> Schreckenber, K., et.al. (2016): [Unpacking Equity for Protected Area Conservation](#), *PARKS Journal*.

<sup>59</sup> “Protected areas: facilitating the achievement of Aichi Biodiversity Target 11” ([UNEP/CBD/COP/13/INF/17](#)).

**Figure. The three dimensions of equity embedded within a set of enabling conditions**

Source: Adapted from McDermott et al. (2013). Examining equity: A multidimensional framework for assessing equity in payments for ecosystem service. *Environmental Science and Policy* 33: 416-427 and Pascual et al. (2014). Social equity matters in payments for ecosystem services. *Bioscience* 64(11) 1027-1036.

10. Good governance implies that potential negative impacts, particularly on the human well-being of vulnerable and natural resource-dependent people, are assessed, monitored and avoided or mitigated, and positive impacts enhanced. The governance type and the arrangements for decision-making and implementation need to be tailored to the specific context in such a way as to ensure that rights holders and stakeholders that are impacted by the protected area can participate effectively.

11. Elements of effective and equitable governance models for protected and conserved areas may include:

(a) Appropriate procedures and mechanisms for the full and effective participation of indigenous peoples and local communities,<sup>60</sup> ensuring gender equality in full respect of their rights and recognition of their responsibilities, in accordance with national legislation and ensuring legitimate representation, including in the establishment, governance, planning, monitoring and reporting of protected and conserved areas on their traditional territories (lands and waters);<sup>61</sup>

(b) Appropriate procedures and mechanisms for the effective participation of and/or coordination with other stakeholders;

(c) Appropriate procedures and mechanisms to recognize and accommodate customary tenure and governance systems in protected areas,<sup>62</sup> including customary practices and customary sustainable use, in line with the Plan of Action on Customary Sustainable Use;<sup>63</sup>

(d) Appropriate mechanisms for transparency and accountability, taking into consideration internationally agreed standards and best practices;<sup>64</sup>

(e) Appropriate procedures and mechanisms for fair dispute or conflict resolution;

<sup>60</sup> Effective participation of other stakeholders applies to public entities, governing the protected area, whereas coordination with other stakeholders applies to non-state actors, governing the protected area.

<sup>61</sup> See also decision VII/28: “notes that the establishment, management and monitoring of protected areas should take place with the full and effective participation of, and full respect for the rights of, indigenous and local communities consistent with national law and applicable international obligations”.

<sup>62</sup> Useful guidance includes: [FAO Voluntary Guidelines on the Responsible Governance of Tenure](#) (2012); [CBD Technical Series No. 64](#).

<sup>63</sup> Decision XII/12, [annex](#), particularly task III related to protected areas.

<sup>64</sup> Useful guidance includes: United Nations Economic Commission for Europe, [Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters](#) (“Aarhus Convention”).

(f) Provisions for equitable sharing of benefits and costs, including through: (i) assessing the economic and sociocultural costs and benefits associated with the establishment and management of protected areas; (ii) mitigating, avoiding or compensating for costs; and (iii) equitably sharing benefits<sup>65</sup> based on criteria agreed among rights holders and stakeholders;<sup>66</sup>

(g) Safeguards that ensure the impartial and effective implementation of the rule of law;

(h) A monitoring system that covers governance issues, including impacts on the well-being of indigenous peoples and local communities;

(i) Consistency with Articles 8(j) and 10(c) and related provisions, principles and guidelines, including through respecting, preserving, and maintaining the traditional knowledge of indigenous peoples and local communities,<sup>67</sup> and with due respect for customary sustainable use of biodiversity.

12. Suggested actions that could be taken by Parties to enable and support effective and equitable governance models tailored to their context for protected areas under their mandate include:

(a) Conduct, in consultation with relevant rights holders and stakeholders, a review of protected area policy and legislation against good governance principles, including equity, and taking into consideration relevant internationally agreed standards and guidance.<sup>68</sup> Such a review can be conducted as part of a system-level governance assessment;

(b) Facilitate and engage in site-level governance assessments in participatory multi-stakeholder processes, take actions for improvement at the site level and draw lessons for the policy level;<sup>69</sup>

(c) Adapt protected area policy and legislation for their establishment, governance, planning, management and reporting as appropriate on the basis of the review and its results and taking into consideration elements indicated under paragraph 11 above;

(d) Facilitate assessment and monitoring of economic and sociocultural costs and benefits associated with the establishment and management of protected areas, and avoid, mitigate or compensate for costs while enhancing and equitably distributing benefits;<sup>70</sup>

(e) Establish or strengthen national policies for access to genetic resources within protected areas and the fair and equitable sharing of benefits arising from their utilization;<sup>71</sup>

(f) Facilitate and engage in capacity-building initiatives on governance and equity for protected and conserved areas;

(g) Facilitate appropriate funding to secure effective participation of all rights holders and stakeholders.

<sup>65</sup> Decision [VII/28](#), Suggested Activity 2.1.1; Decision [IX/18](#) A, paragraph 6(e); Decision [X/31](#), paras. 31(a) and 32(d).

<sup>66</sup> Franks, P et al. (2018) Understanding and assessing equity in protected area conservation: a matter of governance, rights, social impacts and human wellbeing. IIED Issue Paper. IIED, London.

<sup>67</sup> Decision [VII/28](#), Suggested activity 1.1.7 of Goal 1 of the [Programme of Work on Protected Areas](#).

<sup>68</sup> Useful guidance includes: United Nations Economic Commission for Europe (UNECE) [Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters](#) ("Aarhus Convention"); [FAO Voluntary Guidelines on the Responsible Governance of Tenure](#) (2012); CBD Plan of Action on Customary Sustainable Use (Decision XII/12, [annex](#)); Akwé Kon Guidelines; [United Nations Declaration on the Rights of Indigenous Peoples](#); FAO Voluntary Guidelines on Small-scale Fisheries.

<sup>69</sup> Useful guidance includes: Site-level governance assessment methodology (IIED, forthcoming) - Site-level assessments help to understand governance in practice and to identify options for improvement and/or for better tailoring governance type and decision-making arrangements to the local context.

<sup>70</sup> Useful guidance includes: Franks, P and Small, R (2016) Social Assessment for Protected Areas (SAPA). Methodology Manual for SAPA Facilitators. IIED, London.

<sup>71</sup> Decision VII/28, Suggested Activity 2.1.6.

13. Suggested actions that could be taken by other actors governing protected areas to enhance the effectiveness and equity of governance include:

- (a) Conduct site-level governance and equity assessments in ways that are inclusive of rights holders and stakeholders, and take action aimed at improvement;
- (b) Assess, monitor and mitigate any negative impacts arising from the establishment and/or maintenance of a protected or conserved area and enhance positive ones;<sup>72</sup>
- (c) Engage in capacity-building initiatives on governance and equity for protected and conserved areas.

### *Annex III*

## **SCIENTIFIC AND TECHNICAL ADVICE ON OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES**

The guiding principles and common characteristics and criteria for identification of other effective area-based conservation measures are applicable across all ecosystems currently or potentially important for biodiversity, and should be applied in a flexible way and on a case-by-case basis.

### **A. GUIDING PRINCIPLES AND COMMON CHARACTERISTICS**

(a) Other effective area-based conservation measures have a significant biodiversity value, or have objectives to achieve this, which is the basis for their consideration to achieve Target 11 of Strategic Goal C of the Strategic Plan for Biodiversity 2011-2020;

(b) Other effective area-based conservation measures have an important role in the conservation of biodiversity and ecosystem functions and services, complementary to protected areas and contributing to the coherence and connectivity of protected area networks, as well as in mainstreaming biodiversity into other uses in land and sea, and across sectors. Other effective area-based conservation measures should, therefore, strengthen the existing protected area networks, as appropriate;

(c) Other effective area-based conservation measures reflect an opportunity to provide *in situ* conservation of biodiversity over the long-term in marine, terrestrial and freshwater ecosystems. They may allow for sustainable human activity while offering a clear benefit to biodiversity conservation. By recognizing an area, there is an incentive for sustaining existing biodiversity values and improving biodiversity conservation outcomes;

(d) Other effective area-based conservation measures deliver biodiversity outcomes of comparable importance to and complementary with those of protected areas; this includes their contribution to representativeness, the coverage of areas important for biodiversity and associated ecosystem functions and services, connectivity and integration in wider landscapes and seascapes, as well as management effectiveness and equity requirements;

(e) Other effective area-based conservation measures, with relevant scientific and technical information and knowledge, have the potential to demonstrate positive biodiversity outcomes by successfully conserving *in situ* species, habitat and ecosystems and associated ecosystem functions and services and by preventing, reducing or eliminating existing, or potential threats, and increasing resilience. Management of other effective area-based conservation measures is consistent with the ecosystem approach and the precautionary approach, providing the ability to adapt to achieve biodiversity outcomes, including long-term outcomes, inter alia, the ability to manage a new threat;

(f) Other effective area-based conservation measures can help deliver greater representativeness and connectivity in protected area systems and thus may help address larger and pervasive threats to the components of biodiversity and ecosystem functions and services, and enhance resilience, including with regard to climate change;

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<sup>72</sup> Useful guidance includes: Social Assessment for Protected Areas (SAPA).

(g) Recognition of other effective area-based conservation measures should follow appropriate consultation with relevant governance authorities, land owners and rights owners, stakeholders and the public;

(h) Recognition of other effective area-based conservation measures should be supported by measures to enhance the governance capacity of their legitimate authorities and secure their positive and sustained outcomes for biodiversity, including, inter alia, policy frameworks and regulations to prevent and respond to threats;

(i) Recognition of other effective area-based conservation measures in areas within the territories of indigenous peoples and local communities should be on the basis of self-identification and with their free, prior and informed consent, as appropriate, and consistent with national policies, regulations and circumstances;

(j) Areas conserved for cultural and spiritual values, and governance and management that respect and are informed by cultural and spiritual values, often result in positive biodiversity outcomes;

(k) Other effective area-based conservation measures recognize, promote and make visible the roles of different governance systems and actors in biodiversity conservation; Incentives to ensure effectiveness can include a range of social and ecological benefits, including empowerment of indigenous peoples and local communities;

(l) The best available scientific information, and indigenous and local knowledge, should be used in line with international obligations and frameworks, such as the United Nations Declaration on the Rights of Indigenous Peoples, and instruments, decisions and guidelines of the Convention on Biological Diversity, for recognizing other effective area-based conservation measures, delimiting their location and size, informing management approaches and measuring performance;

(m) It is important that other effective area-based conservation measures be documented in a transparent manner to provide for a relevant evaluation of the effectiveness, functionality and relevance in the context of Target 11.

## B. CRITERIA FOR IDENTIFICATION

<b>Criterion A: Area is not currently recognized as a protected area</b>	
<b>Not a protected area</b>	<ul style="list-style-type: none"> <li>The area is not currently recognized or reported as a protected area or part of a protected area; it may have been established for another function.</li> </ul>
<b>Criterion B: Area is governed and managed</b>	
<b>Geographically defined space</b>	<ul style="list-style-type: none"> <li>Size and area are described, including in three dimensions where necessary.</li> <li>Boundaries are geographically delineated.</li> </ul>
<b>Legitimate governance authorities</b>	<ul style="list-style-type: none"> <li>Governance has legitimate authority and is appropriate for achieving in situ conservation of biodiversity within the area;</li> <li>Governance by indigenous peoples and local communities is self-identified in accordance with national legislation;</li> <li>Governance reflects the equity considerations adopted in the Convention.</li> <li>Governance may be by a single authority and/or organization or through collaboration among relevant authorities and provides the ability to address threats collectively.</li> </ul>



<b>Managed</b>	<ul style="list-style-type: none"> <li>• Managed in ways that achieve positive and sustained outcomes for the conservation of biological diversity.</li> <li>• Relevant authorities and stakeholders are identified and involved in management.</li> <li>• A management system is in place that contributes to sustaining the <i>in situ</i> conservation of biodiversity.</li> <li>• Management is consistent with the ecosystem approach with the ability to adapt to achieve expected biodiversity conservation outcomes, including long-term outcomes, and including the ability to manage a new threat.</li> </ul>
<b>Criterion C: Achieves sustained and effective contribution to <i>in situ</i> conservation of biodiversity</b>	
<b>Effective</b>	<ul style="list-style-type: none"> <li>• The area achieves, or is expected to achieve, positive and sustained outcomes for the <i>in situ</i> conservation of biodiversity.</li> <li>• Threats, existing or reasonably anticipated ones are addressed effectively by preventing, significantly reducing or eliminating them, and by restoring degraded ecosystems.</li> <li>• Mechanisms, such as policy frameworks and regulations, are in place to recognize and respond to new threats.</li> <li>• To the extent relevant and possible, management inside and outside the other effective area-based conservation measure is integrated.</li> </ul>
<b>Sustained over long term</b>	<ul style="list-style-type: none"> <li>• The other effective area-based conservation measures are in place for the long term or is likely to be.</li> <li>• “Sustained” pertains to the continuity of governance and management and “long term” pertains to the biodiversity outcome.</li> </ul>
<b><i>In situ</i> conservation of biological diversity</b>	<ul style="list-style-type: none"> <li>• Recognition of other effective area-based conservation measures is expected to include the identification of the range of biodiversity attributes for which the site is considered important (e.g. communities of rare, threatened or endangered species, representative natural ecosystems, range restricted species, key biodiversity areas, areas providing critical ecosystem functions and services, areas for ecological connectivity).</li> </ul>
<b>Information and monitoring</b>	<ul style="list-style-type: none"> <li>• Identification of an other effective area-based conservation measure should, to the extent possible, document the known biodiversity attributes, as well as, where relevant, cultural and/or spiritual values, of the area and the governance and management in place as a baseline for assessing effectiveness.</li> <li>• A monitoring system informs management on the effectiveness of measures with respect to biodiversity, including the health of ecosystems.</li> <li>• Processes should be in place to evaluate the effectiveness of governance and management, including with respect to equity.</li> <li>• General data of the area such as boundaries, aim and governance are available information.</li> </ul>
<b>Criterion D: Associated ecosystem functions and services and cultural, spiritual, socio-economic and other locally relevant values</b>	
<b>Ecosystem functions and services</b>	<ul style="list-style-type: none"> <li>• Ecosystem functions and services are supported, including those of importance to indigenous peoples and local communities, for other effective area-based conservation measures concerning their territories, taking into account interactions and trade-offs among ecosystem functions and services, with a view to ensuring positive biodiversity outcomes and equity.</li> <li>• Management to enhance one particular ecosystem function and service does not impact negatively on the sites overall biological diversity.</li> </ul>



<b>Cultural, spiritual, socio-economic and other locally relevant values</b>	<ul style="list-style-type: none"> <li>• Governance and management measures identify, respect and uphold the cultural, spiritual, socioeconomic, and other locally relevant values of the area, where such values exist.</li> <li>• Governance and management measures respect and uphold the knowledge, practices and institutions that are fundamental for the <i>in situ</i> conservation of biodiversity.</li> </ul>
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## C. FURTHER CONSIDERATIONS

### 1. Management approaches

(a) Other effective area-based conservation measures are diverse in terms of purpose, design, governance, stakeholders and management, especially as they may consider associated cultural, spiritual, socio-economic, and other locally relevant values. Accordingly, management approaches for other effective area-based conservation measures are and will be diverse;

(b) Some other effective area-based conservation measures may be established, recognized or managed to intentionally sustain *in situ* conservation of biodiversity. This purpose is either the primary management objective, or part of a set of intended management objectives;

(c) Other effective area-based conservation measures may be established, recognized or managed primarily for purposes other than *in situ* conservation of biodiversity. Thus their contribution to *in situ* conservation of biodiversity is a co-benefit to their primary intended management objective or purpose. It is desirable that this contribution become a recognized objective of the management of the other effective area-based conservation measures;

(d) In all cases where *in situ* conservation of biodiversity is recognized as a management objective, specific management measures should be defined and enabled;

(e) Monitoring the effectiveness of other effective area-based conservation measures is needed. This could include: (i) baseline data, such as documentation of the biodiversity values and elements; (ii) ongoing community-based monitoring, and incorporation of traditional knowledge, where appropriate; (iii) monitoring over the long-term, including how to sustain biodiversity and improve *in situ* conservation; and (iv) monitoring of governance, stakeholder involvement and management systems that contribute to the biodiversity outcomes.

### 2. Role in achieving Aichi Biodiversity Target 11

(a) By definition, other effective area-based conservation measures contribute to both quantitative (i.e. the 17% and 10% coverage elements) and qualitative elements (i.e. representativity, coverage of areas important for biodiversity, connectivity and integration in wider landscapes and seascapes, management effectiveness and equity) of Aichi Biodiversity Target 11;

(b) Since other effective area-based conservation measures are diverse in terms of purpose, design, governance, stakeholders and management, they will often also contribute to other Aichi Biodiversity Targets, targets of the 2030 Agenda for Sustainable Development, and the objectives or targets of other multilateral environmental agreements.<sup>73</sup>

## Annex IV

### CONSIDERATIONS IN ACHIEVING AICHI BIODIVERSITY TARGET 11 IN MARINE AND COASTAL AREAS

These considerations are based upon discussions at the Expert Workshop on Marine Protected Areas and Other Effective Area-based Conservation Measures for achieving Aichi Biodiversity Target 11 in Marine

<sup>73</sup> CBD/PA/EM/2018/1/INF/4 provides many examples of these contributions.

and Coastal Areas as well as background materials prepared for the workshop (see CBD/MCB/EM/2018/1/3).

**A. Unique aspects of the marine environment with relevance to area-based conservation/management measures**

1. While there are similar tools and approaches for area-based conservation/management in marine and terrestrial areas, there exist a number of inherent differences between the marine and terrestrial environments that affect the application of area-based conservation measures. These unique include the following:

- (a) The three-dimensional nature of the marine environment (with maximum depth of almost 11 km in the deep ocean), which is heavily influenced by changes in physicochemical properties, including pressure, salinity and light;
- (b) The dynamic nature of the marine environment, which is influenced by, for example, currents and tides, and facilitates connectivity among ecosystems and habitats;
- (c) Nature of habitat fragmentation and connectivity in the marine environment;
- (d) Lack of visibility and/or remoteness of the features being conserved;
- (e) Primary production in the marine environment is often limited to the coastal zone for habitat forming species with phytoplankton distributed through the pelagic photic zone, while the standing stock in terrestrial environments is widespread and structural. There is also a higher turnover in the primary production of the marine environment, which varies with annual cycles, tied to temperature and currents;
- (f) In terrestrial environments, the atmosphere is well mixed at a much broader scale, whereas mixing in marine environments can change within significantly smaller scales;
- (g) Climate change impacts will affect marine and terrestrial areas very differently, as coastal areas are subject to erosion and storm surge, and protection efforts can be lost as a result of one large weather event. The pervasive impact of ocean acidification can impact the entire standing stock of primary productivity in a marine area, having knock-on effects throughout the food web;
- (h) Differences in resilience and recovery rates of biodiversity and ecosystems;
- (i) Differences in approaches and challenges in monitoring and data collection;
- (j) Potentially different legal regimes for different portions of the same marine areas (e.g., seabed and water column in marine areas beyond national jurisdiction);
- (k) Frequent lack of clear ownership of specific areas in the marine environment, with multiple users and stakeholders, often with overlapping and sometimes competing interests;
- (l) Frequent occurrence of multiple regulatory authorities with competence in a given area;
- (m) Expectation of resource-based “outcomes”: from an economic perspective, area-based conservation measures in the marine environment are expected, in many cases, to improve fishery resources and restore productivity. In terrestrial environments, the focus is largely on protecting animals without the expectation that they can be harvested once populations increase.

**B. Main types of area-based conservation measures in marine and coastal areas**

2. There exist a number of different types of area-based conservation/management measures that are applied in marine and coastal areas. Such measures can be categorized in different ways and are not necessarily mutually exclusive. These area-based conservation/management measures can be generally categorized as:

(a) *Marine and coastal protected areas*: Article 2 of the Convention defines a “protected area” as a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives;

(b) *Territories and areas governed and managed by indigenous peoples and local communities*: in these types of approaches, some or all of the governance and/or management authority is often ceded to the indigenous peoples and local communities, and conservation objectives are often tied to food security and access to resources for indigenous peoples and local communities;

(c) *Area-based fisheries management measures*: these are formally established, spatially defined fishery management and/or conservation measures, implemented to achieve one or more intended fishery outcomes. The outcomes of these measures are commonly related to sustainable use of the fishery. However, they can also often include protection of, or reduction of impact on, biodiversity, habitats, or ecosystem structure and function;

(d) *Other sectoral area-based management approaches*: there are a range of area-based measures applied in other sectors at different scales and for different purposes. These include, for example, Particularly Sensitive Sea Areas (areas designated by the International Maritime Organization for protection from damage by international maritime activities because of ecological, socioeconomic or scientific significance), Areas of Particular Environmental Interest (areas of the seafloor designated by the International Seabed Authority for protection from damage by deep-seabed mining because of biodiversity and ecosystem structure and function), approaches within national work on marine spatial planning, as well as conservation measures in other sectors.

### **C. Approaches for accelerating progress towards Aichi Biodiversity Target 11 in marine and coastal areas**

3. The following approaches could accelerate national progress in achieving Aichi Biodiversity Target 11 in marine and coastal areas, recognizing that these are not exhaustive and that there are other sources of guidance on these issues:

#### *1. Providing an adequate base of information*

(a) Identify the information that is needed to address qualitative elements, including information on biodiversity, ecosystems and biogeography as well as information on current threats to biodiversity and potential threats from new and emerging pressures;

(b) Synthesize and harmonize various types of information, with free, prior and informed consent, when this applies to the knowledge of indigenous peoples as appropriate and consistent with national policies, regulations and circumstances, including information on ecologically or biologically significant marine areas (EBSAs), Key Biodiversity Areas (KBAs), vulnerable marine ecosystems (VMEs), Particularly Sensitive Sea Areas (PSSAs), Important Marine Mammal Areas (IMMAs);

(c) Develop and/or improve mechanism(s) for standardizing, exchanging and integrating information (e.g., clearing-house mechanisms, the Global Ocean Observing System and other monitoring systems).

#### *2. Engagement of rights-holders and stakeholders*

(a) Identify relevant rights-holders and stakeholders, considering livelihoods, cultural and spiritual specificities at various scales;

(b) Develop and foster communities of practice and rights-holder and stakeholder networks that will facilitate mutual learning and exchange and also support governance, monitoring, enforcement, reporting and assessment;

(c) Build a common understanding across rights-holders and stakeholders of the objectives and expected outcomes;

(d) Foster and support strong social and communication skills in managers and practitioners of marine protected areas and other effective area-based conservation measures.

### *3. Governance, monitoring and enforcement*

(a) Identify the policies and management measures in place, including those outside of the protected/conserved areas;

(b) Make better use of new developments in open source data (e.g., satellite information) in accordance with national legislation;

(c) Build and/or strengthen global monitoring mechanisms and partnerships to reduce the overall costs of monitoring;

(d) Engage indigenous peoples and local communities, as well as respected local leaders, in monitoring and enforcement, and enhance the capacity of local communities to conduct monitoring, in accordance with national legislation;

(e) Enhance the capacity of scientists to use indigenous and local knowledge, respecting the appropriate cultural contexts;

(f) Build the capacities of managers and practitioners;

(g) Facilitate collaboration, communication and exchange of best practices among managers and practitioners;

(h) Identify gaps and barriers to effective governance and compliance;

(i) Make use of existing standards and indicators, and improve the visibility and uptake of various global and regional standards to facilitate common approaches across different scales;

(j) Recognize and support the role of indigenous peoples and local communities in governance, monitoring and enforcement, in accordance with national legislation.

### *4. Assessing and reporting progress in achieving the qualitative aspects of Aichi Biodiversity Target 11*

#### *Assessment*

(a) Ensure the appropriate conditions are in place to facilitate assessment and analysis (e.g., legal basis, policies, conservation objectives and expertise);

(b) Develop a common understanding of what effectiveness means across stakeholder groups, in line with the objectives of the protected/conserved areas;

(c) Develop clear, reliable and measurable indicators for assessing the effectiveness of the protected/conserved areas in achieving their objectives;

(d) Develop standardized approaches for assessment across mechanisms/processes;

(e) Assess protected/conserved areas at the network scale and at the level of individual areas;

(f) Develop and foster communities of practice to support assessment;

#### *Reporting*

(a) Improve the frequency and accuracy of reporting, including by maximizing the use of existing reporting mechanisms;

(b) Enhance the visibility of reporting to encourage analysis by a range of experts across disciplines;

(c) Ensure that management is effectively informed by reporting and analysis through appropriate feedback mechanisms in order to facilitate adaptive management;

(d) Build the capacity of developing countries to undertake reporting and management effectiveness analyses;

(e) Build the political will to support timely and effective reporting, including through specific government commitments for regular and adequate reporting;

(f) Engage indigenous peoples and local communities in reporting and assessment;

(g) Develop standardized approaches to reporting across mechanisms/processes;

(h) Develop and foster communities of practice to support reporting.

4. The following approaches could accelerate national progress in achieving Aichi Target 11 in marine and coastal areas, in particular with regard to ensuring the effective integration of marine protected areas and other effective area-based conservation measures into wider landscapes and seascapes, recognizing that these are not exhaustive and that there are other sources of guidance on these issues:

(a) Identify how marine protected areas and other effective area-based conservation measures fit into and enhance landscape and seascape planning frameworks, including marine spatial planning, integrated coastal management, and systematic conservation planning;

(b) Assess what information is needed and identify the best scale(s) for collecting information, including on: existing legal and policy frameworks; ecological and biological features, and areas of specific conservation interest; uses and activities in the wider landscape and seascape and in specific areas of conservation interest, relevant stakeholders active in or with interest in the wider landscape and seascape, and potential interactions among human uses; cumulative impacts across a range of spatial scales, and responses and resilience/vulnerability of systems to increasing human use and natural forces; and connectivity within and outside the landscape and seascape;

(c) Identify available sources of data and information (including traditional and local knowledge), identify information gaps and compile available data, models and other relevant information, and develop and/or improve user-friendly, open-source, efficient and transparent tools for data visualization and integration;

(d) Recognize and understand diverse value systems;

(e) Ensure the full and effective engagement of indigenous peoples and local communities;

(f) Develop a common understanding among stakeholders regarding the objectives of integrating marine protected areas and other effective area-based conservation measures into the wider landscape and seascape;

(g) Ensure that all activities are accountable for their impacts, both within and outside marine protected areas and other effective area-based conservation measures;

(h) Develop clear, reliable, and measurable indicators for assessing the effectiveness of the marine protected areas and other effective area-based conservation measures in achieving their objectives, and for assessing the status of the wider landscape and seascape;

5. The following are approaches for managing the wider landscape and seascape in order to ensure that marine protected areas and other effective area-based conservation measures are effective, recognizing that these are not exhaustive and that there are other sources of guidance on these issues:

(a) Develop and/or enhance integrated governance and management to support landscape and seascape planning, and coordinate planning, objective-setting, and governance across geographic scales;

(b) Develop and/or refine decision-support tools for landscape and seascape planning;

(c) Ensure that relevant legislation is in place and enforced;

- (d) Understand and assess the status of use and management of the wider landscape and seascape and identify areas in need of enhanced protection;
- (e) Conduct threat assessments, and use a mitigation hierarchy;
- (f) Evaluate the relative compatibility and/or incompatibility of existing and proposed uses, as well as the interactions and impacts of broader environmental change (e.g., climate change);
- (g) Understand conflicts and displacement of livelihoods and identify relevant approaches to provide alternative livelihoods and compensation;
- (h) Communicate with and involve relevant stakeholders across the wider landscape and seascape in an accessible, effective and appropriate manner;
- (i) Ensure that planning and management is in line with the range of cultures and value systems in the wider landscape and seascape;
- (j) Identify and engage local/national leaders and champions;
- (k) Build and/or enhance capacity to support wider landscape and seascape planning.

**D. Lessons from experiences in the use of various types of area-based conservation/management measures in marine and coastal areas**

6. The following lessons from experiences in various types of area-based conservation/management measures in marine and coastal areas were highlighted:

- (a) For various types of area-based conservation/management measures (with differences in area, duration and degree of restriction), performance in terms of protecting biodiversity can be highly variable and is often due to the ecological, socioeconomic, and governance context of the area, and the nature of implementation of the measure;
- (b) Although increases in the area, duration and degree of restriction will generally increase the protection of many biodiversity components, the ecosystem impacts of the human activities displaced by the exclusions may also increase in the areas where those activities continue. Effective overall conservation planning needs to include all these considerations;
- (c) Well-designed and implemented measures can be effective even if the areas are not large and with permanent restrictions, and poorly designed or implemented measures can be ineffective, regardless of their scale;
- (d) Evaluation of the effectiveness of area-based conservation measures should be done on a case-by-case basis, taking into account the characteristics of the measure(s) being implemented and the context in which it is implemented, with shared responsibility;
- (e) The key features of the area to consider in the evaluation of specific applications of an area-based conservation/management measure include:
  - (i) The ecological components of special conservation concern in both the specific area and the larger region, in relation to adjacent ecosystems and how the measure could contribute to their conservation;
  - (ii) The size, duration, extent of restrictions and placement of the area;
  - (iii) The ability of the management authority to implement the measure if adopted, and monitor and provide enforcement in the area while the measure is in place;
  - (iv) The potential contributions the measure could make to benefit local populations and sustainable use, in addition to conservation;
- (f) Important attributes of the context in which the measure would be applied that also should be taken into account in the case-by-case evaluations include:

- (i) The extent to which the measure was developed within the ecosystem approach, and is well integrated with the other measures being used;
  - (ii) The extent to which the measure was developed using the best scientific information and indigenous and local knowledge available, and an appropriate application of precaution;
  - (iii) The degree of protection that the measure offers to the biodiversity components of high priority, taking into account other actual or potential threats in the same area, and, when relevant, outside the area;
  - (iv) The governance processes leading to development and adoption of the measure, and their implications for compliance and cooperation with the measure.
- (g) It is important that conservation outcomes are supported by strong evidence, and that flexibility is provided in order to design context-specific measures that address more than one objective rather than relying on prescriptive input requirements;
- (h) It is important that adequate monitoring and evaluation frameworks are built into the design of area-based conservation/management measures in order to build reliable evidence that they are achieving conservation outcomes.

**22/6. Marine and coastal biodiversity***The Subsidiary Body on Scientific, Technical and Technological Advice*

1. *Recalls* paragraph 13 of decision XIII/12, and paragraphs 8 and 11 of decision XII/22;
2. *Requests* the Executive Secretary to prepare a draft revision, as necessary, of the terms of reference of the informal advisory group on ecologically or biologically significant marine areas,<sup>74</sup> based on recommendations by the Subsidiary Body with respect to the tasks and responsibilities outlined concerning the modification of existing ecologically or biologically significant marine areas and the description of new ecologically or biologically significant marine areas, as proposed in the annex to these recommendations, and submit the draft revision for the consideration of the Conference of the Parties at its fourteenth meeting;
3. *Recommends* that the Conference of the Parties at its fourteenth meeting adopt a decision along the following lines:

*The Conference of the Parties,***Ecologically or biologically significant marine areas**

*Reaffirming decisions X/29, XI/17, XII/22 and XIII/12 on ecologically or biologically significant marine areas,*

*Reiterating* the central role of the General Assembly of the United Nations in addressing issues relating to the conservation and sustainable use of biodiversity in marine areas beyond national jurisdiction,

*[Recalling that United Nations General Assembly resolution 64/71 reaffirms that the United Nations Convention on the Law of the Sea sets out the legal framework within which all activities in the oceans and seas must be carried out,]*

1. *Welcomes* the scientific and technical information contained in the summary reports prepared by the Subsidiary Body on Scientific, Technical and Technological Advice at its twenty-second meeting, annexed to the present draft decision,<sup>75</sup> based on the reports of the two regional workshops for describing ecologically or biologically significant marine areas in the Black Sea and the Caspian Sea, and in the Baltic Sea,<sup>76</sup> and *requests* the Executive Secretary to include the summary reports in the EBSA repository, and to submit them to the United Nations General Assembly and its relevant processes, as well as Parties, other Governments and relevant international organizations, in line with the purpose and procedures set out in decisions [X/29](#), [XI/17](#), [XII/22](#) and [XIII/12](#);
2. *Also welcomes* the report of the Expert Workshop to Develop Options for Modifying the Description of Ecologically or Biologically Significant Marine Areas, for Describing New Areas, and for Strengthening the Scientific Credibility and Transparency of this Process,<sup>77</sup> held in Berlin from 5 to 8 December 2017, and *[endorses][takes note of]* the set of options, as contained in the annex to the present decision;
3. *Requests* the Executive Secretary to work with Parties, other Governments and relevant organizations to facilitate implementation of this set of options through the provisioning of scientific and technical support to Parties, other Governments and relevant competent intergovernmental organizations, as appropriate;

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<sup>74</sup> Decision XIII/12, annex III.

<sup>75</sup> CBD/SBSTTA/22/7/Add.1.

<sup>76</sup> CBD/EBSA/WS/2017/1/3 and CBD/EBSA/WS/2018/1/4.

<sup>77</sup> CBD/EBSA/EM/2017/1/3.



4. *Calls for* further collaboration and information-sharing among the Secretariat of the Convention on Biological Diversity, the Food and Agriculture Organization of the United Nations, the International Maritime Organization and the International Seabed Authority, as well as regional fishery bodies, regional seas conventions and actions plans, and other relevant international organizations, regarding the use of scientific information related to ecologically or biologically significant marine areas [in the application of relevant area-based management tools], with a view to contributing to the achievement of the Aichi Biodiversity Targets and relevant Sustainable Development Goals;

5. *Reaffirms* that the sharing of the outcomes of the process under the Convention for the description of areas meeting the criteria for ecologically or biologically significant marine areas does not prejudice the sovereignty, sovereign rights or jurisdiction of coastal States, or the rights of other States;

### **Other matters**

6. *Takes note* of the continued work of the Executive Secretary on the compilation and synthesis of information related to:

(a) The impacts of anthropogenic underwater noise on marine and coastal biodiversity, and means to minimize and mitigate these impacts;<sup>78</sup>

(b) Experiences with the application of marine spatial planning;<sup>79</sup>

7. *Encourages* Parties, other Governments and relevant organizations to use this information, including in their efforts to minimize and mitigate the impacts of anthropogenic underwater noise and to apply marine spatial planning;

8. *Recalls* decisions XIII/10 on marine debris and XIII/11 on biodiversity in cold-water areas, *notes* the outcomes of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14,<sup>80</sup> and *urges* Parties to increase their efforts with regard to:

(a) Minimizing and mitigating the impacts of marine debris, in particular plastic pollution, on marine and coastal biodiversity;

(b) Addressing the potential impacts of deep-seabed mining on marine biodiversity;

(c) Protecting biodiversity in cold-water areas;

9. *Requests* the Executive Secretary to inform the United Nations Environment Assembly's Ad Hoc Open-Ended Expert Group on Marine Litter of the relevant work undertaken by the Convention, and also to participate, as relevant, in the work of the Expert Group;<sup>81</sup>

10. *Welcomes* the work of the Executive Secretary in compiling information on the mainstreaming of biodiversity in fisheries, including through the ecosystem approach to fisheries,<sup>82</sup> and *encourages* Parties and *invites* other Governments and relevant organizations to make use of this information;

<sup>78</sup> CBD/SBSTTA/22/INF/13.

<sup>79</sup> CBD/SBSTTA/22/INF/14.

<sup>80</sup> See General Assembly resolution [71/312](#) of 6 July 2017.

<sup>81</sup> *Noting* United Nations Environment Assembly resolution 3/7 on marine litter and microplastics and, in particular, the invitation to relevant international and regional organizations and conventions, including the Convention on Biological Diversity, as appropriate within their mandates, to increase their actions to prevent and reduce marine litter and microplastics and their harmful effects, and coordinate, where appropriate, to achieve this end, as well as the decision to convene an Ad Hoc Open Ended Expert Group under the United Nations Environment Assembly to further examine the barriers to, and options for, combating marine plastic litter and microplastics from all sources, especially land-based sources.

<sup>82</sup> "Compilation and synthesis of experiences in mainstreaming biodiversity in fisheries" (CBD/SBSTTA/22/INF/15).

11. *Welcomes* the capacity-building and partnership activities being facilitated by the Executive Secretary through the Sustainable Ocean Initiative at the national, regional and global levels in collaboration with Parties, other Governments and relevant organizations, *expresses its gratitude* to the Governments of Japan, France, the Republic of Korea and Sweden, and to the European Union and many other partners, for providing financial and technical support for the implementation of activities related to the Sustainable Ocean Initiative, and *requests* the Executive Secretary to continue these activities under specific themes within the framework of the Sustainable Ocean Initiative;

12. *Also welcomes* the collaborative efforts among the Secretariat, the United Nations Environment Programme, the Food and Agriculture Organization of the United Nations, regional seas conventions and action plans, regional fisheries bodies, large marine ecosystem projects/-programmes and other relevant regional initiatives to strengthen cross-sectoral cooperation at the regional scale in order to accelerate progress to achieve the Aichi Biodiversity Targets and relevant Sustainable Development Goals,<sup>83</sup> including through the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies, and *requests* the Executive Secretary to transmit the outcomes of the first and second meetings of the Sustainable Ocean Initiative Global Dialogue to relevant global and regional processes, and to collaborate with Parties, other Governments, relevant organizations and donors to facilitate on-the-ground implementation of these outcomes;

13. *Invites* the Food and Agriculture Organization of the United Nations and regional fisheries bodies to contribute scientific information, experiences and lessons learned, as appropriate, including relevant reporting from the Code of Conduct for Responsible Fisheries Questionnaire, as an input for the fifth edition of the *Global Biodiversity Outlook*;

14. *Welcomes* the cooperation between the Food and Agriculture Organization of the United Nations, the Fisheries Expert Group of the Commission of Ecosystem Management under the International Union for Conservation of Nature, and the Secretariat to support, and improve reporting on, the achievement of Aichi Biodiversity Target 6, and *requests* the Executive Secretary to continue this cooperation.

#### *Annex*

### **OPTIONS FOR MODIFYING THE DESCRIPTION OF ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS, FOR DESCRIBING NEW AREAS, AND FOR STRENGTHENING THE SCIENTIFIC CREDIBILITY AND TRANSPARENCY OF THIS PROCESS**

#### **I. MODIFICATION OF EBSA DESCRIPTIONS**

##### **A. Introduction**

1. The description of areas meeting the criteria for an ecologically or biologically significant marine area (EBSA)<sup>84</sup> comprises both a textual description and a polygon of the area, as contained in the relevant decisions of the Conference of the Parties to the Convention, including decisions XI/17, XII/22, and XIII/12, and included in the EBSA repository.

2. Modifications of EBSA descriptions constitute modifications affecting the textual descriptions of the areas meeting the EBSA criteria, as contained in the decisions noted above, and/or the polygons of the areas contained in the EBSA repository. The descriptions contained in the EBSA repository, as requested by the Conference of the Parties in decisions XI/17, XII/22 and XIII/12, can be modified through decisions by the Conference of the Parties.

<sup>83</sup> See General Assembly resolution [70/1](#) of 25 September 2015 entitled “Transforming our world: the 2030 Agenda for Sustainable Development”.

<sup>84</sup> As described in decision XIII/12, footnote 1.

### **B. Reasons for modification of EBSA descriptions**

3. Reasons for the modification of EBSA descriptions are the following:

- (a) There is newly available/accessible scientific and technical information, including through advanced expertise, methodological approaches or analytical methods, as well as newly accessible [indigenous and local][traditional] knowledge, on features associated with an area;
- (b) There has been a change in the information that was used in the description of the EBSA;
- (c) There has been a change in the ecological or biological feature(s) of an EBSA, which may lead to a change in the ranking of the area against the EBSA criteria or a change in the polygon of the area;
- (d) There have been scientific errors identified in EBSA descriptions;
- (e) There have been modifications to the EBSA template;
- (f) Any other reason based on scientific and technical information.

### **C. Actors that can propose modification of EBSA descriptions**

4. The following actors can propose, at any time, modification of EBSA descriptions:

#### **Option 1**

- [(a) For EBSAs within national jurisdiction: the coastal State [with jurisdiction over the area];
- (b) For EBSAs within the national jurisdiction of multiple States: the coastal State(s) in whose jurisdiction the modification is proposed, in consultation with the other State(s) concerned;
- (c) For EBSAs in areas beyond national jurisdiction: any State and/or competent intergovernmental organization(s), with provision of notice to all States, [without prejudice to developments in the [United Nations General Assembly process on biodiversity in marine areas beyond national jurisdiction] [*Intergovernmental Conference on an International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of the Areas Beyond National Jurisdiction*]];
- (d) For EBSAs with features in areas both within and beyond national jurisdiction: relevant State(s) and/or competent intergovernmental organizations, in consultation with the relevant State(s).]

#### **Option 2**

- [(a) For EBSAs, or parts of EBSAs, within national jurisdiction: coastal State [which exercises sovereignty, sovereign rights or] [with] jurisdiction over the area;
- (b) For EBSAs, or parts of EBSAs, in areas beyond national jurisdiction: Any State and/or competent intergovernmental organization, with provision of notice to all States, without prejudice to developments in the [United Nations General Assembly process on biodiversity in marine areas beyond national jurisdiction] [*Intergovernmental Conference on an International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of the Areas Beyond National Jurisdiction*].]

5. Knowledge holders, including scientific research organizations, non-governmental organizations and holders of [indigenous and local][traditional] knowledge, should be encouraged to draw the attention of actors defined in subsection C, paragraph 4 above to any of the above reasons for modifying existing EBSA descriptions and to support those actors, if requested, in the preparation of modification proposals.

### **D. Modalities for the modification process**

6. The modalities for modifying EBSA descriptions are the following:

For areas beyond national jurisdiction and, where the coastal States so wish, for areas within national jurisdiction:

(a) The Secretariat compiles the proposals for modifications made by the actors defined in subsection C, paragraph 4;

(b) On the basis of the compiled proposals, the informal advisory group advises the Executive Secretary on the proposed modification, in line with guidance/criteria on significant or minor modifications developed by the informal advisory group on EBSAs;

(c) Modalities for significant or minor modifications are as follows:

(i) For a significant modification: The procedure outlined in section II, paragraph 11 (c) and (d) of this document will be utilized. The CBD Secretariat convenes a workshop following the procedures for regional workshops contained in decision X/29, the report of which is submitted to SBSTTA and COP for their consideration;

(ii) For a minor modification: The CBD Secretariat prepares, after consulting the relevant State(s) or regional experts, a report on modifications, which is submitted to SBSTTA and COP for their consideration.

For areas within national jurisdiction:

[(a) Building on the procedure set out in paragraph 7 of decision XII/22, the coastal State may provide an update of the description contained in the EBSA repository or the information-sharing mechanism, as per the reasons outlined above, and submit information on the scientific and technical process, as well as the peer-review process, supporting the update, [for the subsequent consideration of SBSTTA and COP.] [and *request* the Executive Secretary to include it in the repository or the information-sharing mechanism and submit a progress report to SBSTTA and COP]

### **E. Key considerations for modifications**

7. Parties and other Governments, as well as competent intergovernmental organizations, should be informed of the submission of any proposals for the modification of EBSA descriptions through a CBD notification and the EBSA website ([www.cbd.int/ebsa](http://www.cbd.int/ebsa)).

8. The following considerations need to be taken into account:

(a) The importance of incorporating [indigenous and local][traditional] knowledge in the process of modification of EBSA descriptions, and ensuring the full and effective participation of indigenous peoples and local communities;

(b) Enhancing the incorporation of [indigenous and local][traditional] knowledge may require revision of the EBSA template;

(c) The need for a strong scientific and technical basis, including based on [indigenous and local][traditional] knowledge, for any proposed modification;

(d) The importance of transparency in the modification process;

(e) Opportunities to use cost-effective modalities;

(f) The need to maintain a record of information about any previously described EBSAs that were modified or deleted from the repository.

## **II. DESCRIPTION OF NEW AREAS MEETING THE EBSA CRITERIA**

### **A. Actors that can initiate the description of new areas meeting the EBSA criteria**

9. The following actors can initiate the description of new areas meeting the EBSA criteria:

#### **Option 1**

[(a) Within national jurisdiction: the coastal State [with jurisdiction over the area];

(b) Within the national jurisdiction of multiple States: coastal States in whose jurisdiction the description is proposed in consultation with the other State(s) concerned;

(c) In areas in beyond national jurisdiction: any State and/or competent intergovernmental organization(s), with provision of notice to all States, [without prejudice to developments in the [United Nations General Assembly process on biodiversity in marine areas beyond national jurisdiction] *[Intergovernmental Conference on an International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of the Areas Beyond National Jurisdiction]*];

(d) For areas with features both within and beyond national jurisdiction: State(s) and/or competent intergovernmental organizations; in consultation with the other State(s) concerned];

## **Option 2**

[(a) Within national jurisdiction: coastal State [which exercises sovereignty, sovereign rights or] [with] jurisdiction over the area;

(b) In areas beyond national jurisdiction: any State and/or competent intergovernmental organization, with provision of notice to all States, without prejudice to developments in the [United Nations General Assembly process on biodiversity in marine areas beyond national jurisdiction:] *[Intergovernmental Conference on an International Legally Binding Instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction]*;]

10. Knowledge holders, including scientific research organizations, non-governmental organizations and holders of [indigenous and local][traditional] knowledge, should be encouraged to draw the attention of actors defined in subsection A, paragraph 9, to any of the needs/reasons to initiate the description of new areas meeting the EBSA criteria.

### **B. Modalities to undertake the description of new areas meeting the EBSA criteria**

11. Modalities for the description of new areas include the following steps:

(a) New information is submitted (using the EBSA template), at any time, to the Secretariat;

(b) Any proposals for the description of new areas is transmitted by the Secretariat to Parties, other Governments, relevant competent intergovernmental organizations and the informal advisory group on EBSAs;

(c) The informal advisory group on EBSAs reviews the proposals and advises when a new regional workshop is needed. A scientific gap analysis can inform this review process and identify the need for thematic analysis, which can complement regional workshops;

(d) The description of new areas through regional workshops follows the existing process of submission to the Subsidiary Body on Scientific, Technical and Technological Advice and the Conference of the Parties for consideration and possible inclusion in the EBSA repository.

12. National exercises for describing new areas meeting the EBSA criteria are described in section III, subsection C below.

### **C. Key considerations for the description of new areas meeting the EBSA criteria**

13. The following considerations need to be taken into account:

(a) Parties and other Governments, as well as competent intergovernmental organizations, should be informed of any submission of proposals for the description of new areas through a CBD notification and the EBSA website ([www.cbd.int/ebsa](http://www.cbd.int/ebsa));

(b) The importance of incorporating [indigenous and local][traditional] knowledge in the process of new EBSA descriptions, and ensuring the full and effective participation of indigenous peoples and local communities;

(c) The need for a strong scientific and technical basis for any new proposal;

- (d) The importance of transparency in the process for new description;
- (e) Opportunities to use cost-effective modalities;
- (f) Inter-regional differences in data availability and research efforts should be taken into account when describing new EBSAs.

### **III. OPTIONS FOR STRENGTHENING THE SCIENTIFIC CREDIBILITY AND TRANSPARENCY OF THE EBSA PROCESS**

#### **A. Scientific credibility of the EBSA process**

14. With regard to strengthening the scientific credibility of the EBSA process, the following could be undertaken:

- (a) Planning of workshops in collaboration with the informal advisory group on EBSAs to ensure the provisioning of scientific information and [indigenous and local][traditional] knowledge at appropriate scales;
- (b) Specifically addressing any imbalance across areas of expertise, including by exploring possible linkages with the CBD Global Taxonomy Initiative and strengthening networks with other relevant organizations, as appropriate.

15. The following considerations need to be taken into account:

- (a) Furthering cooperation with Ocean Biogeographic Information System of the Intergovernmental Oceanographic Commission of UNESCO in accessing scientific information in support of regional workshops;
- (b) Strengthening guidance, and, where necessary, mobilizing resources, for preparations at the national and regional level prior to a regional workshop in order to ensure the timely gathering of scientific information and [indigenous and local][traditional] knowledge;
- (c) Providing pre-workshop training;
- (d) Using the training manual on the incorporation of traditional knowledge into the description and identification of EBSAs (UNEP/CBD/SBSTTA/20/INF/21);
- (e) The application of the EBSA criteria can be strengthened by referencing, as much as possible, peer reviewed publications and by incorporating [indigenous and local][traditional] knowledge.

#### **B. Transparency of the EBSA process**

16. The transparency of the EBSA process can be strengthened by making available the following:

- (a) List of experts who have contributed to describing new, or reviewing existing, descriptions;
- (b) Information on free prior informed consent of indigenous peoples and local communities when [indigenous and local][traditional] knowledge was incorporated in the EBSA description;
- (c) The geographic scope of regional workshops in the repository;
- (d) Access to data/information (e.g., satellite images, links to referenced academic papers, documentation of [indigenous and local][traditional] knowledge) used by the regional workshops;
- (e) When national processes were used to describe EBSAs, the descriptions are to be accompanied by an explanation of the national processes, including how peer-review of the results was conducted.

#### **C. National exercises**

17. The results of national exercises can be included in either the EBSA repository or information-sharing mechanism through one of the following paths:

For inclusion in the EBSA repository

(a) [If the Parties so wish,] the results of their national exercises are submitted to a regional workshop, followed by consideration by the Subsidiary Body on Scientific, Technical and Technological Advice and the Conference of the Parties for possible inclusion in the EBSA repository;

(b) Building on the procedure set out in paragraph 7 of decision XII/22, the Coastal State may submit the results of national exercises on the description of areas meeting the EBSA criteria, together with information on the scientific and technical process as well as the national peer-review process, supporting the description, [for the consideration of SBSTTA and COP, for possible inclusion in the EBSA repository] [and *request* the Executive Secretary to include them in the repository and submit a progress report to SBSTTA and COP.]

For inclusion in the EBSA information-sharing mechanism

(a) Peer-review by the relevant Parties and other Governments, facilitated by the CBD Secretariat, for inclusion in the information-sharing mechanism.

18. There is a need for:

(a) Capacity-building in best practices for the application of the EBSA criteria at the national level, particularly in developing countries;

(b) Incentives to enhance accessibility of local/national information;

(c) Inter-agency coordination for effective national exercises;

(d) Financial resources for national exercises.

#### **IV. CAPACITY-BUILDING NEEDS FOR THE MODIFICATION OF EBSA DESCRIPTIONS AND THE DESCRIPTION OF NEW EBSAS**

19. Capacity-building needs with regard to the modification of EBSA descriptions and the description of new EBSAs include:

(a) Use of scientific and technical information and [indigenous and local][traditional] knowledge to describe areas meeting the EBSA criteria and modify EBSA descriptions;

(b) Awareness and understanding of the EBSA process;

(c) Dialogue between the holders of [indigenous and local] [traditional] knowledge and scientists on the use of [indigenous and local][traditional] knowledge in the description of EBSAs and modification of EBSA descriptions;

(d) Understanding the links between the EBSA process and other relevant processes.

## **22/7. Biodiversity and climate change: ecosystem-based approaches to climate change adaptation and disaster risk reduction**

The Subsidiary Body on Scientific, Technical and Technological Advice recommends that the Conference of the Parties at its fourteenth meeting adopt a decision along the following lines:

*The Conference of the Parties,*

*Recognizing* the critical role of biodiversity and ecosystem functions and services for human well-being,

*Deeply concerned* that failing to hold the increase in the global average temperature to well below 2°C above pre-industrial levels would place many species and ecosystems, with limited adaptive capacity, under very high risk,

*Recognizing* that, limiting the global average temperature increase to 1.5°C compared to 2°C above pre-industrial levels could reduce the negative impacts on biodiversity, especially in the most vulnerable ecosystems, such as small island and arctic ecosystems,

1. *Adopts* the voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction, contained in the annex to the present decision;

2. *Encourages* Parties, other Governments and relevant organizations, taking into account domestic priorities, circumstances and capabilities, to make use of the voluntary guidelines, in line with the ecosystem approach,<sup>85</sup> when designing and implementing ecosystem-based approaches to climate change adaptation and disaster risk reduction, recognizing that this may also contribute to climate change mitigation;

3. *Also encourages* Parties, other Governments and relevant organizations, when undertaking the design, implementation and monitoring of ecosystem-based approaches to climate change adaptation and disaster risk reduction:

(a) To conduct such activities with the full and effective participation of indigenous peoples and local communities, including indigenous women and youth, appropriately recognizing and supporting the governance, management and conservation of the territories and areas of indigenous peoples and local communities; to encourage activities at the local level led by indigenous peoples and local communities; and to include consideration and integration of indigenous and traditional knowledge, practices and institutions, subject to the free, prior and informed consent of indigenous peoples and local communities, as appropriate, and consistent with national policies, regulations and national circumstances;

(b) To ensure that the activities do not contribute to the drivers of biodiversity and ecosystem damage and loss, such as the introduction of invasive alien species or unsustainable forestry and agriculture, among others;

(c) To take into account transboundary approaches at the regional level;

(d) To enhance synergies among different policies and implementation strategies;

(e) To engage broadly with civil society organizations, the private sector and other key actors;

(f) To encourage, where relevant, activities at the local level which support vulnerable groups, including women, youth and the elderly;

4. *Encourages* Parties, pursuant to decisions [IX/16](#), [X/33](#), [XII/20](#), [XIII/4](#) and [XIII/5](#), to further strengthen their efforts:

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<sup>85</sup> [Decision VII/11](#).



(a) To identify regions, ecosystems and components of biodiversity that are or will become vulnerable to climate change, and assess the current and future threats to and impacts on biodiversity and biodiversity-based livelihoods, as a result of climate change, while taking into account their important contribution to climate change adaptation and disaster risk reduction;

(b) To integrate climate change concerns and related national priorities into national biodiversity strategies and action plans and to integrate biodiversity considerations into national policies, strategies and plans on climate change;

(c) To promote ecosystem restoration and sustainable management post-restoration;

(d) To take appropriate actions to address and reduce the negative impacts of climate change, and to enhance the positive and minimize the negative impacts of climate change mitigation and adaptation activities on ecosystem functions and services, biodiversity and biodiversity-based livelihoods;

(e) To put in place monitoring systems and/or tools to monitor and assess the impacts of climate change on biodiversity and biodiversity-based livelihoods, in particular those of indigenous peoples and local communities, as well as to assess the effectiveness of ecosystem-based approaches for adaptation, mitigation and disaster risk reduction;

(f) To include information on the above in their reports to the Convention;

5. *Also encourages* Parties and other Governments:

(a) To foster a coherent, integrated and co-beneficial implementation of the actions under the Paris Agreement,<sup>86</sup> the 2030 Agenda for Sustainable Development,<sup>87</sup> other relevant international frameworks, and the Convention on Biological Diversity, including the Strategic Plan for Biodiversity 2011-2020<sup>88</sup> and the future post-2020 global biodiversity framework;

(b) To integrate ecosystem-based approaches when updating their nationally determined contributions, where appropriate, and pursuing domestic climate action under the Paris Agreement, taking into account the importance of ensuring the integrity and functionality of all ecosystems, including oceans, and the protection of biodiversity;

6. *Welcomes* the assessment by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on land degradation and restoration, and *endorses* its key messages that support ecosystem-based approaches to climate change adaptation, mitigation and disaster risk reduction;

7. *Encourages* Parties to collaborate on the conservation, restoration and wise/sustainable use of wetlands so that their importance, within the context of climate change and disaster risk reduction, is recognized, and to support the initiative for a joint declaration on the collaboration on peatland conservation, restoration and wise use in the context of climate change and disaster risk reduction among relevant multilateral environmental agreements;<sup>89</sup>

8. *Invites* Parties to provide, on a voluntary basis, information on activities carried out to implement the voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction, and the results produced, and to make this information available through the clearing-house mechanism and other relevant platforms;

9. *Also invites* the Friends of Ecosystem-based Adaptation and the Partnership for Environment and Disaster Risk Reduction, and their respective members, to continue to support Parties in

<sup>86</sup> United Nations, *Treaty Series*, Registration No. I-54113.

<sup>87</sup> See General Assembly resolution 70/1 of 25 September 2015.

<sup>88</sup> [Decision X/2](#).

<sup>89</sup> Wording is pending the consideration of this item by the Conference of the Contracting Parties to the Ramsar Convention on Wetlands at its thirteenth meeting, in October 2018.

their efforts to promote ecosystem-based approaches to climate change adaptation and disaster risk reduction;

10. *Requests* the Executive Secretary, subject to the availability of resources, and *invites* Parties, other Governments and international organizations, in a position to do so, to support Parties in undertaking ecosystem-based approaches to climate change adaptation and disaster risk reduction by making use, among other things, of the voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction and by, among other things, at all relevant levels:

- (a) Providing capacity-building;
- (b) Promoting awareness-raising;
- (c) Supporting the use of tools, including community-based monitoring and information systems of indigenous peoples and local communities;
- (d) Supporting, in particular, developing countries, especially least developed countries and small island developing States, taking into account the needs of countries that are most vulnerable to climate change;

11. *Requests* the Executive Secretary, in collaboration with Parties, other Governments, the secretariats of relevant multilateral environmental agreements, and other organizations:

- (a) To update, the guidance, tools and information on initiatives available in the voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction<sup>90</sup>, as necessary, and based on information provided by Parties in accordance with paragraph 8;
- (b) To compile case studies at national, regional and international levels on the implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction;
- (c) To make the above available through the clearing-house mechanism;

12. [*Also requests* the Executive Secretary, subject to the availability of resources:

- (a) To review new scientific and technical information with respect to the impacts of climate change on biodiversity, the role of ecosystems for climate change adaptation, mitigation and disaster risk reduction, and ecosystem restoration and sustainable land management, including by taking into account the findings of the special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty published by the Intergovernmental Panel on Climate Change;
- (b) To prepare a report on potential implications of the above for the work of the Convention for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting to be held prior to the fifteenth meeting of the Conference of the Parties;]

13. [*Further requests* the Executive Secretary to consider the linkages between biodiversity and climate change in the preparation of the post-2020 global biodiversity framework;]

14. *Requests* the Executive Secretary to liaise with the secretariats of relevant multilateral environmental agreements, including the Joint Liaison Group of the Rio Conventions and the Liaison Group of Biodiversity-related Conventions, to promote synergies and coordinate activities related to climate change adaptation and mitigation, such as the organization of back-to-back meetings and joint activities, where appropriate;

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<sup>90</sup> CBD/SBSTTA/22/INF/1.

15. *Invites* Parties, other Governments, funding organizations and relevant organizations, in a position to do so, to provide support for activities related to ecosystem-based approaches to climate change adaptation and disaster risk reduction.

*Annex*

**VOLUNTARY GUIDELINES FOR THE DESIGN AND EFFECTIVE IMPLEMENTATION OF  
ECOSYSTEM-BASED APPROACHES TO CLIMATE CHANGE ADAPTATION AND  
DISASTER RISK REDUCTION**

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**1. Introduction**

1. Ecosystem-based approaches to climate change adaptation and disaster risk reduction are holistic approaches that use biodiversity, and ecosystem functions and services to manage the risks of climate-related impacts and disasters. Ecosystem-based adaptation (EbA) is the use of biodiversity and ecosystem functions and services, as part of an overall adaptation strategy, contributing to the well-being of societies, including indigenous peoples and local communities, and helping people adapt to the adverse effects of climate change. EbA aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change.<sup>91</sup>

<sup>91</sup> Derived from CBD Technical Series 41. 2009. Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change.

2. Ecosystem-based disaster risk reduction (Eco-DRR) is the holistic, sustainable management, conservation and restoration of ecosystems to reduce disaster risk, with the aim of achieving sustainable and resilient development.<sup>92</sup>

3. These voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction have been prepared pursuant to paragraph 10 of [decision XIII/4](#). The voluntary guidelines are intended to be used by Parties, other Governments, relevant organizations, and indigenous peoples and local communities, business, the private sector and civil society as a flexible framework for planning and implementing EbA and Eco-DRR. The voluntary guidelines may also contribute to an objective of the national adaptation plan guidelines, under the United Nations Framework Convention on Climate Change, to reduce vulnerability to the impacts of climate change by building resilience and adaptive capacity.

### 1.1. Overview of the voluntary guidelines

4. The guidelines begin with an overall introduction to the mandate and basic terminology of EbA and Eco-DRR. Section 2 presents principles and safeguards that provide standards and measures to bear in mind during all of the steps of planning and implementation presented in section 4. Section 3 presents other important overarching considerations on: integrating knowledge, technologies, practices and efforts of indigenous peoples and local communities, mainstreaming, and raising awareness and building capacity. The overarching considerations should also be borne in mind when undertaking the steps of planning and implementation in section 4. Section 4 presents a step-wise approach intended to work iteratively for EbA and Eco-DRR planning and implementation, along with suggested practical actions. A supplementary note<sup>93</sup>, including a primer for policymakers, tools linked with the stepwise process, further detailed actions, advocacy briefs for more effective outreach into sectors, as well as supporting references, glossary, and lists of policies and other relevant guidelines is also available. It also contains a diagram and table to illustrate how the principles, safeguards, overarching considerations, and the stepwise approach work together.

### 1.2. What are ecosystem-based approaches to climate change adaptation and disaster risk reduction?

5. The Convention on Biological Diversity published Technical Series 85<sup>94</sup> which presents a synthesis report on experiences with the implementation of EbA and Eco-DRR. It provides detailed information on experiences with policy and legal frameworks, mainstreaming, integrating gender and the contribution of indigenous peoples and local communities. Additional examples of EbA and Eco-DRR activities are presented in the table below.

**Table. Examples of EbA and Eco-DRR interventions and outcomes<sup>95</sup>**

<i>Hazard/climate change impact</i>	<i>Ecosystem type</i>	<i>EbA or Eco-DRR intervention options</i>	<i>Outcome</i>
Drought Soil erosion Erratic rainfall	Mountains and forests	Sustainable mountain wetland management	Improved water regulation
		Forest and pasture restoration	Erosion prevention
		Restoration of pastures with deep-rooting native species	Improved water storage capacity
Erratic rainfall Flood	Inland waters	Conservation of wetlands and peatlands	Improved water storage capacity

<sup>92</sup> Estrella, M. and N. Saalismaa. 2013. Ecosystem-based Disaster Risk Reduction: An Overview, In: Renaud, F., Sudmeier-Rieux, K. and M. Estrella (eds.), *The Role of Ecosystem Management in Disaster Risk Reduction*. Tokyo: UNU Press.

<sup>93</sup> CBD/SBSTTA/22/INF/1.

<sup>94</sup> *Synthesis Report on Experiences with Ecosystem-Based Approaches to Climate Change Adaptation and Disaster Risk Reduction* (<https://www.cbd.int/doc/publications/cbd-ts-85-en.pdf>)

<sup>95</sup> Source: PANORAMA database <https://panorama.solutions/en/portal/ecosystem-based-adaptation>

<i>Hazard/climate change impact</i>	<i>Ecosystem type</i>	<i>EbA or Eco-DRR intervention options</i>	<i>Outcome</i>
Drought		River basin restoration	Flood risk reduction Improved water provisioning
		Transboundary water governance and ecosystem restoration	
Erratic rainfall Temperature increase Shift of seasons Drought	Agriculture and drylands	Ecosystem restoration and agroforestry	Improved water storage capacity Adaptation to higher temperatures Adaptation to shifting seasons Improved water provisioning
		Intercropping of adapted species	
		Using trees to adapt to changing dry seasons	
		Sustainable livestock management and pasture restoration	
		Drought resilience by sustainable dryland management	
Extreme heat Temperature increase Floods Erratic rainfall	Urban	Green aeration corridors for cities	Heat wave buffering Adaptation to higher temperatures Flood risk reduction Improved water regulation
		Storm water management by green spaces	
		River restoration in urban areas	
		Green facades for buildings	
Storm surges Cyclones Sea level rise Salinization Temperature increase Ocean acidification	Marine and coastal	Mangrove restoration and coastal protection	Storm and cyclone risk reduction Flood risk reduction Improved water quality Adaptation to higher temperatures
		Coastal realignment	
		Sustainable fishing and mangrove rehabilitation	
		Coral reef restoration	

6. EbA and Eco-DRR have the following characteristics:

(a) Enhance resilience and adaptive capacity and reduce social and environmental vulnerabilities in the face of the risks associated with the impacts of climate change, contributing to incremental and transformative adaptation and disaster risk reduction;

(b) Generate societal benefits, contributing to sustainable and resilient development using equitable, transparent and participatory approaches;

(c) Make use of biodiversity and ecosystem functions and services through sustainably managing, conserving and restoring ecosystems;

(d) Form part of overall strategies for adaptation and risk reduction that are supported by policies at multiple levels, and encourage equitable governance while enhancing capacity.

## 2. Principles and safeguards

7. The voluntary guidelines are underpinned by principles and safeguards that were developed by reviewing existing literature and guidelines on EbA and Eco-DRR<sup>96</sup> and complement other principles and guidelines<sup>97</sup> adopted under the Convention or under other bodies. The safeguards are social and environmental measures to avoid unintended consequences of EbA and Eco-DRR to people, ecosystems and biodiversity; they also facilitate transparency throughout all stages of planning and implementation, and promote the realization of benefits.

<sup>96</sup> Including “Guidance on Enhancing Positive and Minimizing Negative Impacts on Biodiversity of Climate Change Adaptation Activities” (UNEP/CBD/SBSTTA/20/INF/1).

<sup>97</sup> See Ecosystem restoration: short-term action plan ([decision XIII/5](#)); [the United Nations Declaration on the Rights of Indigenous Peoples](#); and Principles, Guidelines and Other Tools Developed under the Convention, available at <https://www.cbd.int/guidelines/>.

## 2.1. Principles

8. The principles integrate elements of EbA and Eco-DRR practice and serve as high-level standards to guide planning and implementation. They are clustered into themes: building resilience and enhancing adaptive capacity, inclusivity and equity, consideration of multiple scales, and effectiveness and efficiency. The guidelines in section 3 provide suggested steps, methodologies and associated tools to implement actions on EbA and Eco-DRR according to the principles and safeguards.

### Principles for building resilience and enhancing adaptive capacity through EbA and Eco-DRR

- 1 Consider a full range of ecosystem-based approaches to enhance resilience of social-ecological systems as a part of overall adaptation and disaster risk reduction strategies.
- 2 Use disaster response as an opportunity to build back better for enhancing adaptive capacity and resilience<sup>98</sup> and integrate ecosystem considerations throughout all stages of disaster management.
- 3 Apply a precautionary approach<sup>99</sup> in planning and implementing EbA and Eco-DRR interventions.

### Principles for ensuring inclusivity and equity in planning and implementation

- 4 Plan and implement EbA and Eco-DRR interventions to prevent and avoid the disproportionate impacts of climate change and disaster risk on ecosystems as well as vulnerable groups, indigenous peoples and local communities, women and girls.

### Principles for achieving EbA and Eco-DRR on multiple scales

- 5 Design EbA and Eco-DRR interventions at the appropriate scales, recognizing that some EbA and Eco-DRR benefits are only apparent at larger temporal and spatial scales.
- 6 Ensure that EbA and Eco-DRR are sectorally cross-cutting and involve collaboration, coordination, and cooperation of stakeholders and rights holders.

### Principles for EbA and Eco-DRR effectiveness and efficiency

- 7 Ensure that EbA and Eco-DRR interventions are evidenced-based, integrate indigenous and traditional knowledge, where available, and are supported by the best available science, research, data, practical experience, and diverse knowledge systems.
- 8 Incorporate mechanisms that facilitate adaptive management and active learning into EbA and Eco-DRR, including continuous monitoring and evaluation at all stages of planning and implementation.
- 9 Identify and assess limitations and minimize potential trade-offs of EbA and Eco-DRR interventions.
- 10 Maximize synergies in achieving multiple benefits, including for biodiversity, conservation, sustainable development, gender equality, health, adaptation, and risk reduction.

### Safeguards for effective planning and implementation of EbA and Eco-DRR

*Applying environmental impact assessments and robust monitoring and evaluation*

1. EbA and Eco-DRR should be subject, as appropriate, to environmental impact assessments including social and cultural assessments (referring to the Akwé: Kon guidelines) at the earliest stage of project design, and subject to robust monitoring and evaluation systems.

<sup>98</sup> The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment ([UNISDR definition of “build back better”](#), 2017, as recommended by the open-ended intergovernmental expert working group on terminology relating to disaster risk reduction ([A/71/644](#) and [Corr.1](#)) and endorsed by the United Nations General Assembly (see [resolution 71/276](#))).

<sup>99</sup> The precautionary approach is stated in the preamble of the Convention on Biological Diversity: “Where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.”

<b>Safeguards for effective planning and implementation of EbA and Eco-DRR</b>	
<i>Prevention of transfer of risks and impacts</i>	2. EbA and Eco-DRR should avoid adverse impacts on biodiversity or people, and should not result in the displacement of risks or impacts from one area or group to another.
<i>Prevention of harm to biodiversity, ecosystems, and ecosystem functions and services</i>	3. EbA and Eco-DRR, including disaster response, recovery and reconstruction measures, should avoid the degradation of natural habitat, loss of biodiversity or the introduction of invasive species, and should not create or exacerbate vulnerabilities to future disasters. 4. EbA and Eco-DRR should promote and enhance biodiversity and ecosystem functions and services, including through rehabilitation/restoration and conservation measures, as part of post-disaster needs assessment and recovery and reconstruction plans.
<i>Sustainable resource use</i>	5. EbA and Eco-DRR should neither result in unsustainable resource use nor enhance the drivers of climate change and disaster risks, and should strive to maximize energy efficiency and minimize material resource use.
<i>Promotion of full, effective and inclusive participation</i>	6. EbA and Eco-DRR should ensure full and effective participation of the people concerned, including indigenous peoples and local communities, women, minorities and the most vulnerable, including the provisioning of adequate opportunities for informed involvement.
<i>Fair and equitable access to benefits</i>	7. EbA and Eco-DRR should promote fair and equitable access to benefits and should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups. EbA and Eco-DRR interventions should meet national labour standards, protecting participants against exploitative practices, discrimination and work that is hazardous to their well-being.
<i>Transparent governance and access to information</i>	8. EbA and Eco-DRR should promote transparent governance by supporting rights to access to information, providing all stakeholders and rights holders, particularly indigenous peoples and local communities, with information in a timely manner, and supporting the further collection and dissemination of knowledge.
<i>Respecting rights of women and men from indigenous peoples and local communities</i>	9. EbA and Eco-DRR measures should respect the rights of women and men from indigenous peoples and local communities, including access to and use of physical and cultural heritage.

### 3. Overarching considerations for EbA and eco-DRR design and implementation

9. When undertaking the stepwise process for planning and implementing EbA and Eco-DRR provided in section 4, there are three main overarching considerations to bear in mind at each step: integrating knowledge, technologies, practices and efforts of indigenous peoples and local communities; mainstreaming of EbA and Eco-DRR; and raising awareness and building capacity. Taking these actions into account can enhance uptake of EbA and Eco-DRR approaches, and improve effectiveness and efficiencies, enabling more and better outcomes from the interventions.

#### 3.1. Integrating knowledge, technologies, practices and efforts of indigenous peoples and local communities

10. Indigenous peoples and local communities have managed variability, uncertainty and change through multigenerational histories of interaction with the environment. Indigenous and traditional knowledge and coping strategies can thus form an important basis for climate change and disaster risk reduction responses, complementing established evidence, and bridging gaps in information. Indigenous,



traditional and local knowledge systems – and forms of analysis and documentation, such as community mapping – can play a significant role, similarly to early warning systems, in identifying and monitoring climatic, weather and biodiversity changes and impending natural hazards. Ecosystem-based approaches can also serve to bring back abandoned practices, such as indigenous and traditional agricultural practices. Integrating the knowledge of indigenous peoples and local communities also involves an appreciation of their *cosmovisión*,<sup>100</sup> and an acknowledgement of their role as knowledge holders and rights holders. Ways to incorporate indigenous and traditional knowledge and practices in EbA and Eco-DRR planning and implementation throughout all stages of planning and implementation include the following:

### Key actions

- (a) Discover and document linkages between local, indigenous and traditional knowledge and practices and the goals and objectives of climate change adaptation and disaster risk reduction;
- (b) Consult multi-stakeholder working groups, especially indigenous peoples and local communities, to facilitate knowledge-sharing across sectors on the role of ecosystems in adaptation and disaster risk reduction;
- (c) Put in place effective participatory and transparent mechanisms to obtain the best available evidence;
- (d) Integrate the knowledge of indigenous peoples and local communities into assessments after obtaining free prior and informed consent.

## 3.2. Mainstreaming EbA and Eco-DRR

### Purpose

11. Mainstreaming EbA and Eco-DRR is the integration of ecosystem-based approaches into climate- and disaster-risk planning and decision-making processes at all levels. Mainstreaming may start with integrating ecosystem considerations into adaptation and disaster-risk reduction objectives, strategies, policies, measures or operations so that they become part of national and regional development policies, processes and budgets at all levels and stages. Mainstreaming enhances the effectiveness, efficiency, and longevity of EbA and Eco-DRR initiatives by embedding their principles into local, municipal and national policies, planning, assessments, financing, training, and awareness campaigns, among other policy tools. The overall goal is enhanced support and implementation of EbA and Eco-DRR, where it proves effective.

12. Mainstreaming occurs continuously throughout EbA and Eco-DRR planning and implementation. The process begins in Step A with the achievement of a broad understanding of the political and institutional set-up of the target system, which enables the identification of potential entry points for mainstreaming. Other key components of mainstreaming include enhancing sectoral outreach, raising awareness, and capacity-building.

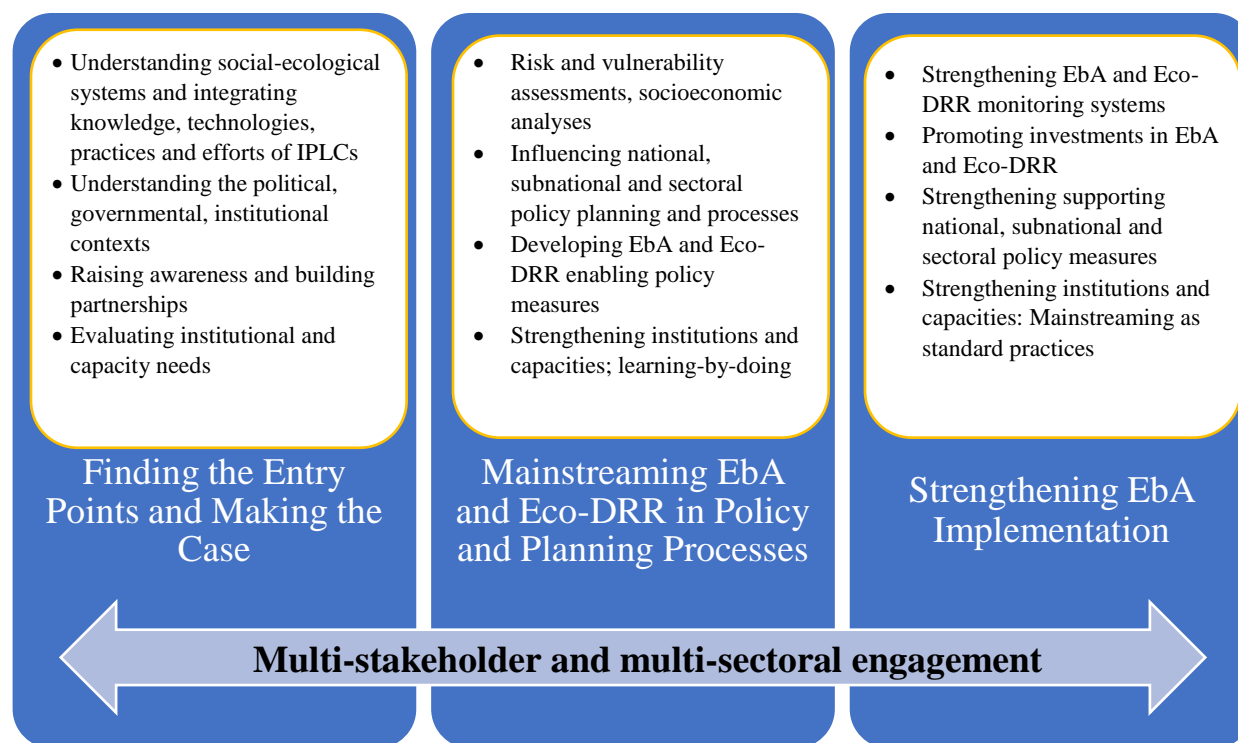
13. When mainstreaming EbA and eco-DRR, it is important to align with national and subnational development frameworks and mainstream into relevant plans, policies and practice at multiple scales in order to enhance long-term sustainability and possibilities for funding (Figure 1 and Box 1). It is also important to align with international frameworks and conventions, such as the Sustainable Development Goals and the [Strategic Plan for Biodiversity 2011-2020](#). It is also important to incorporate a climate and disaster risk reduction lens, when implementing environmental impact assessments and strategic environmental assessments, to prevent unintended impacts that may exacerbate risk and promote EbA and Eco-DRR measures.

<sup>100</sup> A worldview that has evolved over time that integrates physical and spiritual aspects (adapted from [the Indigenous Peoples' Restoration Network](#)).



14. A sample framework for mainstreaming is shown in Figure 1. Tools and further detailed actions accompanying this step are available as supplementary information in the “Toolbox for mainstreaming adaptation and DRR”.<sup>101</sup>

**Figure 1. Example framework for mainstreaming EbA and Eco-DRR in development planning**



*Note:* Adapted from: World Wildlife Fund (2013), [\*Operational Framework for Ecosystem-based Adaptation: Implementing and Mainstreaming Ecosystem-based Adaptation Responses in the Greater Mekong Sub-Region\*](#); and UNDP-UNEP (2011), [\*Mainstreaming Climate Change Adaptation into Development Planning: A Guide for Practitioners\*](#).

15. A key aspect of mainstreaming is finding appropriate entry points for integrating EbA and Eco-DRR into concrete but often also complex policy and planning frameworks and decision-making processes. Entry points can be dynamic, depending on three key aspects:

- (a) The awareness of stakeholders about an existing problem, challenge or risk;
- (b) Available solutions, proposals, tools and knowledge;
- (c) Political will to act, mandates and roles.

16. If all three aspects come together in favourable ways, there is a “momentum” for policy change. In cases of disaster and states of emergency, there is generally openness towards stakeholders’ needs, innovative tools and approaches, joint searches for best available solutions, and a willingness to invest and (re)build better. These are important opportunities to include EbA or Eco-DRR aspects. Entry points may occur at all levels of government, and can imply different levels of governance, or collaboration with the private sector.

17. In general, entry points for mainstreaming may be found in:

<sup>101</sup> CBD/SBSTTA/22/INF/1.

- (a) The development or revision of policies and plans, e.g. development or sectoral plans, nationally determined contributions, national adaptation plans, national biodiversity strategies and action plans, strategic environmental assessments, land-use plans;
- (b) Command and control instruments, e.g. climate change and environmental laws, standards, environmental impact assessments, and disaster risk management;
- (c) Economic and fiscal instruments, e.g. investment programmes, funds, subsidies, taxes, fees;
- (d) Educational and awareness-raising measures, e.g. environmental education, extension programmes, technical careers and university curricula;
- (e) Voluntary measures, e.g. environmental agreements with private landowners, or the definition of standards;
- (f) Measures that guarantee the free prior informed consent, of indigenous peoples, where appropriate;
- (g) Partnerships that enable the full and effective participation of civil society organizations, indigenous peoples and local communities, women and youth.

18. As emphasized throughout the EbA/Eco-DRR planning and implementation process, reaching out to sectors is key to raising awareness of and integrating EbA and Eco-DRR into sectoral plans and national-level planning, and encouraging cross-sectoral collaboration for joint implementation.

### **Box 1. Opportunities for mainstreaming EbA and Eco-DRR into funding priorities**

EbA and Eco-DRR contribute to multiple objectives, including development, disaster risk, adaptation, mitigation, food and water security, and to ensuring risk-informed investments. The cross-sectoral and transdisciplinary approaches of EbA and Eco-DRR, and the potential realization of multiple benefits, offer several opportunities to attract/enhance funding.

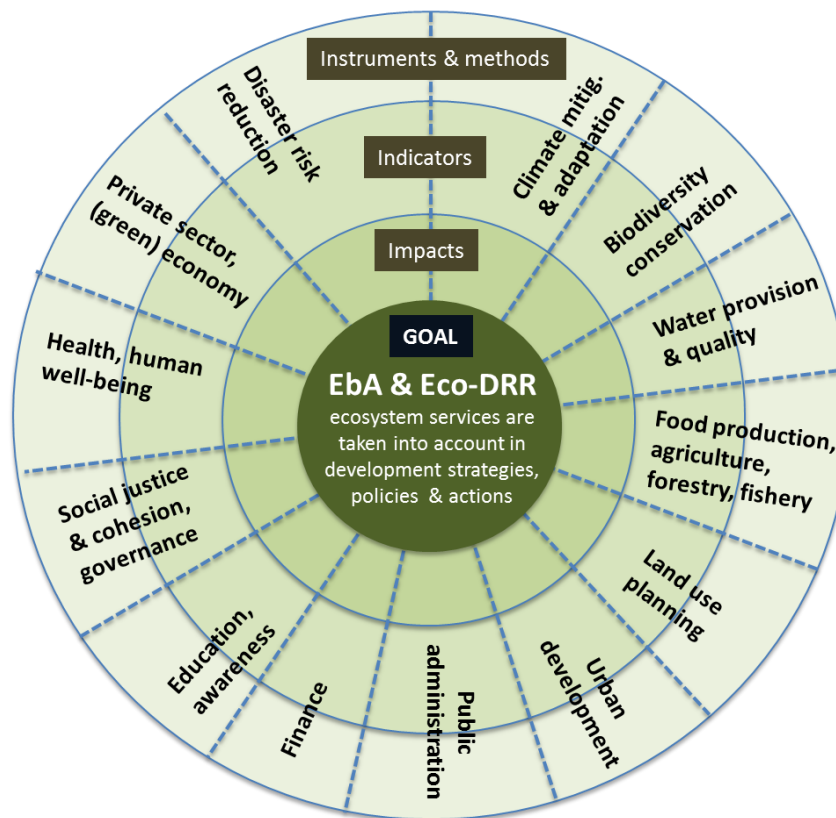
- Encourage new financial incentives for investments in sustainable ecosystem management that emphasize ecosystems as part of adaptation and disaster risk planning. Examples include developing incentive programmes for farmers to implement practices that contribute to maintaining resilient ecosystems, such as agroforestry and conservation tillage.
- Unlock new investments for EbA and Eco-DRR through the climate-proofing of existing investment portfolios.
- Work with the private sector (including insurance, tourism, agriculture and water sectors) to harness their expertise, resources and networks. This helps in encouraging and scaling up investments in EbA and Eco-DRR, and identifying public-private partnerships.
- Engage government regulatory bodies to support and endorse private-sector investments in natural infrastructure and EbA and Eco-DRR.
- Identify partnerships with industry associations that can aid in the identification of climate risks, impacts and adaptation strategies. Examples include the development of climate risk assessment tools for use by private-sector investors and insurance companies, adoption of hydro-meteorological and climate information services, and working with developers to improve land-use planning, including such EbA and Eco-DRR activities as ecosystem restoration.
- Create national-level incentive structures for EbA/Eco-DRR, especially for private landowners and companies.

The mainstreaming of EbA and Eco-DRR into funding priorities should ensure that initiatives adhere to the EbA and Eco-DRR principles and safeguards, with clear intentions to achieve enhanced social-ecological resilience to climate change impacts and disasters.

19. A key action in this respect is to consider integrating EbA and Eco-DRR in sectoral development plans at local, national and regional scales, such as in land use and water management, in both rural and urban contexts. Additional detailed actions, as well as briefs for supporting EbA and Eco-DRR practitioners to undertake outreach into sectors are provided as supplementary information tools.<sup>102</sup>

20. Considering the information provided above, a simple framework for mainstreaming EbA and Eco-DRR into development and sectoral plans is presented as supplementary information<sup>103</sup> in Figure 2.

**Figure 2. Entry points for mainstreaming EbA and Eco-DRR within key development and sectoral strategies by embedding ecosystem-based approaches into existing instruments and methods tools, selecting appropriate indicators for monitoring and evaluation, ensuring successful impact by developing a theory of change**



### 3.3. Raising awareness and building capacity

21. Communicating the multiple benefits of EbA and Eco-DRR across sectors, communities of practice, and disciplines is crucial to enhancing uptake and sustainability of initiatives, in addition to opening avenues for funding. National and international policy agreements provide an opportunity to bridge the gap between different communities of practice. Interlinkages between ecosystem management, climate change and disaster risk reduction are all reflected in various targets under the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on Climate Change, decisions of the Parties to the Rio conventions, and resolutions of Parties to the Ramsar Convention.<sup>104</sup>

<sup>102</sup> CBD/SBSTTA/22/INF/1.

<sup>103</sup> Ibid.

<sup>104</sup> CBD/SBSTTA/22/INF/1, annex; [CBD Technical Series No. 85](#), annexes II and III.

22. A detailed list of suggested actions to raise awareness and build capacity is provided as supplementary information.<sup>105</sup> Some key actions include conducting baseline assessments of: (a) the existing skills and capacity of policymakers to address gaps and needs; and (b) institutional capacities and existing coordination mechanisms to identify needs for sustainably mainstreaming and implementing EbA and Eco-DRR. It is also useful to consider the different information and communication needs of different stakeholder groups in order to develop effective outreach, build a common knowledge base and seek to identify a common language among stakeholders to support their cooperation. There are many networks available to support these efforts and which offer platforms for sharing information and experience.<sup>106</sup>

#### **4. Stepwise approach to design and implementation of effective EbA and Eco-DRR**

23. In developing a conceptual framework for these guidelines, various climate change adaptation and disaster risk reduction processes were considered, in addition to broader problem-solving approaches, such as the landscape and systems approach frameworks.<sup>107,108</sup> These guidelines employ a broad perspective on all ecosystems and include considerations for mainstreaming EbA and Eco-DRR. The guidelines integrate these approaches within a series of iterative steps. The process is intended to be flexible and adaptable to the needs of a project, programme or country, region, or landscape/seascape. The principles and safeguards for EbA and Eco-DRR are central to the planning and implementation process, and the overarching considerations are provided to improve effectiveness and efficiencies. Steps are linked to a toolbox providing a non-exhaustive selection of further guidance and tools available as supplementary information.<sup>109</sup> Stakeholder engagement, mainstreaming, capacity-building, and monitoring should be conducted throughout the process.

#### **Step A. Understanding the social-ecological system**

##### **Purpose**

24. This exploratory step is aimed at enhancing the understanding of the social-ecological system targeted for climate change adaptation and disaster risk management interventions. This includes identifying key features of the ecosystem/landscape, including biodiversity and ecosystem functions and services, and interlinkages with people. Step A enables addressing root causes of risk in coping with current and future climate change impacts. Additionally, it generates baseline information to ensure that EbA/Eco-DRR measures reconcile conservation and development needs and do not harm biodiversity, cultural diversity or ecosystem functions and services, or the people and livelihoods that depend on such functions and services, in line with the principles and safeguards.

25. Moreover, Step A includes in-depth stakeholder analysis and multi-stakeholder and participatory processes that feed into subsequent steps and, therefore, more detailed actions are presented to undertake these analyses (Box 2).

##### **Outcome**

(a) A defined social-ecological system of interest (biodiversity, ecosystems and services, socio-economic characteristics and dependencies) and related goals and objectives for adaptation and disaster risk reduction;

<sup>105</sup> CBD/SBSTTA/22/INF/1.

<sup>106</sup> Such as the Partnership for Environment and Disaster Risk Reduction (PEDRR), Friends of EbA (FEBA), PANORAMA, BES-Net (Biodiversity and Ecosystem Services Network), Ecoshape, Ecosystem Services Partnership's Thematic Working Group on Ecosystem Services and Disaster Risk Reduction, IUCN Thematic Groups, and CAP-Net (UNDP).

<sup>107</sup> Including: National adaptation plans (UNFCCC), Operational Framework for EbA (WWF), Adaptation mainstreaming cycle (GIZ), Disaster risk management cycle (European Environmental Agency), Eco-DRR cycle (Sudmeier-Rieux 2013), Ecosystems protecting infrastructure and communities (IUCN, Monty et al. 2017), and the Landscape Approach (CARE Netherlands and Wetlands International).

<sup>108</sup> Additional details are provided in CBD/SBSTTA/22/INF/1.

<sup>109</sup> CBD/SBSTTA/22/INF/1.

- (b) Defined stakeholders and rights holders;
- (c) Defined political and institutional entry points for EbA/Eco-DRR within the system.

### Key actions

(a) Undertake an organizational self-assessment to understand strengths, weaknesses, capacity (including technical and financial) and opportunities for partnership on EbA and Eco-DRR. Based on this, a multi-disciplinary team (including but not limited to indigenous peoples and local communities, other experts, representatives from relevant sectors and government bodies) is organized for planning and implementing EbA and Eco-DRR;

(b) Identify and define the social-ecological system of interest (for example, a watershed, sector or policy);

(c) Conduct analyses and consultations, making use of the multidisciplinary team, in order to understand the drivers of risk, capacities and assets of communities, societies and economies, and the wider social and natural environment;

(d) Analyse the problem, determining its scope (geographical and temporal) by defining the boundaries of the system (see supporting guidance in the associated toolbox<sup>110</sup>), and set goals and objectives for adaptation and disaster risk reduction, without harm to biodiversity or ecosystem functions and services. The spatial scale for risk management, associated with the impacts of climate change, should be broad enough to address the root causes of risk and deliver multiple functions to stakeholders with different interests, and sufficiently small to make implementation feasible;

(e) Identify and map key provisioning, regulating, supporting and cultural services in the system that contribute to resilience. As 90 per cent of disasters are water-related, including drought or floods, understanding the hydrology of the landscape is crucial for scoping and designing EbA or Eco-DRR interventions;

(f) Determine initial entry points for EbA and Eco-DRR interventions;

(g) Screen relevant entry points for EbA and Eco-DRR, particularly in a policy, planning or budgeting cycle, at different scales and levels, where considerations of climate change risk and adaptation could be incorporated;

(h) Map out the institutional responsibilities for intersections of development, conservation, disaster risk reduction and climate change adaptation, including relevant sectors;

(i) Conduct an in-depth stakeholder analysis (Box 2).

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<sup>110</sup> Available in CBD/SBSTTA/22/INF/1.

### Box 2. Stakeholder and rights-holder analysis and establishment of participatory mechanisms

An assessment of the system or landscape helps to analyse the problem, define the boundaries for climate change adaptation and disaster risk reduction interventions, and screen for entry points for EbA and Eco-DRR. This information should feed into an in-depth stakeholder analysis before engaging stakeholders throughout the adaptation/DRR process, and also iteratively benefits from information from stakeholders. Engagement of stakeholders and rights holders will increase ownership and likely also the success of any adaptation/DRR intervention. In-depth stakeholder analyses and development of multi-stakeholder processes and participatory mechanisms are key to meeting principles on equity and inclusivity and related safeguards. The Akwé: Kon Voluntary Guidelines (<https://www.cbd.int/traditional/guidelines.shtml>) outline procedural considerations for the conduct of cultural, environmental and social impact assessments, which are widely applicable to EbA and Eco-DRR.

#### Key Actions

- Identify indigenous peoples and local communities, stakeholders and rights holders likely to be affected by EbA and Eco-DRR interventions, and identify people, organizations and sectors that have influence over planning and implementation, using transparent participatory processes.
- Ensure full and effective participation of all relevant stakeholders and rights holders, including indigenous peoples and local communities, the poor, women, youth and the elderly, ensuring they have the capacity and sufficient human, technical, financial and legal resources to do so (in line with the safeguards).
- Engage with civil society organizations and/or community-based organizations to enable their effective participation.
- Where appropriate, identify and protect the ownership and access rights to areas for the use of biological resources.

## Step B. Assessing vulnerabilities and risks

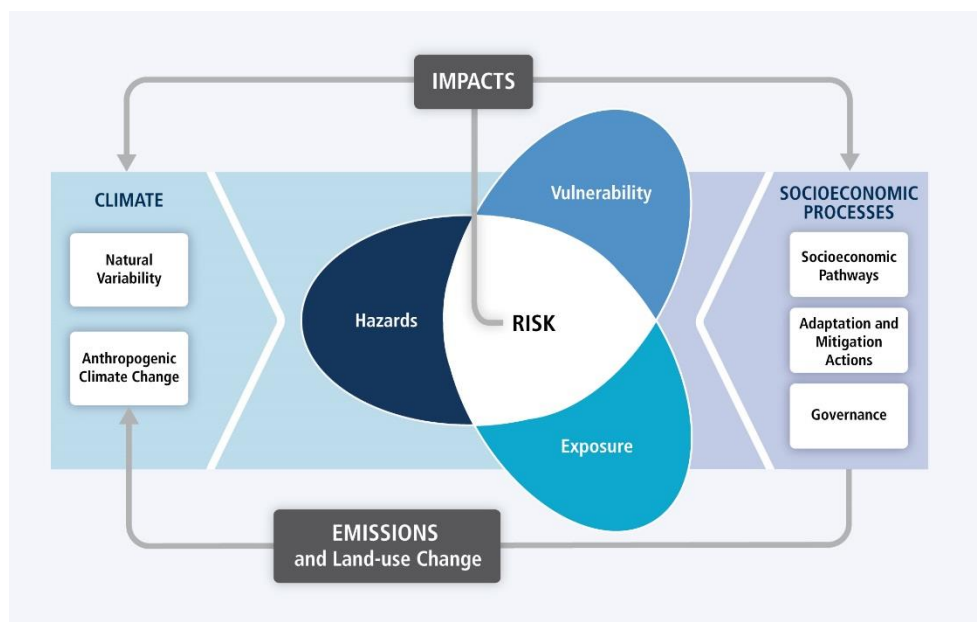
### Purpose

26. Vulnerability and risk assessments are undertaken to identify the main climate change and disaster risks and impacts on the social-ecological system of interest, for example, taking stock of biodiversity and ecosystem service information to identify species or ecosystems that are particularly vulnerable to the negative impacts of climate change. The assessments are then used to identify, appraise and select targeted adaptation and disaster risk reduction interventions in planning and design. Risk and vulnerability assessments also aid in allocating resources to where they are most needed, and in establishing baselines for monitoring the success of interventions.

27. Vulnerability is defined as the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.<sup>111</sup> Vulnerability, exposure and hazards together determine the risks of climate-related impacts (Figure 3). While they have different definitions and underlying assumptions, both risk and vulnerability assessments follow a similar logic.

<sup>111</sup> Intergovernmental Panel on Climate Change, *Fifth Assessment Report*, 2014.

**Figure 3. Illustration of the core concepts of the contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change**



*Note:* Risk of climate-related impacts results from the interaction of climate-related hazards (including hazardous events and trends) with the vulnerability and exposure of human and natural systems. Changes in both the climate system (left) and socioeconomic processes including adaptation and mitigation (right) are drivers of hazards, exposure and vulnerability (Intergovernmental Panel on Climate Change, [Climate Change 2014: Impacts, Adaptation and Vulnerability](#), 2014).

28. Risk assessments generally consist of three steps: risk identification (finding, recognizing and describing risk); risk analysis (estimation of the probability of its occurrence and the severity of the potential impacts); and risk evaluation (comparing the level of risk with risk criteria to determine whether the risk and/or its magnitude is tolerable). These steps consider both climate and non-climate factors that generate a climate or disaster risk.

29. The advantage of an integrated risk and vulnerability assessment approach, as opposed to assessing only vulnerability, is that it addresses the large proportion of impacts that are triggered by hazardous events as well as integrates both climate change adaptation and disaster risk reduction approaches. A relatively new practice is moving from single hazard approaches to multi-hazard/multi-risk assessments. This approach can account for regions or classes of objects exposed to multiple hazards (e.g. storms and floods), and cascading effects, in which one hazard triggers another.

30. Key considerations and general activities for undertaking risk and vulnerability assessments are discussed below. Tools and examples and more detailed stepwise guidance are provided in the Step B Toolbox: Conducting risk and vulnerability assessments, available as supplementary information.<sup>112</sup>

### Outcome

(a) A risk and vulnerability profile in current and future climate scenarios of the social-ecological system covering hazards, exposure, and vulnerabilities (including sensitivities and adaptive capacities);

(b) Main drivers of risks and underlying causes.

<sup>112</sup> See CBD/SBSTTA/22/INF/1.



**Key actions**

- (a) Develop or make use of frameworks and concepts that recognize the linkages between people and ecosystems as integrated social-ecological systems, rather than viewing adaptation and risk reduction only through a human lens;
- (b) Assess past and current climate and non-climate risks to the social-ecological system with flexible criteria that address the linkages between human and environmental systems:
  - (i) Consult previous assessments of climate change impacts on biodiversity and ecosystem functions and services; for example, national impact and vulnerability assessments prepared for UNFCCC, or vulnerability assessments from forest, agriculture, fisheries or other relevant sectors;
  - (ii) Conduct socioeconomic and ecological field surveys to identify vulnerabilities in both communities and ecosystems (including ecosystems that provide critical functions and services for climate change adaptation or DRR) (see supplementary information for further detail<sup>113</sup>);
  - (iii) Assess the drivers of current risks and vulnerability and, if possible, future risks based on climate change projections or scenarios that are at the appropriate scale, e.g. downscaled to the local level, where appropriate;
- (c) Integrate quantitative approaches (based on scientific models) and qualitative approaches, which are grounded in expert judgment and indigenous and traditional knowledge (more detail is provided below). For example, use participatory rural appraisals to understand local perceptions and past experiences;
- (d) Develop hazard and risk maps, such as through the use of participatory 3-D modelling of risks.

**Step C. Identifying EbA and Eco-DRR options****Purpose**

31. Having defined the boundaries of the social-ecological system/landscape and identified initial entry points for EbA and Eco-DRR, as well as vulnerabilities and risks (Step A), potential options are identified by the multi-stakeholder group within an overall strategy of climate change adaptation and disaster risk reduction. A list of relevant tools linked to this step is provided in the Step C Toolbox: Identifying EbA and Eco-DRR Strategies, available as supplementary information.<sup>114</sup>

**Outcome**

A list of available strategies and options for reducing the exposure and sensitivity of social-ecological systems to climate hazards and enhancing adaptive capacity

**Key actions**

- (a) Identify existing coping strategies and responses to address the risks of climate change impacts and disasters, and/or those used to address current climate variability and socio-economic pressures on ecosystems and societies, and analyse viability for future climate impacts and risks;
- (b) Refine the initial entry points identified for EbA/Eco-DRR. Criteria for selecting entry points can include:
  - (i) High probability of effectiveness from previous experiences in a similar social-ecological setting;
  - (ii) Strong support from stakeholders;

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<sup>113</sup> Ibid.

<sup>114</sup> Available in CBD/SBSTTA/22/INF/1.



- (c) In collaboration with multi-stakeholder groups, inclusive of stakeholders, rights holders and experts, formulate appropriate strategies, within an overall adaptation strategy, to address the risks and vulnerabilities identified in Step B;
- (d) Assess specific issues and priorities of the vulnerable groups, sectors, and ecosystems;
- (e) Ensure that EbA and Eco-DRR are planned at the local, community and household levels and at the landscape or catchment level, as appropriate;
- (f) Identify the EbA and Eco-DRR strategies that meet the objectives defined in Step A, and that adhere to its main elements;
- (g) Consider the qualification criteria and standards for EbA.<sup>115</sup>

#### **Step D. Prioritizing, appraising and selecting EbA and Eco-DRR options**

##### **Purpose**

32. In this step, the EbA and Eco-DRR options identified in Step C are prioritized, appraised and selected to achieve the goals set out in Step A, as part of an overall adaptation and disaster risk reduction strategy, for the system of interest. A list of relevant tools is provided as supplementary information<sup>116</sup> in the Step D Toolbox: Prioritizing, appraising and selecting EbA and Eco-DRR options.

33. Given the importance of evaluating trade-offs and limitations, more detailed actions are provided (Box 3). Associated tools are available in the Step D Toolbox: Prioritizing, appraising and selecting adaptation and DRR options and identifying trade-offs available as supplementary information.<sup>117</sup> Information on ways to increase scientific and technical knowledge of EbA and Eco-DRR approaches are also elaborated within supplementary information.<sup>118</sup>

##### **Outcome**

- (a) List of prioritized options based on selected criteria;
- (b) Selection of final options for implementation.

##### **Key actions**

- (a) Using participatory approaches (Step A), identify the criteria/indicators to be used to prioritize and appraise the EbA and Eco-DRR options identified in Step C. For example, using multi-criteria analysis or cost-effectiveness to evaluate adaptation options;<sup>119</sup>
- (b) Ensure that trade-offs and limitations of options are part of the appraisal process (Box 3), and include consideration of green or hybrid solutions, before grey, when more effective;
- (c) Consider multiple values and benefits, including non-monetary, to capture the full value of different EbA and Eco-DRR options;
- (d) Assign weights to the proposed criteria, and use the criteria to rank the EbA and Eco-DRR options;
- (e) Prioritize and short-list EbA and Eco-DRR options based on the agreed-upon criteria;
- (f) Make use of the multi-stakeholder group and consult other rights holders to identify the best options and develop a business case;

<sup>115</sup> See “[Making Ecosystem-based Adaptation Effective – A Framework for Defining Qualification Criteria and Quality Standards](#)” (FEBA Technical Paper).

<sup>116</sup> See CBD/SBSTTA/22/INF/1.

<sup>117</sup> Ibid.

<sup>118</sup> Ibid.

<sup>119</sup> Methods for appraising the value of EbA and Eco-DRR activities, excerpted from [Frontier Economics \(2013\), “The Economics of Climate Resilience: Appraising flood management initiatives – a case study”](#) are available in CBD/SBSTTA/22/INF/1.

(g) Analyse the costs, benefits, impacts and trade-offs of different risk management scenarios, and the costs of inaction, to capture gains or losses in ecosystem functions and services provisioning that have an impact on adaptation and disaster risk reduction and resilience (e.g. consideration for wetlands);

(h) Consider the sustainable use of local ecosystems, services and/or materials in EbA/Eco-DRR options that could bring additional local benefits and reduce carbon emissions from transport, rather than outsourced labour and materials;

(i) In appraising options, consider the costs and benefits of interventions over the long term, as the time period in economic comparison of various options is important, and consider both upfront capital and longer-term maintenance costs. For example, engineered structures, such as dykes, can be relatively inexpensive at the investment level but carry high maintenance costs, whereas ecosystem-based approaches, such as wetland restoration, may be less expensive in the long term and provide multiple benefits;

(j) Assess the strength of proposed EbA and Eco-DRR measures by examining how they adhere to the elements, principles and safeguards, considering available qualification criteria and standards;

(k) Before the design and implementation of selected projects (Step E), conduct environmental impact assessments (EIA) of the recommended options, ensuring that: (i) possible social and environmental impacts have been clearly identified and assessed; (ii) appropriate measures have been taken to avoid or, if not possible, mitigate risks; and (iii) the measures taken to avoid/mitigate risks are themselves monitored and reported on throughout project life cycles. The EIA should incorporate a summary of recommendations from past, ongoing and planned projects and programmes within the relevant geographic jurisdiction.

### Box 3. Evaluating trade-offs and limitations

Part of the process of prioritizing, appraising and selecting adaptation/DRR options involves the identification and evaluation of potential trade-offs. Trade-offs may arise when an activity protects one group of people at the expense of another, or favours a particular ecosystem service over another. Some trade-offs are the result of deliberate decisions; others occur without knowledge or awareness. For example, the implementation of adaptation actions upstream may have effects on downstream communities, and at different times. Ecosystems are subject to climate change and, therefore, EbA, Eco-DRR and other practices that use ecosystem-based approaches should be designed to be robust in the face of current and projected impacts of climate change. Trade-offs and limitations should be considered and integrated within overall adaptation and disaster risk reduction planning and aligned with national policies and strategies. They should also be implemented alongside other measures of risk reduction, including avoidance of high-risk zones, improved building codes, early warning and evacuation procedures. A trade-off analysis across scales and considering multiple benefits can help to favour EbA and Eco-DRR options.

#### Key actions

- Develop indicators of short- and long-term changes across various spatial scales to detect potential trade-offs and limitations of EbA and Eco-DRR (see Step F for more detail).
- Use geospatial data and models (such as those available in InVEST (<https://www.naturalcapitalproject.org/invest>)) to understand how changes in ecosystem structure and function, as a result of adaptation or DRR interventions, will affect ecosystem functions and services across a land- or seascape.
- Consider the full range of infrastructure options from “green” to “hybrid” to “hard” and their compatibility, recognizing that different combinations are needed in different situations.
- Ensure that EbA and Eco-DRR are informed by the best available science and indigenous and traditional knowledge to fully account for possible trade-offs and limitations.
- Ensure the integration of EbA and Eco-DRR into overall adaptation or disaster risk reduction strategies, in recognition of the multiple benefits and potential limitations of ecosystem-based approaches.
- Maximize multiple benefits and consider and minimize trade-offs or unintended consequences of EbA and Eco-DRR throughout all stages of planning and implementation, including accounting for uncertainties in climate projections and for different scenarios.

## Step E. Project design and implementation

### Purpose

34. In this step, the interventions selected in Step D are designed and implemented according to the principles and safeguards. Throughout the design and implementation, it is important to continually revisit the principles and safeguards and ensure ongoing stakeholder engagement, capacity-building, mainstreaming and monitoring.

35. Given the added importance of transboundary and cross-sectoral cooperation, coordination and policies, more detailed actions are provided (see Box 4). Associated tools are provided in the Step E toolbox: Project design and implementation, available as supplementary information.<sup>120</sup>

### Outcome

A project design and implementation plan (including a finance strategy, capacity development strategy, defined actions for institutional and technical support measures)

### Key actions

(a) Consider the EbA and Eco-DRR elements, principles and safeguards throughout design and implementation (See Step B);

<sup>120</sup> Available in CBD/SBSTTA/22/INF/1.

- (b) Consider the qualification criteria and standards for EbA;
- (c) Design interventions at the appropriate scale to address the goals set out in Step A;
- (d) Engage relevant experts, and strengthen linkages between the scientific community and project executors to ensure optimal and appropriate use of ecosystems for adaptation and DRR;
- (e) Select appropriate tools and, if needed, plan for the development of new methodologies;
- (f) Determine technical and financing requirements and develop a budget accordingly;
- (g) Establish a workplan, including timelines of activities, milestones to achieve, multi-stakeholder consultations needed, and allocation of tasks and responsibilities;
- (h) Develop strategies to reduce identified risks and trade-offs and enhance synergies (see Step D);
- (i) Establish linkages between the project and national, subnational, and/or local development plans, strategies, and policies;
- (j) Consider principles for building resilience and adaptive capacity in social-ecological systems (see Box 5).

#### **Box 4. Transboundary and cross-sectoral cooperation, coordination and policies**

Climate change impacts and disaster risks extend beyond political boundaries; therefore, an integrated landscape or systems approach aids in problem-solving across sectors and boundaries. Transboundary cooperation can enable the sharing of costs and benefits and prevent potentially negative impacts of measures taken unilaterally. Transboundary cooperation can also provide opportunities for socioeconomic development and managing issues at appropriate ecosystem scales.

EbA and Eco-DRR interventions increasingly call for cooperation with other sectors, including agriculture, water, urban development and infrastructure.

Transboundary and cross-sectoral considerations can be integrated into EbA and Eco-DRR by:

- Integrating the different scales of critical ecosystem functioning needed for adaptation and disaster risk reduction in EbA and Eco-DRR;
- Greater coherence between regional/transboundary EbA and Eco-DRR-strategies and policies contributes to improved effectiveness of actions;
- Learning from well-established cross-sectoral planning mechanisms, such as integrated water resources management (IWRM), integrated coastal zone management (ICZM) and land-use planning, to strengthen cross-sectoral cooperation and enhance uptake of EbA and Eco-DRR into relevant sectoral frameworks (also applicable to mainstreaming EbA and Eco-DRR);
- Setting up a commission or task group with transboundary partners and sectors; representatives to develop a joint vision, goals and objectives for EbA and Eco-DRR;
- Developing a common understanding of vulnerabilities at the transboundary scale and for different sectors through the use of common models and scenarios and agreed-upon methodologies and sources of information;
- Adopting an iterative monitoring and evaluation process (see Step F) to ensure that transboundary and cross-sectoral EbA and Eco-DRR strategies continue to meet national adaptation and disaster risk reduction targets and maximize the potential for multiple benefits.

### Box 5. Applying resilience thinking in EbA and Eco-DRR design

A resilience approach to sustainability focuses on building capacity to deal with unexpected change, such as the impacts of climate change and the risk of disaster. Applying a resilience lens to designing EbA and Eco-DRR interventions involves managing interactions between people and nature, as social-ecological systems, to ensure continued and resilient provisioning of essential ecosystem functions and services that provide adaptation and disaster risk functions. There are seven key principles in applying resilience thinking, distilled from a comprehensive review of different social and ecological factors that enhance the resilience of social-ecological systems and the ecosystem functions and services they provide (Stockholm Resilience Centre, 2014):

1. Maintain diversity and redundancy, for example, by maintaining biological and ecological diversity. Redundancy is the presence of multiple components that can perform the same function, can provide “insurance” within a system by allowing some components to compensate for the loss or failure of others.
2. Manage connectivity (the structure and strength with which resources, species or actors disperse, migrate or interact across patches, habitats or social domains in a social-ecological system), e.g. by enhancing landscape connectivity to support biodiversity and ecosystem functions and services that contribute to adaptation and risk reduction.
3. Manage slowly changing variables and feedbacks (two-way “connectors” between variables that can either reinforce (positive feedback) or dampen (negative feedback) change).
4. Foster complex adaptive systems thinking by adopting a systems framework approach (Step A).
5. Encourage learning, such as by exploring different and effective modalities for communications.
6. Broaden participation, such as by dedicating resources to enable effective participation.
7. Promote polycentric governance systems, including through multi-institutional cooperation across scales and cultures.

## Step F. Monitoring and evaluation of EbA and Eco-DRR

### Purpose

36. Monitoring and evaluation (M&E) of EbA and Eco-DRR are critical for assessing progress and efficiency and effectiveness of interventions. Monitoring enables adaptive management and is ideally carried out throughout the lifetime of the intervention. Evaluation assesses an ongoing or completed project, programme or policy, its design, implementation and results. M&E can encourage continual learning to help inform future policy and practice and make corresponding adjustments.

37. There is a movement towards integrating approaches for M&E from both adaptation and disaster risk reduction fields. A myriad of approaches and frameworks have been developed, including logical frameworks and results-based management. Key actions and considerations related to M&E are outlined below.<sup>121</sup> Tools associated with this step are available in the Step E Toolbox: Monitoring and evaluation of EbA and Eco-DRR, available as supplementary information.<sup>122</sup>

### Outcome

A monitoring and evaluation framework that is realistic, operative and iterative, including protocol for data collection and evaluation, and information generated on outcomes and impacts of interventions

<sup>121</sup> Several of the key actions and considerations are based on the M&E Learning Brief (in development), to be published in 2018 by Deutsche Gesellschaft für Internationale Zusammenarbeit.

<sup>122</sup> See CBD/SBSTTA/22/INF/1.

**Key actions**

(a) Set up an M&E framework, establishing its objectives, audience (who uses the information from an M&E assessment), data collection, mode of dissemination of information, and available technical and financial capacity;

(b) Develop a results/outcomes framework within the M&E framework that details the expected effects of the EbA/Eco-DRR intervention, including short- and medium-term outcomes and long-term results;

(c) Develop indicators at the appropriate temporal and spatial scales to monitor the quantity and quality of change:

- (i) Ensure that monitoring and evaluation include indicators<sup>123</sup> formulated to the SMART criteria, which are specific, measurable, achievable and attributable, relevant and realistic, time-bound, timely, trackable and targeted and/or the ADAPT principles (Adaptive, Dynamic, Active, Participatory, Thorough);
- (ii) Ensure that indicators are vulnerability- and risk-oriented and focused, and that they are able to measure high risks versus low risks and how EbA/Eco-DRR interventions reduce risk over time. It is important to define “risk layers” and to prioritize which risks should be measured using indicators;
- (iii) Use targets and indicators under the Sustainable Development Goals, Aichi Biodiversity Targets and other relevant frameworks to track progress in sustainable ecosystem management and biodiversity enhancement, which also deliver towards strengthening resilience to climate change impacts and disasters;
- (iv) Align indicators with existing M&E frameworks where possible;

(d) Determine baselines for assessing effectiveness;

(e) Use appropriate participatory and inclusive tools for monitoring and evaluation of EbA and Eco-DRR, ensuring the engagement of local communities, stakeholders and rights holders.<sup>124</sup> Ensure the relevant experts are engaged, such as specialists on ecosystems/species status, and ecosystem function;

(f) Test EbA/Eco-DRR related indicators for local relevance.

<sup>123</sup> More information on indicators is available through the CBD website (<https://www.cbd.int/indicators/default.shtml>) and in the IPCC Fifth Assessment Report (see <https://www.ipcc.ch/report/ar5/>)

<sup>124</sup> See CBD/SBSTTA/22/INF/1, annex III.

## 22/8. Invasive alien species

*The Subsidiary Body on Scientific, Technical and Technological Advice,*

*Recalling paragraphs 16, 17 and 23 of decision XIII/13,*

1. *Requests* the Executive Secretary to continue collaboration with the International Union for Conservation of Nature, its Invasive Species Specialist Group and relevant international organizations to report on the use of biological control agents against invasive alien species, including options for supplementing risk assessment and risk management standards, also covering aquatic environments, and to report to the Conference of the Parties at its fourteenth meeting;

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

*The Conference of the Parties,*

*Recognizing* the growth in e-commerce in invasive alien species and the need for collaboration to minimize the associated risks,

*Also recognizing* the adverse impacts of invasive alien species on vulnerable ecosystems, such as islands and Arctic regions, as well as on social, economic and cultural values, including those associated with indigenous peoples and local communities,

1. *Welcomes* decision 6/1 of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, in which the Plenary approved, among other things, the undertaking of a thematic assessment of invasive alien species and their control;

2. *Welcomes* the supplementary voluntary guidance for avoiding unintentional introductions of invasive alien species associated with trade in live organisms annexed to the present decision;

3. *Encourages* Parties and *invites* other Governments and relevant organizations to make use of the supplementary voluntary guidance for avoiding unintentional introductions of invasive alien species associated with trade in live organisms;

4. *Decides*, subject to the availability of resources, to establish an Ad Hoc Technical Expert Group, with the terms of reference contained in annex II to the present decision, which will meet as needed to ensure timely provision of advice on achieving Aichi Biodiversity Target 9, and, wherever possible, meet back-to-back with other relevant meetings, and *requests* the Executive Secretary to convene a moderated open online discussion forum to support the deliberations of the Ad Hoc Technical Expert Group;

5. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice to consider the results of the online forum and the Ad Hoc Technical Expert Group at a meeting to be held prior to the fifteenth meeting of the Conference of the Parties;

6. *Encourages* Parties and *invites* other Governments to share information on national regulations that are relevant to invasive alien species, as well as regional regulations and lists on invasive alien species, through the clearing-house mechanism or other equivalent means;

7. *Encourages* Parties, other Governments and relevant organizations to cooperate with the business sector in order to address the issue of invasive alien species, and invite them to explore new opportunities that promote activities for achieving Aichi Biodiversity Target 9;

8. *Encourages* Parties, other Governments and relevant expert organizations to promote data mobilization to, for example, the Global Register of Introduced and Invasive Species produced through the Global Invasive Alien Species Information Partnership, and by supporting the development of the Environmental Impact Classification of Alien Taxa by the International Union for Conservation of Nature;

9. *Urges* Parties and other Governments to coordinate with the authorities of customs, border controls, sanitary and phytosanitary measures and other relevant competent bodies at the national and regional levels, to prevent unintentional introductions of invasive alien species associated with trade in live organisms;

10. *Recognizes* that further work on the impacts of invasive alien species on the social, economic and cultural values of indigenous peoples and local communities is imperative and should be carried out in close cooperation with indigenous peoples and local communities, and *encourages* further work on the classification by the International Union for Conservation of Nature of the impact of invasive alien species on social, economic and cultural values;

11. *Requests* the Executive Secretary, subject to the availability of resources:

(a) To explore with the Secretariat of the United Nations Economic and Social Council, the World Customs Organization and the Inter-agency Liaison Group on Invasive Alien Species the possibility of developing a globally harmonized system of classification and labelling, consistent and in harmony with international obligations, for consignments of living organisms that pose a hazard or risk to biological diversity related to invasive alien species, supplementary to existing international standards, and report on progress to the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting to be held prior to the fifteenth meeting of the Conference of the Parties;

(b) To facilitate the work of the online forum and the Ad Hoc Technical Expert Group referred to in paragraph 4 above, by preparing a compilation and synthesis of the submissions and discussions.

### *Annex I*

## **SUPPLEMENTARY VOLUNTARY GUIDANCE FOR AVOIDING UNINTENTIONAL INTRODUCTIONS OF INVASIVE ALIEN SPECIES ASSOCIATED WITH TRADE IN LIVE ORGANISMS**

1. The present guidance supplements the Guidance on Devising and Implementing Measures to Address the Risks Associated with the Introduction of Alien Species as Pets, Aquarium and Terrarium Species, and as Live Bait and Live Food annexed to decision [XII/16](#).

2. The purpose of this guidance is to minimize the risk of biological invasion of alien species crossing the borders of national jurisdiction and distinct biogeographic areas through the unintentional introduction pathways described in the CBD pathway categorization in association with trade in live organisms.

3. This guidance is relevant to States, relevant organizations, industry and consumers, including all actors involved in the entire value chain of trade in live organisms (e.g. exporters, importers, breeders, including amateur collectors, participants of exhibitions, and wholesalers, retailers and customers). For the case of live food trade, the persons involved in the value chain also include individuals in the business of restaurants and food markets.

### **I. SCOPE**

4. This guidance is voluntary and intended to be used in conjunction with, and be mutually supportive to, other relevant guidance, for example: the Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats and Species (decision VI/23);<sup>125</sup> the International Standards for Phytosanitary Measures (ISPMs); the Terrestrial

<sup>125</sup> One representative of a Party entered a formal objection during the process leading to the adoption of this decision and underlined that he did not believe that the Conference of the Parties could legitimately adopt a motion or a text with a formal objection in place. A few representatives expressed reservations regarding the procedure leading to the adoption of this decision (see UNEP/CBD/COP/6/20, paras. 294-324).



Animal Health Code and the Manual of Diagnostic Test and Vaccines for Terrestrial Animals of the World Organisation for Animal Health (OIE); the OIE Aquatic Animal Health Code and the Manual of Diagnostic Tests for Aquatic Animals and other standards and guidance developed by relevant international organizations.

5. This guidance also describes integrated processes for its implementation together with the guidance annexed to decision [XII/16](#) and existing international standards set for the protection of biodiversity, and the health of animals, plants and humans.

6. This guidance can be implemented by Parties and other Governments with cross-sectoral collaboration among conservation authorities, border control authorities, and risk regulatory bodies relevant to international trade as well as relevant industries and consumers who are involved in the value chain of trade in live organisms.

## **II. MEASURES TO REDUCE THE RISK OF INVASIVE ALIEN SPECIES MOVING UNINTENTIONALLY IN PATHWAYS ASSOCIATED WITH TRADE IN LIVE ORGANISMS**

### **A. Conformity with existing international standards and other guidance relevant to invasive alien species**

7. For all animals or animal products contained in a consignment of live organisms, the appropriate sanitary standards developed through the standard-setting processes of the World Organisation for Animal Health should be used to harmonize national measures, in both exporting and importing countries.

8. For all plants or plant products, including any soil, leaf litter, straw, or other substrates, hay, seeds, fruit or other sources of food contained in a consignment of live organisms, the appropriate phytosanitary standards developed through the standard-setting processes of the International Plant Protection Convention should be used to harmonize national measures in both exporting and importing countries.

9. A sender/exporter of live organisms should demonstrate that the commodity being exported, including its associated shipping materials (for example, water, food, bedding), poses no sanitary or phytosanitary risk to the importing country's biodiversity. This may be communicated to the national border authority of importing country by presenting a certificate issued by the exporting veterinary authority/competent authority for animals, or by presenting a phytosanitary certificate issued by the exporting national plant protection organization for plants in an exporting country, in accordance with national import regulations, which are based on pest risk analysis.

10. Carrier conveyances for consignments of live organisms should meet existing international guidance established under international organizations, such as the Code of Practice for Packing of Cargo Transport Units (CTU Code) of the International Maritime Organization/International Labour Organization/United Nations Economic Commission for Europe,<sup>126</sup> but should not be limited to this.

### **B. Responsible preparation of consignments of live organisms**

11. A sender/exporter of live organisms should be fully aware of the potential risks of biological invasions resulting from the movement of alien species through unintentional pathways associated with trade in live organisms and should ensure: (a) that a consignment meets sanitary and phytosanitary requirements set by an importing country (b) compliance with national and regional regulations on the import and export of invasive alien species; and (c) measures to minimize the risk of unintentional introductions are applied.

12. A sender/exporter of a consignment of live organisms should inform the importer/receiver of the potential risks of biological invasion by alien species on a document attached to the consignment containing live organisms, addressed to the border control authorities, national plant protection organizations or veterinary authorities. In some cases, this information should be presented to the

<sup>126</sup> [https://www.unece.org/fileadmin/DAM/trans/doc/2014/wp24/CTU\\_Code\\_January\\_2014.pdf](https://www.unece.org/fileadmin/DAM/trans/doc/2014/wp24/CTU_Code_January_2014.pdf)

competent authorities in the country or countries of transit, in order to allow the adoption of appropriate risk management measures during transit.

13. A sender/exporter of live organism should apply all appropriate sanitary and phytosanitary measures to ensure that the live organisms are shipped free of pests, pathogenic agents and alien organisms which may carry risks of biological invasions in an importing country or biogeographic areas receiving them.

#### **C. Packing containers/consignment**

14. Each consignment should be appropriately labelled as a “potential risk to biodiversity” when applicable, taking into account the risk of biological invasions that may be posed by the live organisms associated with the consignment, by a sender/exporter, especially when the live organisms were captured or collected from the wild, to inform the persons involved in the entire value chain of the potential risks to biodiversity.

15. Packing material or containers associated with the movement of live organisms should be free of pests, pathogenic agents and invasive alien species which are of concern to the importing country, country of transit or biogeographic areas concerned. If the packing material is made from wood, appropriate treatment described in ISPM 15 (Regulation of wood packaging material in international trade) as well as other national and regional regulations should be applied.

16. If a packing container is to be reused, it should be washed and disinfected by a sender/exporter prior to shipping and visually inspected prior to reusing.

17. Packing containers for aquatic species should be closed appropriately by a sender/exporter to prevent leaks of water(s) and/or contamination into or from the consignment during the transport along the entire value chain.

#### **D. Materials associated within packing containers**

18. A sender/exporter of live organisms should ensure that, prior to shipping, animal bedding is treated with appropriate method(s) to ensure that it is free of pests, pathogenic agents and invasive alien species which are of concern to an importing country, countries of transit or biogeographic areas concerned.

19. Water(s) for aquatic live organisms and any associated media to be used during transport should be free of pests, pathogenic agents and invasive alien species which are of concern to an importing country or biogeographic areas receiving them and should be treated as required.

20. Air and air supplying devices associated with consignments of aquatic organisms should be free of pests, pathogenic agents and invasive alien species which are of concern to an importing country or biogeographic areas receiving them.

21. Any soil or soil-related materials associated with the transport of live organisms should be eliminated by a sender/exporter prior to shipping. If soil or soil-related materials cannot be eliminated from the packing containers, the sender/exporter should consult the import regulations of the national plant protection organization of the importing country and comply with them.

#### **E. Feed or food for live animals**

22. A sender/exporter of live organisms should ensure that any feed or food contained in a consignment does not consist of viable seeds, parts of plants or animals that maintain the potential of establishment at the destination. Senders/exporters should ensure that the feed or food is free of pests, pathogenic agents and invasive alien species which are of concern to an importing country, countries of transit or biogeographic areas concerned.

#### **F. Treatment of by-products, waste, waters and media**

23. By-products and waste produced during the transport of live organisms should be removed from the consignment and treated or eliminated as soon as possible on arrival in the receiving country. The

recipient of the consignment should apply appropriate treatment, including disinfection,<sup>127</sup> incineration, rendering, autoclaving, or other measures on packing containers, other associated materials, by-products and waste prior to their disposal in order to minimize the risks posed by invasive alien species.

### **G. Condition of carrier conveyances**

24. If live organisms are expected to be loaded or have been previously loaded, the owners and operators of the carrier conveyances should ensure that the conveyances are washed, disinfected or otherwise appropriately treated. The owners of carrier conveyances should take responsible measures to apply the treatment immediately upon the arrival of a carrier conveyance at a destination and maintain the treated condition until the next use.

25. Prior to an operation, a carrier conveyance should be inspected to determine its sanitary and phytosanitary condition to ensure that unintentional introduction of pests, pathogenic agents and invasive alien species is minimized.

26. In the event of escape of live organisms, accidental spillage or leaks from a consignment, the owner and operators of the carrier conveyance should take necessary measures to recapture and contain the live organisms and alien species attached to them and immediately notify the appropriate authorities of that country of any escape of live organisms, accidental spillage or leaks from a consignment. The owners and operators of carrier conveyances should wash the carrier conveyance and disinfect or treat it appropriately, and inform relevant national authorities in the affected country (country of transit or destination) about the nature of the escape, spillage or leak and the measures taken by the owners or operators of the carrier conveyance.

### **H. Role of the receiver/importer**

27. A receiver/importer should be aware of import requirements set by the importing country and ensure that the import requirements are met. The importer should inform the appropriate authorities, if the consignment is contaminated, to ensure that the necessary measures are taken to contain and dispose of the contaminants.

### **I. Role of States and national authorities in relation to invasive alien species**

28. It is recommended that relevant records of consignments containing live organisms, imported to a country be collected and maintained with regard to senders/exporters, recipients/importers, the species name, and the origin of the organisms or commodity. If contaminants have been detected in the consignment, measures taken to prevent introduction and spread of invasive alien species, pests and pathogens and the health status of the animal and the phytosanitary conditions of the plant should also be recorded.

29. States should apply appropriate national border risk management measures in accordance with existing international guidance and national regulations and policy to minimize the risk of unintentional introduction of invasive alien species associated with trade in live organisms.

30. States may encourage the use of DNA sequence based taxonomic identification technologies, such as DNA barcoding, as tools for the identification of alien species of concern to the State.

31. When invasive alien species unintentionally enter or become established, relevant authorities should be notified, including, as appropriate, environmental authorities, the veterinary authority/competent authority and the national plant protection organization, to ensure that the exporting or re-exporting country, neighbouring countries and countries of transit are informed of the event in order to prevent the further spread of the invasive alien species.

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<sup>127</sup> Disinfection means the application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; this applies to premises, vehicles and different objects which may have been directly or indirectly contaminated ([OIE Terrestrial Animal Health Code](#)).

32. States, in cooperation with relevant organizations, should make information freely available to the public on: (a) import requirements for trade in live organisms and other relevant national and regional regulations and policies related to invasive alien species; and (b) results of pathway risk analysis, if they have been undertaken.

33. States that receive live organisms, their subnational governments, relevant organizations and industry involved in trade with live organisms should raise awareness on the risk of unintentional introduction of pests, pathogenic agents and invasive alien species to persons involved in the entire value chain. This includes awareness-raising campaigns using case studies of biological invasions resulting from unintentional introduction of invasive alien species directed at the public, potential operators (amateur breeders, etc.) and persons involved in the entire value chain.

#### **J. Monitoring**

34. States should conduct monitoring of invasive alien species which can unintentionally arrive in their territories, particularly in susceptible areas (e.g. ports, cross-docking and warehousing facilities, off-dock container yards, connected roads and railways) where their entry, establishment and early stage of spreading may occur.

35. When unintentional introduction in susceptible areas is observed, States should intensify the monitoring of invasive alien species in nearby areas where there are concerns about protecting biodiversity, and carry out rapid responses to contain, control and eradicate the invasive alien species.

36. States should monitor in-country movement and spread of invasive alien species introduced unintentionally with the import of live organisms in collaboration with subnational or local authorities in order to minimize the impact of invasive alien species and their spread.

#### **K. Other measures**

37. Any national risk management measures regarding unintentional introduction pathways in exporting and importing countries, and codes of conduct set by international bodies related to shipping and delivery services, may apply within the scope of this voluntary supplementary guidance.

38. The risks of unintentionally moving other species as contaminants, for example, in bedding materials, or in the shipping container and associated conveyances, as food or feed, should be considered in the risk assessment of a live organism intended to be imported for use as pets, aquarium and terrarium species, and as live bait and live food.

### *Annex II*

#### **TERMS OF REFERENCE FOR THE AD HOC TECHNICAL EXPERT GROUP ON INVASIVE ALIEN SPECIES**

1. The Ad Hoc Technical Expert Group on Invasive Alien Species will address matters that are not covered by the assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Building on the work of the moderated online forum, and knowledge and experience accumulated in various different sectors, the Ad Hoc Technical Expert Group shall provide advice or develop elements of technical guidance on management measures on invasive alien species to be implemented by broad sectors to facilitate achieving Aichi Biodiversity Target 9 and beyond:

(a) Methods for cost-benefit and cost-effectiveness analysis which best apply to the management of invasive alien species;

(b) Methods, tools and measures for identification and minimization of additional risks associated with cross-border e-commerce in live organisms and the impacts thereof;

(c) Management of invasive alien species as it relates to new potential risks arising from climate change and associated natural disasters and land use changes;

(d) Risk analysis on the potential consequences of the introduction of invasive alien species on social, economic and cultural values;

(e) Use of existing databases on invasive alien species and their impacts, to support risk communication.

2. Subject to the availability of resources, the Ad Hoc Technical Expert Group shall meet prior to the fifteenth meeting of the Conference of the Parties in accordance with the *modus operandi* of the Subsidiary Body on Scientific, Technical and Technological Advice.<sup>128</sup> The Ad Hoc Technical Expert Group should be composed of experts that have actively contributed to the process of the moderated online discussion forum in fields relevant to paragraph 1 of the present terms of reference, with participation of indigenous peoples and local communities and small island developing States, taking into account their experiences to address risks posed by invasive alien species on social, economic and cultural values, and vulnerable biodiversity in island ecosystems, respectively.

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<sup>128</sup> [Decision VIII/10, annex III.](#)

## 22/9. Conservation and sustainable use of pollinators

### *The Subsidiary Body on Scientific, Technical and Technological Advice*

1. *Welcomes* the draft plan of action 2018-2030 for the International Initiative for the Conservation and Sustainable Use of Pollinators as contained in annex I to the present recommendation;

2. *Takes note* of the summary of information on the relevance of pollinators and pollination to the conservation and sustainable use of biodiversity in all ecosystems beyond their role in agriculture and food production provided in annex II to the present recommendation;

3. *Also takes note* of the draft full report on the relevance of pollinators and pollination to the conservation and sustainable use of biodiversity in all ecosystems beyond their role in agriculture and food production,<sup>129</sup> and *requests* the Executive Secretary, subject to the availability of resources, to finalize the report, taking into account peer review comments, and make it available for the fourteenth meeting of the Conference of the Parties;

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 [III/11](#), annex III, decision [V/5](#), decision [VI/5](#), and decision [XIII/15](#),

*Noting* the importance of pollinators and pollination for all ecosystems, including those beyond agricultural and food production systems, particularly to the livelihoods and culture of indigenous peoples and local communities, and *recognizing* the important contribution of activities to promote the conservation and sustainable use of pollinators and pollination functions and services in achieving the Aichi Biodiversity Targets as well as the Sustainable Development Goals,

*Recognizing* that activities to promote the conservation and sustainable use of pollinators and pollination functions and services are key elements in the transition towards the achievement of more sustainable food systems by fostering the adoption of more sustainable practices among agricultural sectors and across sectors,

1. *Adopts* the Plan of Action 2018-2030 for the International Initiative for the Conservation and Sustainable Use of Pollinators as contained in annex I to the present decision, for implementation according to national circumstances;

2. *[Welcomes/Takes notes of]*<sup>130</sup> the summary of information on the relevance of pollinators and pollination to the conservation and sustainable use of biodiversity in all ecosystems beyond their role in agriculture and food production contained in annex II to the present decision;

3. *Encourages* Parties, other Governments and relevant organizations and networks to support and implement relevant activities of the International Initiative on the Conservation and Sustainable Use of Pollinators through, among other things, the integration of appropriate measures into the implementation of national biodiversity strategies and action plans, as well as subnational and local biodiversity strategies and actions plans, as appropriate, and relevant policies, legislation, and programmes;

4. *Urges* Parties and *invites* other Governments to address the drivers of wild and managed pollinator decline in all ecosystems, including the most vulnerable biomes and agricultural systems, and, as identified in annex II to the present decision, paying especially close attention at both the local and regional scales to the risk of introducing invasive alien species

<sup>129</sup> CBD/SBSTTA/22/INF/21.

<sup>130</sup> Pending finalization of the draft full report on the relevance of pollinators and pollination to the conservation and sustainable use of biodiversity in all ecosystems beyond their role in agriculture and food production, in line with paragraph 3 of recommendation 22/9 of the Subsidiary Body on Scientific, Technical and Technological Advice.

(plants, pollinators, predators, pests and pathogens) that are harmful to pollinators and to the plant resources on which they depend, and to avoiding or reversing land degradation and to restoring lost pollinator habitats, in addition to addressing the drivers identified in decision XIII/15;

5. *Encourages* Parties and *invites* other Governments to integrate the conservation and sustainable use of wild and managed pollinators and their habitats into land management and protected areas and other effective area-based conservation policies;

6. *Encourages* Parties and *invites* other Governments:

(a) To encourage the private sector to take into consideration the activities listed in the Plan of Action and to work towards the achievement of more sustainable production and consumption systems;

(b) To encourage academic and research bodies, and relevant national, regional and international organizations and networks, to conduct further research to address gaps<sup>131</sup> identified in the Plan of Action and to synthesize and communicate information through appropriate channels to support implementation;

(c) To encourage farmers, beekeepers, land managers, urban communities, indigenous people and local communities and other stakeholders to adopt pollinator-friendly practices and address direct and indirect drivers of pollinator decline at the field and local level;

(d) To develop and deploy monitoring of wild and managed pollinators in order to assess the magnitude of the decline and to evaluate the impact of deployed mitigation actions;

7. *Encourages* the Global Environment Facility and other donors and funding agencies to provide financial assistance for national and regional projects that address the implementation of the Plan of Action for the sustainable use and conservation of pollinators;

8. *Requests* the Executive Secretary to bring the present recommendation to the attention of the Food and Agriculture Organization of the United Nations and its Committee on Forestry, the Committee on Agriculture, the Commission on Genetic Resources for Food and Agriculture, the Committee on World Food Security, and the Secretariats of the International Plant Protection Convention and the International Treaty on Plant Genetic Resources for Food and Agriculture as well as the Secretariat of the Basel, Rotterdam and Stockholm Conventions;

9. *Invites* the Food and Agriculture Organization of the United Nations to facilitate the implementation of the Plan of Action, following the successful approach of the previous plan involving ministries of agriculture and environment at the national level;

10. *Also requests* the Executive Secretary, subject to the availability of resources, and in collaboration with the Food and Agriculture Organization of the United Nations, the Secretariat of the Basel, Rotterdam and Stockholm Conventions and other relevant stakeholders, to develop guidelines and best practices in relevant areas, determined in accordance with the level of priority for the implementation of the Plan of Action, such as, among others, the use of chemicals in agriculture, protection programmes for native pollinators in natural ecosystems, promotion of biodiverse production systems, crop rotation, monitoring of native pollinators, and environmental education;

11. *Requests* the Executive Secretary to consider the conservation and sustainable use of wild and managed pollinators in preparations for the post 2020-global biodiversity framework;

12. *Invites* Parties, other Governments, research institutions and organizations that are in a position to do so to support countries that need (a) to increase taxonomic capacity in order to improve knowledge about pollinators, their status and trends, (b) to identify drivers of change

<sup>131</sup> Gaps identified in the Element 4 of the Plan of Action 2018-2030 presented in annex I.

in their populations, and (c) to develop appropriate solutions to enable effective adoption and implementation of the proposed action plan.

*Annex I*

**UPDATED PLAN OF ACTION 2018-2030 FOR THE INTERNATIONAL INITIATIVE ON THE  
CONSERVATION AND SUSTAINABLE USE OF POLLINATORS**

**INTRODUCTION**

1. At its third meeting, in 1996, the Conference of the Parties to the Convention on Biological Diversity recognized the importance of pollinators, and the need to address the causes of their decline (decision [III/11](#)). By decision V/5, the Conference of the Parties decided to establish an International Initiative for the Conservation and Sustainable Use of Pollinators as a cross-cutting initiative within the programme of work on agricultural biodiversity to promote coordinated action worldwide and, subsequently, by decision VI/5, adopted a plan of action. The Food and Agriculture Organization of the United Nations (FAO) has been leading and facilitating the implementation of the Plan of Action.
2. The present Plan of Action has been prepared jointly by FAO and the Secretariat of the Convention on Biological Diversity, in consultation with other partners and relevant experts, pursuant to decision [XIII/15](#) (para. 10).

**I. OBJECTIVES, PURPOSE AND SCOPE**

3. The overall objective of this Plan of Action is to promote coordinated action worldwide to safeguard wild and managed pollinators and promote the sustainable use of pollination functions and services, which is a recognized vital ecosystem service for agriculture and for the functioning and health of ecosystems.
4. The purpose of this Plan of Action is to help Parties, other Governments, indigenous peoples and local communities, relevant organizations and initiatives to implement decision XIII/15, in alignment with the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets and the 2050 Vision for Biodiversity, the FAO Strategic Framework 2010-2019, and relevant successor frameworks, and the 2030 Agenda for Sustainable Development, including the Sustainable Development Goals.
5. The operational objectives of this Plan of Action are to support Parties, other Governments, indigenous peoples and local communities, relevant organizations and initiatives:
  - (a) In implementing coherent and comprehensive policies for the conservation and sustainable use of pollinators at the local, subnational, national, regional and global levels, and promoting their integration into sectoral and cross-sectoral plans, programmes and strategies;
  - (b) In reinforcing and implementing management practices that maintain healthy pollinator communities, and enable farmers, beekeepers, foresters, land managers and urban communities to harness the benefits of pollination for their productivity and livelihoods;
  - (c) In promoting education and awareness in the public and private sectors of the multiple values of pollinators and their habitats, in improving the tools for decision-making, and in providing practical actions to reduce and prevent pollinator decline;
  - (d) In monitoring and assessing the status and trends of pollinators, pollination and their habitats in all regions and to address gaps in knowledge, including by fostering relevant research.
6. The Plan of Action is aimed at facilitating the implementation of actions to safeguard and promote pollinators and pollination functions and services across agricultural landscapes and related ecosystems, including forests, grasslands, croplands, wetlands, savannas, coastal areas and urban environments. The activities can be applied at the regional, national, subnational and local levels.



## II. CONTEXT AND OVERALL RATIONALE

7. Animal-mediated pollination is a regulating ecosystem service of vital importance for nature, agriculture, and human well-being. This service is provided by pollinators, namely by managed bees, wild bees, and other insects, such as flies, butterflies and beetles, as well as vertebrates, such as bats, birds and some primates. The assessment report on pollinators, pollination, and food production published by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)<sup>132</sup> underscores the role of pollinators in multiple respects. Nearly 90 per cent of the world's wild flowering plant species depend, entirely or at least in part, on animal pollination. These plants are essential for the functioning of ecosystems by providing other species with food, habitats and other resources. In addition, some self-pollinating crops, such as soybean, can also benefit from enhanced productivity by animal pollinators.

8. Strong declines of some pollinator taxa over the last few decades have been observed, although data on the status and trends of wild pollinators is limited, and largely restricted to some regions of Europe and the Americas. Risk assessments of the status of wild insect pollinators, such as wild bees and butterflies, are similarly geographically restricted but indicate high threat levels, with proportions of threatened species often exceeding 40 per cent.

9. At the same time, as global agriculture has become increasingly pollinator-dependent, much of this dependence is linked to wild pollinators.<sup>133</sup> Beyond marketable products and health benefits stemming from diverse and nutritious diets enabled by pollination, pollinators provide non-monetary benefits for human well-being as sources of inspiration for arts and crafts, religion, traditions or recreational activities.

10. Many of the main direct drivers of pollinator loss have remained the same as originally identified by the Convention on Biological Diversity in its first decision on pollinators:<sup>134</sup> habitat fragmentation and land use change, agricultural and industrial chemicals, parasites and diseases, and invasive alien species. In addition, the importance of other direct drivers, such as climate change, has emerged, and greater attention has been focused on drivers linked to intensive agricultural practices, such as monoculture, use of pesticides, and some [living modified organisms], with increased evidence of both lethal and sublethal effects of pesticides on bees, and the understanding that the combination of different drivers can increase the overall pressure on pollinators.

11. In the broader context, pollinators can be considered an important link for agriculture, forestry, biodiversity, health, food security, food safety and nutrition. Pollinator-friendly measures have the potential to increase productivity and sustainability and contribute to the long-term viability and profitability of food production systems. Their wider use could be a transformative agent by fostering sustainable practices among agricultural sectors.

12. The first phase of the International Pollinators Initiative (2000-2017) facilitated the identification of main threats and the causes of pollinator decline, as well as the impacts of pollination functions and services and reductions on food production. In addition, taxonomic information on pollinators, the assessment of their economic value in various countries and crops were important steps not only to reinforce research and monitoring, but also to promote the conservation, restoration and sustainable use of pollinators. A number of relevant tools were developed, and many studies were carried out, including the IPBES assessment and complementary studies.

13. The essential role of pollinators in food production, and the importance of their diversity and abundance in agricultural landscapes and related ecosystems are now well recognized. The updated Plan of Action builds on the first phase, and taking into account decision XIII/15, orients the emphasis towards mainstreaming pollination concerns into policy, developing and implementing measures on the ground to

<sup>132</sup> IPBES (2016). [Assessment Report on Pollinators, Pollination and Food Production](#).

<sup>133</sup> Ibid.

<sup>134</sup> Decision VI/5 on agricultural biological diversity, annex II.

support the conservation and sustainable use of pollinators, addressing risks, building capacity and sharing knowledge on multiple levels to integrate pollination considerations into farming, land use and other management decisions, and focusing collaborative research on emerging issues and prevailing needs.

### III. ELEMENTS

#### Element 1: Enabling policies and strategies

##### *Operational objective*

To support the implementation of coherent and comprehensive policies for the conservation and sustainable use of pollinators at the local, subnational, national, regional and global levels, and to promote their integration into sectoral and cross-sectoral plans, programmes and strategies.

##### *Rationale*

Appropriate national policies are needed in order to provide an effective enabling environment to support activities by farmers, land managers, beekeepers, the private sector and civil society. Pollination concerns are often a cross-cutting issue, and policies should be designed to integrate pollinator and pollination considerations not only into the context of sustainable agricultural transitions, but also across sectors (for example forestry and health).

##### *Activities*

#### **A1.1 Develop and implement coherent and comprehensive policies that enable and foster activities to safeguard and promote wild and managed pollinators, to be integrated into the broader policy agendas for sustainable development**

**A.1.1.1** Promote coherent policies across sectors and cross-cutting issues (e.g. biodiversity, food security, chemicals and pollution, poverty reduction, climate change, disaster risk reduction and combat desertification);

**A.1.1.2** Address linkages between pollinators and human health, nutritious diets and pesticide exposure;

**A.1.1.3** Address linkages between pollinators and the provision of ecosystem functions and services, beyond food production;

**A.1.1.4** Recognize pollinators and pollination as part of holistic farming systems and as an important agricultural input;

**A.1.1.5** Recognize pollinators and pollination as an essential part of the of ecosystem integrity and its maintenance;

**A.1.1.6** Apply nature-based solutions and reinforce positive interactions (e.g. integrated pest management, on-farm diversification, ecological intensification, restoration to increase landscape connectivity);

**A.1.1.7** Support access to data and use of decision support tools, including land use planning and zoning, to enhance the extent and connectivity of pollinator habitats<sup>135</sup> in the landscape, with the participation of farmers and local communities;

**A.1.1.8** Support the development of capacity to provide guidance on pollinator and pollination best management practices by supporting the incorporation of nature-based solutions into extension services, farmer-to-farmer sharing, and farmer researcher networks;

**A.1.1.9** Develop and implement incentives, consistent and in harmony with international obligations, for farmers and food suppliers to encourage the adoption of pollinator-friendly practices (e.g. carbon sequestration measures that increase pollinator habitats; conservation of uncultivated areas for pollinator forage) and remove or reduce perverse incentives that are harmful to pollinators and their habitats (e.g.

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<sup>135</sup> Pollinator habitats: areas that provide forage, nesting sites and other conditions for the completion of the life cycles of different pollinator species.

pesticides subsidies; incentives for pesticide use as credit requirements from banks), taking into consideration the needs of farmers, urban and rural beekeepers, land managers, indigenous people and local communities and other stakeholders;

**A.1.1.10** Promote recognition of pollinator-friendly practices and consequences on pollination functions and services in existing certification schemes;

**A.1.1.11** Protect and conserve the threatened pollinator species as well as their natural environment.

## **A1.2 Implement effective pesticide regulation<sup>136</sup>**

**A.1.2.1** Reduce the use of and gradually phase out existing pesticides, including cosmetic pesticides and agricultural chemicals, that are harmful to or that present an unacceptable risk to pollinators, and avoid the registration of those that are harmful or present an unacceptable risk to pollinators;

**A.1.2.2** Develop, enhance and implement on a regular basis risk assessment procedures (considering field-realistic exposures and longer-term effects) for pesticides, pesticide-coated seeds and [living modified organisms] to take into account possible impacts and cumulative effects, including sublethal and indirect effects, on wild and managed pollinators (including eggs, larva, pupa and adult stages), as well as other non-target species;

**A.1.2.3** Work with regulators to implement tools such as the FAO Pesticide Registration Toolkit;

**A.1.2.4** Strengthen pesticide regulation authorities in their capacity to protect pollinators from chemicals;

**A.1.2.5** Develop and promote guidance and training on best practices for pesticide use (e.g. techniques, technology, timing, non-flowering crops, weather conditions) based on the International Code of Conduct on Pesticide Management of FAO and the World Health Organization;

**A.1.2.6** Develop and implement national and regional pesticide risk reduction strategies and promote alternative approaches (e.g. integrated pest management practices and biocontrol) to reduce or eliminate exposure of pollinators to harmful pesticides.

**A.1.2.7** Develop and implement, as appropriate, national monitoring, surveillance and registration programmes for pesticides and their transformation products.

## **A1.3 Protect and promote indigenous and traditional knowledge**

**A.1.3.1** Protect and promote indigenous and traditional knowledge, innovations and practices related to pollinators and pollination (e.g. hive design; stewardship of pollinator resources; traditional ways of understanding of parasite impacts) and support participatory approaches to the identification of diagnostic characteristics for new species and monitoring;

**A.1.3.2** Protect established land rights and tenure for the conservation and sustainable use of pollinators.

## **A1.4 Control the trade and movement of managed pollinators, and other trade-related impacts**

**A.1.4.1** Monitor the movement and trade of managed pollinator species, sub-species and breeds among countries and within countries;

**A.1.4.2** Develop and promote mechanisms to limit the spread of parasites and pathogens to managed and wild pollinator populations;

**A.1.4.3** Prevent and minimize the risk of introducing invasive alien species (plants, pollinators, predators, pests and pathogens) that present an unacceptable risk to pollinators and to plant resources on which they depend, and monitor the dispersion risk of those already introduced (for example, *Bombus terrestris*).

<sup>136</sup> Taking note of the IUCN CEM/SSC Task Force on Systemic Pesticides publication “An update of the Worldwide Integrated Assessment (WIA) on systemic insecticides”.

## Element 2: Field-level implementation

### *Operational objective*

To reinforce and implement management practices that maintain healthy pollinator communities, and enable farmers, beekeepers, foresters, land managers and urban communities to harness the benefits of pollination functions and services for their productivity and livelihoods.

### *Rationale*

In order to secure pollinator-friendly habitats and promote sustainable agroecosystems and pollinator husbandry, the direct and indirect drivers of pollinator decline need to be addressed in the field. Attention is needed at the farm level and across entire ecosystems. Landscape-level measures address connectivity and the value of managing across landscapes and sectors. Improved management measures for pollinators include attention to bee husbandry for honey bees and other pollinators.

### *Activities*

#### **A.2.1 Co-design (with farmers, urban and rural beekeepers, land managers and indigenous peoples and local communities) and implement pollinator-friendly practices in farms and grasslands and in urban areas**

**A.2.1.1** Create uncultivated patches of vegetation and enhance floral diversity using mainly native species, as appropriate, and extended flowering periods, to ensure diverse, abundant and continuous floral resources for pollinators;

**A.2.1.2** Manage blooming of mass-flowering crops to benefit pollinators;

**A.2.1.3** Foster networks for exchanges of native seeds;

**A.2.1.4** Promote genetic diversity and its conservation within populations of managed pollinators;

**A.2.1.5** Promote extension services, farmer-to-farmer sharing approaches and farmer field schools to exchange knowledge and provide hands-on education and empowerment of local farming communities;

**A.2.1.6** Diversify farming systems and the resulting food resources and habitats of pollinators through home gardens and agroecological approaches, such as crop rotations, intercropping, agroforestry, integrated pest management, organic agriculture, and ecological intensification;

**A.2.1.7** Promote awareness, training and adoption of best practices for integrated pest management (for example, including weed management strategies and biocontrol) and, if necessary, pesticide usage in the context of on-farm pollinator management (for example, pesticide application timing, weather conditions, equipment calibration in order to reduce spray drift to off-field areas), and to avoid or minimize any synergistic effects of pesticides with other drivers that have been proven to pose serious or irreversible harm to pollinators;

**A.2.1.8** Promote best practices for climate-resilient agriculture with benefits for pollinators;

**A.2.1.9** Incorporate pollinator-friendly practices in existing practices in the relevant sectors, including agriculture and food production certification schemes.

#### **A.2.2 Address pollinator-friendly management and pollinator needs in forestry**

**A.2.2.1** Avoid or minimize deforestation, harmful forest management practices and other threats that impact negatively on wild pollinators and on traditional bee keeping;

**A.2.2.2** Provide and promote measures to capture, safeguard and transport beehives found inside wooden logs;

**A.2.2.3** Promote agroforestry and forestry systems to ensure heterogeneous habitats formed by native species, which offer diversified floral and nesting resources for pollinators;

**A.2.2.4** Include considerations regarding pollinators in the rules for sustainable forest management certification systems.

### **A.2.3 Promote connectivity, conservation, management and restoration of pollinator habitats**

**A.2.3.1** Preserve or restore pollinators and habitats distributed in natural areas, including forests, grasslands and agricultural lands, urban areas and natural corridors, to enhance the availability of floral resources and nesting sites over time and space;

**A.2.3.2** Identify priority areas and measures, on the global, regional, national and local levels for the conservation of rare and endangered pollinator species;

**A.2.3.3** Foster the establishment and pollinator-friendly management of nature protection areas and semi-natural areas, as well as other in-site options, such as the FAO Globally Important Agricultural Heritage Systems;

**A.2.3.4** Promote initiatives in urban areas and service land along roads and railways to create and maintain green areas and vacant lands that offer floral and nesting resources to pollinators, and improve the relationship between people and pollinators by raising public awareness of the importance of pollinators for their daily lives;

**A.2.3.5** Manage the use of fire and fire control measures to reduce the negative impacts of fires on pollinators and relevant ecosystems.

### **A.2.4 Promote sustainable beekeeping and bee health**

**A.2.4.1** Reduce the dependence of managed pollinators on nectar and pollen substitutes by promoting better availability and husbandry of floral resources, therefore improving pollinator nutrition and immunity to pests and diseases;

**A.2.4.2** Minimize the risks of infections and spread of pathogens, diseases and invasive alien species and minimize the stress on managed pollinators associated with the transportation of bee hives;

**A.2.4.3** Regulate markets for managed pollinators;

**A.2.4.4** Develop measures to conserve genetic diversity in managed pollinators;

**A.2.4.5** Promote local and traditional knowledge related to innovative practices in management of honeybees, stingless bees and other managed pollinators.

## **Element 3: Civil society and private sector engagement**

### *Operational objective*

To promote education and awareness in the public and private sectors of the multiple values of pollinators and their habitats, improve the tools for decision-making, and implement practical actions to reduce and prevent pollinator decline.

### *Rationale*

Global agriculture has become increasingly pollinator-dependent, and much of this dependence is linked to wild pollinators. The general public and the private sector, including the food and cosmetics industries and supply chain managers, are increasingly showing an interest in protecting pollinators. Building on this, targeted actions on conservation of pollinators and their habitats need to be elaborated for civil society and for the private sector. Greater understanding of the vulnerability to pollination services losses and the value of these functions and services will help to drive such initiatives.

*Activities***A3.1 General public awareness-raising**

**A.3.1.1** Engage in awareness raising with targeted key stakeholder groups, including farmers, extension workers, beekeepers, non-governmental organizations, schools, the mass media, and consumer organizations on the value of pollinators and pollination for health, wellbeing and livelihoods;

**A.3.1.2** Raise the awareness of the private sector, including food companies, cosmetics manufacturers and supply chain managers, of the risks posed by the decline of pollination functions and services to their business and the value of protecting pollinators;

**A.3.1.3** Promote use of technology and build taxonomic capacity for the general public, including farmers and beekeepers, to identify and differentiate pollinators from pests, eventually contributing to data collection on pollinators;

**A.3.1.4** Support campaigns and activities to engage stakeholders in the conservation and sustainable use of pollinators, including celebrations on 20 May of World Bee Day, which was established by the United Nations General Assembly.<sup>137</sup>

**A3.2 General public actions**

**A.3.2.1** Promote educational activities with children and students on the importance of pollinators and ecosystem functions and services in their daily lives and propose ways to contribute to the protection of pollinators;

**A.3.2.2** Integrate pollinators and ecosystem functions and services subjects into the curriculum of agriculture, environment and economics courses;

**A.3.2.3** Support citizen science projects for generating data on pollinators and pollination and raising appreciation among civil society organizations for the role of pollinators;

**A.3.2.4** Encourage network-building activities, including through conferences,<sup>138</sup> dissemination of information on pollinators and pollination through public databases, web portals, social media and information networks that facilitate access to all relevant stakeholders.

**A3.3 Business and supply chain engagement**

**A.3.3.1** Provide decision-making tools to assist different stakeholders in assigning values to pollinators and pollination, including non-monetary values;

**A.3.3.2** Develop modalities to incorporate pollinators and pollination in true cost accounting of agriculture and food production;

**A.3.3.3** Improve understanding within the private sector of the links between commercial products and the dependency of commodities (crop yields and quality) on respective type of pollinators;

**A.3.3.4** Share evidence of pollination deficit and the economic impacts, and impacts on livelihoods, to support business in identifying potential risks, developing vulnerability assessments, and adopting pollinator-friendly measures;

**A.3.3.5** Develop and share pollinator-friendly business cases for action;

**A.3.3.6** Promote the use of ecolabels, standards and the importance of choices for consumers that may benefit pollinators.

<sup>137</sup> See [General Assembly resolution 72/238](#) of 20 December 2017 on agriculture development, food security and nutrition.

<sup>138</sup> For example, a regular conference for the initiative (possibly linked to the International Federation of Beekeepers Associations (<http://www.apimondia.com/>)).

## **Element 4: Monitoring, research and assessment**

### *Operational objective*

To monitor and assess the status and trends of pollinators, pollination and their habitats in all regions and to address gaps in knowledge, including by fostering relevant research.

### *Rationale*

Monitoring and assessment of the status and trends of pollinators and pollination functions and services, of measures for the conservation and sustainable use of pollinators, and of the outcomes of such measures, is necessary to inform adaptive management. Academic and research bodies, and relevant international organizations and networks should be encouraged to undertake further research, taking into consideration traditional knowledge, to address gaps in knowledge and to expand research to cover a wider variety of pollinators and to support coordinated global, regional, national, subnational and local monitoring efforts and build relevant capacity, especially in developing countries, where there have been fewer research and monitoring efforts to date.

### *Activities*

#### **A4.1 Monitoring**

**A.4.1.1** Monitor the status and trends of pollinators, with particular focus on those regions currently lacking data;

**A.4.1.2** Quantify pollination deficits in crops and in the natural ecosystems, with particular focus on those regions and farming systems currently lacking data, where feasible, and apply consistent and comparable protocols to identify the most effective intervention measures;

**A.4.1.3** Monitor the drivers and threats to pollinators in tandem with their status and trends in order to identify the likely causes of pollinator declines;

**A.4.1.4** Monitor the effectiveness of interventions in protecting pollinators and managing pollination functions and services;

**A.4.1.5** Support the use of technology and the development of user-friendly tools, such as mobile apps, to promote pollinators monitoring through citizen science;

**A.4.1.6** Promote the use of pollinators and pollination as indicators for the status of biodiversity, ecosystem health, agriculture productivity and sustainable development;

**A.4.1.7** Promote the development of methodologies for systematic monitoring of pollinators in natural ecosystems, especially in protected areas or sites of importance for conservation and productive ecosystems in such a way as to facilitate the development of detailed visual maps at the local level and then subsequent decision-making.

#### **A4.2 Research**

**A.4.2.1** Promote research on non-bee taxa and other wild species of pollinators in natural ecosystems and the ecosystem functions and services provided by them in order to design appropriate management policies and protection measures;

**A.4.2.2** Undertake research, including participatory research, on the socioeconomic as well as environmental implications of pollinator decline in the agricultural sector and related businesses;

**A.4.2.3** Facilitate the harmonization of protocols for research, data collection, management and analysis, storage and curation of pollinator samples, including modalities for collaborative research;

**A.4.2.4** Promote and share further research to address gaps in knowledge, including the effects of partial loss of pollinators on crop production, the potential impacts of pesticides considering their possible cumulative effects, and of living modified organisms, under field conditions, including differential impacts on managed and wild pollinators, and on social versus solitary pollinators, and the impacts on

pollination of crop and non-crop plants over the short and long term, and under different climatic conditions, as well as the impact of pollinator loss, on ecosystem integrity and its maintenance;

**A.4.2.5** Promote further research to identify ways to integrate pollinator-friendly practices into farming systems as part of efforts to improve yield quantity and quality and mainstreaming of biodiversity into agricultural systems;

**A.4.2.6** Promote further research to identify risks to pollination under climate change and potential adaption measures and mitigation tools, including the potential loss of keystone species and their habitats, as well as the role of pollination in wider ecosystem resilience and restoration;

**A.4.2.7** Promote further research and analysis on pest management as it interacts with pollination functions and services, taking into account the impact of drivers of pollinator decline, to support the development of more feasible and sustainable alternatives;

**A.4.2.8** Promote further research and analysis to identify ways to integrate the provision of ecosystem functions and services and pollinator conservation, beyond food production;

**A.4.2.9** Translate pollinator research and findings into recommendations and best practices tailored for a wide range of stakeholder groups;

**A.4.2.10** Strengthen the synergies between scientific evidence, conservation practices and farmer-researcher community practices, and traditional knowledge to better support actions.

### **A4.3 Assessment**

**A.4.3.1** Generate data sets through a permanent pollinator monitoring process that allows the creation of regional/national/subnational and local visual maps to indicate the status and trends of pollinators and pollination and crop-specific vulnerability to support decision-making;

**A.4.3.2** Assess the benefits of pollinators and pollination, taking into account the economic and other values to agriculture and the private sector, including food companies, cosmetics manufacturers and supply chains;

**A.4.3.3** Assess the benefits of pollinator-friendly practices, including the conservation of uncultivated areas of farmlands, and propose alternatives to deforestation;

**A.4.3.4** Increase understanding of the consequences of pollinator decline in specific crops, agroecosystems and natural environments;

**A.4.3.5** Support the identification of pollinators in natural and managed areas, such as forestry and agricultural systems, as well as the interactions between pollinators and plants, and the impacts of anthropogenic activities in ecosystems;

**A.4.3.6** Address taxonomic assessment needs in different regions and design targeted strategies to fill the existing gaps;

**A.4.3.7** Increase taxonomic capacity to improve knowledge about pollinators, their status and trends, identify drivers of changes in their populations, and develop appropriate solutions;

**A.4.3.8** Promote regular assessments of the conservation status of pollinator species from different taxonomic groups, update national, regional and global red data books and red lists regularly and elaborate plans of action for the conservation and restoration of threatened pollinator species.

### *Actors*

This Plan of Action is addressed to all relevant stakeholders, including Parties to the Rio Conventions and other multilateral environmental agreements, national, subnational and municipal governments, donor agencies, including the Global Environment Facility, the World Bank and regional and national development banks and banks with a significant portfolio of loans for rural development, private and corporate donors, as well as other relevant bodies and organizations, land owners and land managers, farmers, beekeepers, indigenous peoples and local communities, the private sector and civil society.



FAO will facilitate the implementation of the Plan of Action, following the successful approach of the previous plan. This new phase is also intended to align the activities on pollination and pollinators more closely with FAO regional and country offices in order to create synergies and provide broader support. The full implementation of the second phase of the Plan of Action at the national and regional levels will depend on the availability of resources.

#### IV. SUPPORTING GUIDANCE AND TOOLS

A list of supporting guidance and tools is provided in an information note (CBD/SBSTTA/22/INF/20).

##### *Annex II*

#### **SUMMARY - REVIEW OF THE RELEVANCE OF POLLINATORS AND POLLINATION TO THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY IN ALL ECOSYSTEMS, BEYOND THEIR ROLE IN AGRICULTURE AND FOOD PRODUCTION**

##### **A. Introduction**

1. The full report<sup>139</sup> and the present summary have been prepared pursuant to decision [XIII/15](#). The report draws on the contributions of many researchers and partners around the world.<sup>140</sup>

##### **B. Roles and values of pollinators and pollinator dependent plants beyond agriculture**

2. There is a wide diversity of values linked to pollinators and pollination beyond agriculture and food production, which includes ecological, cultural, financial, health, human and social values.

3. Pollinators enhance the reproduction and genetic diversity of the great majority (c. 87.5%) of plant species. About half of plant species are completely dependent on animal-mediated pollination. Animal-mediated pollination usually leads to some degree of cross-pollination and thus promotes and maintains genetic variation in populations, which, in turn, allows plant species to adapt to new and changing environments. Cross-pollination also results in higher seed production. By ensuring a supply of seed propagules and promoting genetic variation, pollinators are considered to be of fundamental importance for the maintenance of plant diversity and ecosystem functioning.

4. Plants and pollinators are critical for the continued functioning of ecosystems, contributing to climate regulation, provision of wild meat, fruits and seeds that support many other species, regulation of malaria and other diseases, among other functions and services. Tropical forests, which contain a high proportion of dioecious species, are particularly dependent on pollination. Another example is mangroves, dominated by obligate outbreeder plants, which provide important functions and services, such as preventing coastal erosion, protecting from flood and salt intrusion, providing wood fuel and timber, and supporting fisheries, as well as habitat and food provision for bees and many other species.

5. The mutualisms between plants and their floral visitors sustain not only plant diversity but also the diversity of an estimated 350,000 animal species. While there is strong evidence of local extirpation of pollinator populations due to a lack of floral resources, there is no report on animal species extinction due to a lack of floral resources. However, given the extent of habitat fragmentation, the large number of plant species that have become extinct or nearly so in the past 100 years and the paucity of knowledge about host plant usage by flower-visiting animals, the possibility that this is occurring without being

<sup>139</sup> *The relevance of pollinators and pollination to the conservation and sustainable use of biodiversity in all ecosystems beyond their role in agriculture and food production*, based on CBD/SBSTTA/22/INF/21 which will be finalized in line with paragraph 3 of recommendation 22/9 of the Subsidiary Body on Scientific, Technical and Technological Advice.

<sup>140</sup> The main authors of the report are Marcelo Aizen, Pathiba Basu, Damayanti Buchori, Lynn Dicks, Vera Lucia Imperatriz Fonseca, Leonardo Galetto, Lucas Garibaldi, Brad Howlett, Stephen Johnson, Monica Kobayashi, Michael Lattorff, Phil Lyver, Hien Ngo, Simon Potts, Deepa Senapathi, Colleen Seymour and Adam Vanbergen. The report was edited by Barbara Gemmill-Herren and Monica Kobayashi. A workshop convened from 27 to 29 November 2017 in collaboration with IPBES, the University of Reading, and the Convention on Biological Diversity brought together regional experts on pollinators to discuss and assess the role of pollinators and pollination services in supporting ecosystems beyond agricultural systems and in supporting ecosystem services beyond food production.

documented is very real. Data on population changes in wild flower-visiting animals are notoriously difficult to obtain and the causes of these changes even more difficult to establish.

6. Pollinators, pollinator habitats and pollinator products are sources of inspiration for art, education, literature, music, religion, traditions and technology. Honey-hunting and beekeeping practices based on indigenous and traditional knowledge have been documented in more than 50 countries. Bees have inspired imagery and texts in religions all over the world, and other pollinators, such as hummingbirds, contribute to the national identity of such countries as Jamaica and Singapore. Pollinators and pollinator-dependent plants support advances in technology and knowledge through inspiration and application of their biology to human innovations, such as the visually guided flight of robots.

7. Bee products contribute to the income of beekeepers around the globe. Beekeeping can potentially be an effective tool for reducing poverty, empowering youth and creating opportunities to the conservation of biodiversity by adopting bee-friendly actions.

8. There is a range of economically important plants outside crops that depend on animal pollinators, which include several medicinal plant species. Other pollinator-dependent plants can provide valuable functions and services, such as ornamentals, biofuels, fibres, construction materials, musical instruments, arts, crafts and recreation activities. Pollinator-dependent plants also recycle CO<sub>2</sub>, regulate climate, and improve air and water quality. Furthermore, several micronutrients, including vitamins A and C, calcium, fluoride and folic acid are obtained primarily from pollinator-dependent plants. Additionally, pollinator products are employed for improving health, such as antibacterial, anti-fungal and anti-diabetic agents. Pollinator insects, including the larvae of bees, beetles and palm weevils, constitute a significant proportion of the approximately 2,000 insect species consumed globally, being high in protein, vitamins, and minerals.

### **C. Status and trends of pollinators and pollinator-dependent plants in all ecosystems**

9. Many insect pollinators (e.g. wild bees, butterflies, wasps and beetles) as well as vertebrate pollinators (e.g. birds, marsupial, rodents and bats) have been declining in abundance, occurrence and diversity at the local and regional levels. The number of plant species that rely on pollinators is declining when compared to self-compatible or wind-pollinated plants.

10. For all regions, land use change is reported as the main driver of pollinator decline. In Africa, deforestation continues to occur as a result of the conversion of land for agriculture and the use of timber for construction and fuel. In Latin America and Asia and the Pacific, increasing soybean cultivation and oil palm plantations respectively has impacted many important biomes.

11. Wild bee nests in nature are in danger of depletion as a result of logging practices. In Malaysia and Brazil, it has been shown that logging reduces the number of wild bee nests and, as a consequence, pollinators, which has implications for forest recovery or restoration. Logging also reduces the forest habitat that contains suitable, unoccupied nesting sites. The loss of pollinators occurs even if the current rules for certified wood management are taken into account.

12. Additionally, in Africa, the frequency and intensity of fires, which, in turn, affect the reseeded and re-sprouting of plants, affect different ecosystems due to a high degree of pollinator-plant specialization. Such specialization suggests a marked susceptibility to pollinator loss, and reliance on a single species of pollinator is potentially risky in the face of global changes. Climate change models suggest that fires might increase in frequency, as the length of the fire weather season will increase.

13. In Latin America, alien bee invasions are reported as the second driver of local bee decline. Introduced bee species are also a concern, for instance, in Japan, where there is a potential for disruption of the native pollination network. In Asia, the erosion of traditional knowledge, including the management of local bees, may contribute to local pollinator declines. For Europe, Canada and the United States, Australia and New Zealand, the risk to pollinators from pesticides and the transmission of pathogens and parasites is an important concern.

14. A lack of spatial and temporal changes in wild pollinators in many regions, combined with little known taxonomy, hampers assessment of the status and trends of pollinators. In addition, a lack of global Red List assessments specifically for insect pollinators and, in most parts of the world, the lack of long-term population data or benchmark data to compare the present status of wild pollinator populations make it difficult to discern any temporal trend.

15. The habitats and biomes identified as most vulnerable to pollinator declines per region are:

(a) *Africa*: Tropical forest, dry deciduous forest, subtropical forest, Mediterranean, mountain grasslands, tropical and subtropical savannas and grasslands, drylands and deserts, wetlands and dambos, urban and peri-urban, coastal areas;

(b) *Asia and the Pacific*: Tropical dry evergreen forests;

(c) *Latin America*: Andes, Mesoamerican Mountains and regions of high altitude, the subtropical Chaco forest, the Cerrado savannah, the Pantanal wetland, the Amazonian forest, and the Atlantic Forest;

(d) *Europe, Canada, the United States, Australia and New Zealand*: mires and bogs, grasslands, heathland, and scrub.

16. The Atlantic forest is a biome rich in plant-pollinator mutualisms which, with only 29 per cent of its original forest cover,<sup>141</sup> is highly threatened through habitat loss and fragmentation. The extreme fragmentation of this biome has implied a differential loss of plant species with relatively specialized pollination and sexual systems that only survive in the interior of large remnants. In the Chaco Dry Forest, it has been suggested that an increase in selfing (self-pollination) could be associated with the invasion of Africanized honey bees.

17. Climate change is considered a significant potential threat in Europe and North America. Bumble bees are failing to track warming by colonizing new habitats north of their historic range. Simultaneously, they are disappearing from the southern portions of their range. Some species have declined severely.

18. Meliponiculture – beekeeping with stingless bees (Meliponini) – is widely undertaken by indigenous peoples and local communities with knowledge passed orally through generations. Stingless bees are useful pollinators for crops and wild fruits, and most of them produce honey, which is used for medicinal purposes. While meliponiculture is an economic opportunity for tropical countries, the large-scale rearing of stingless bees may have negative impacts and is considered a current challenge.

19. The introduction of honeybee (*Apis*) species in mangroves has been explored in many countries, such as China, Cuba, India and the United States, and is also increasing in Thailand and Brazil. This activity may have the potential to contribute to the conservation of the mangrove systems, but the impacts need to be further assessed. Management of colonies, including artificial reproduction and queen rearing, needs to be advanced in order to use natural resources in a sustainable way.

20. Regarding the impact of pesticides on non-target species, a recent meta-analysis showed that, when compared to honeybees, stingless bees are more sensitive to various pesticides. Experimental studies performed with other pollinators, such as the great fruit-eating bat (*Artibeus lituratus*) from Brazil, indicate that the chronic exposure of fruit bats to relevant concentrations of endosulfan can lead to significant bioaccumulation, which may affect the health of this important seed disperser in neotropical forests. Similarly, analysis of long-term butterfly population data from Northern California revealed a negative association between butterfly populations and increasing neonicotinoid application. A controlled landscape experiment implemented across three countries (Hungary, Germany and the United Kingdom) that employed oilseed rape (canola) treated with neonicotinoids (clothianidin or thiamethoxam) showed that wild bee reproduction (*B. terrestris* and *Osmia bicornis*) was negatively correlated with neonicotinoid residues in the bee nests.

<sup>141</sup> Official data: [http://www.mma.gov.br/biomas/mata-atl%C3%A2ntica\\_emdesenvolvimento](http://www.mma.gov.br/biomas/mata-atl%C3%A2ntica_emdesenvolvimento)

21. [Genetically modified crops that carry traits for herbicide tolerance or insect resistance may threaten pollinators by lethal or sublethal effects on adult insects or larvae. However, recent reviews showed no clear negative effects of genetically modified organisms on honeybees]. [With regard to potential lethal or sublethal effects on pollinators by genetically modified crops carrying traits for herbicide tolerance or insect resistance, even though some recent reviews show no clear negative effects of genetically modified organisms on honeybees, it is premature to reach a conclusion on such effects. Therefore, more studies are needed on more pollinator species and circumstances.]

22. Latin America hosts the wild germplasm of many food crops<sup>142</sup> that directly or indirectly depend on pollinators for high yield. Germplasm of these, and perhaps of hundreds of wild species with agricultural potential, persists in remnants of natural and seminatural habitats and under the management of local indigenous communities in this region. Therefore, diverse pollinator assemblages are important to ensure not only the reproduction of wild plants in general but also the persistence of this germplasm. Yet, perhaps with a few exceptions, the occurrence and diversity of this germplasm and its current conservation status are unknown.

#### **D. Response options for the conservation and sustainable use of pollinators and their habitats**

23. Many of the activities identified in the IPBES assessment and reflected in decision XIII/15, will contribute to the conservation and sustainable use of pollinators and their habitats and thereby help to sustain pollination functions in ecosystems beyond agricultural systems and food production.

24. A landscape-wide approach is particularly relevant for the conservation and sustainable use of pollinators and their habitats to sustain pollination functions in ecosystems beyond agricultural systems and food production. This includes the maintenance of natural vegetation corridors, restoration of degraded lands, and the use of pollination-friendly farming. Special attention is needed to reduce deforestation and habitat loss and degradation in all biomes. Fire management regimes should take into account impacts on pollinators and related vegetation. Restoration can increase the connectivity of pollinator-friendly habitats and support species dispersal and gene flow. These measures can also contribute to climate change adaptation and mitigation and disaster risk reduction.

25. The following actions could be taken in support of a landscape approach:

(a) Areas managed by indigenous peoples and local communities are important for the conservation of biodiversity;

(b) Significant land use changes are related to deforestation caused by crops. Raising the awareness of the buyers of those commodities can increase pressure for attaining sustainable production;

(c) Data collection, maps and modelling are important tools to predict the impact of global change and to support policies for the conservation, restoration and regeneration of natural habitats;

(d) Landscape genetics is a tool to determine population characteristics of pollinators, as well as the genetic consequences of bee management in large areas, inside or outside their distribution areas.

26. There is an urgent need to set up and harmonize regulations for the trade in managed pollinators (best management practices, risk management and monitoring to prevent risks, harmonized reporting procedure, data management strategy) so that current and emerging risks and threats can be detected in near-real time and across borders, allowing for response measures.

27. Sustainable wood management and certification rules should take into account measures such as the capture, transportation and safeguard of beehives found in forestry products.

28. There is a need to improve knowledge of pollinators and pollination and their role in maintaining ecosystem health and integrity beyond agriculture and food production. The majority of existing literature

<sup>142</sup> These crops include potato, tomato, pepper, cacao, strawberry, quinoa, amaranto, avocado, sweet potato, acai, palmito, Brazil nut, guarana, passion fruit and yucca.

focuses on specific hymenopteran groups. There is a lack of information on the impact of landscape changes or pesticides on non-bee taxa.

29. The following actions could be taken in support of improving knowledge:

(a) Improved knowledge management, including through taxonomy, volunteer recording, DNA barcoding, biodiversity informatics tools, geographical referencing for the museum specimens, standardized long-term monitoring of pollinators and pollination functions and services;

(b) Attention to traditional and experiential knowledge, noting that conventional knowledge synthesis methods are not necessarily appropriate for synthesizing other forms of knowledge, such as indigenous and local knowledge or tacit knowledge held by practitioners, such as land managers and conservationists.

## 22/10. Second work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

### *The Subsidiary Body on Scientific, Technical and Technological Advice*

1. *Urges* Parties and *invites* observers, as appropriate, to respond to the call from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services for requests, inputs and suggestions in line with decision IPBES-6/2, paragraph (d);

2. *Requests* the Executive Secretary to transmit the annex to the present recommendation as scientific and technical information arising from the consideration of this item by the Subsidiary Body, to the Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services for the information of its Multidisciplinary Expert Panel and Bureau;

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

#### *The Conference of the Parties,*

#### *Recalling* decisions XII/25 and XIII/29,

1. *Welcomes* the progress in implementing the first work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;

2. *Also welcomes* the approval by the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services to undertake the thematic assessment of the sustainable use of wild species, the thematic assessment of invasive alien species, and the methodological assessment regarding the diverse conceptualization of multiple values of nature and its benefits;

3. *Agrees* that the strategic framework up to 2030 and elements of the rolling work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services should be relevant to the post-2020 global biodiversity framework, and will contribute to supporting its implementation and assessing progress, and *recognizes* that the rolling nature of the work plan should allow for ongoing exchange of information and further requests from the Convention in the light of the needs arising from the final form and implementation of the post-2020 global biodiversity framework;

4. *Notes* that the strategic framework up to 2030 and elements of the rolling work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services is expected to be relevant to the 2030 Agenda for Sustainable Development,<sup>143</sup> and the Paris Agreement on Climate Change<sup>144</sup> and other biodiversity-relevant processes;

5. *Welcomes* the efforts of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services to further enhance its cooperation with the Intergovernmental Panel on Climate Change, in developing and implementing its work programme, and *further notes* that the Convention will benefit from coherence between the scenarios and related assessments prepared in the context of biodiversity and climate change and the enhanced collaboration between the scientific communities related to these bodies;

6. *Recognizes* the benefits to the Convention of enhanced cooperation between the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and other relevant assessment activities undertaken by United Nations agencies and multilateral environmental agreements, and *invites* the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services to continue to collaborate with relevant international

<sup>143</sup> See General Assembly resolution [70/1](#) of 25 September 2015.

<sup>144</sup> United Nations, *Treaty Series*, No. 54113.

organizations, including those engaged in activities relevant to the mainstreaming of biodiversity in production sectors;

7. *Invites* the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services to consider the request contained in the annex to the present decision as part of its strategic framework and work programme towards 2030;

8. *Also invites* the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services to allow for additional inputs to its work programme towards 2030 in the light of the development of the post-2020 global biodiversity framework;

9. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice to prepare, for consideration by the Conference of the Parties at its fifteenth meeting, proposals for a further request to the work programme towards 2030 of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services with a view to supporting the implementation of the post-2020 global biodiversity framework;

10. *Requests* the Executive Secretary, further to decision XII/25, to develop modalities for the systematic consideration of all deliverables of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, with a view to optimizing their use in support of the implementation of the Convention, and to report to the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting to be held prior to the fifteenth meeting of the Conference of the Parties.

#### *Annex*

### **REQUEST FOR CONSIDERATION BY THE INTERGOVERNMENTAL SCIENCE-POLICY PLATFORM ON BIODIVERSITY AND ECOSYSTEM SERVICES IN THE CONTEXT OF ITS STRATEGIC FRAMEWORK AND WORK PROGRAMME TOWARDS 2030**

1. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services is invited to take into account the following considerations when developing its strategic framework and work programme towards 2030:

(a) The key scientific and technical needs for the implementation of the Strategic Plan for Biodiversity 2011-2020, endorsed in decision XII/1, remain valid and should therefore continue to be considered in the design and delivery of future activities of the Platform across all four of its functions;

(b) The scope and timing of a future global assessment, including consideration of a single assessment that integrates the regional and global components, including resource requirements for the regional components, should be considered carefully to serve the assessment needs arising from the post-2020 global biodiversity framework as well as the 2030 Agenda for Sustainable Development in relation to biodiversity and ecosystem services. Overlap with other activities, analyses and assessments, including possible future editions of the *Global Biodiversity Outlook*, should be minimized and synergies maximized;

(c) There is a strong need to further enhance cooperation with the Intergovernmental Panel on Climate Change, with a view to promoting coherence between the scenarios and related assessments prepared in the context of biodiversity and climate change, including consideration of joint assessment activities, and to fostering further enhanced collaboration between the scientific communities related to these bodies;

(d) There is a continued need for work on scenarios and models to assess pathways towards, and the transformational change required for, a sustainable future;

(e) The steps being taken by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services to further integrate the four functions of the Platform will help to ensure that its deliverables are relevant to the work under the Convention;

(f) The knowledge and data gaps that have been identified in the first work programme should be addressed;

2. Noting that further scoping and prioritization of the needs of the Convention will arise from developing and implementing the post-2020 global biodiversity framework, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services is also invited to take into account the following initial requests for its rolling work programme towards 2030:

(a) Understand and assess the behavioural, social, economic, institutional, technical and technological determinants of transformational change, and how these may be deployed to achieve the 2050 Vision for Biodiversity;

(b) Develop a multi-disciplinary approach to understand the interactions of the direct and indirect drivers of biodiversity loss;

(c) Assess issues at the nexus of biodiversity, food and water, agriculture and health and nutrition, forestry and fisheries, considering trade-offs among these areas and related policy options regarding sustainable production and consumption, pollution and urbanization, including implications for energy and climate, taking into account the role of biodiversity and ecosystem services in addressing the Sustainable Development Goals, with a view to enabling decisions that support the coherent policy and transformational change necessary to achieve the 2050 Vision for Biodiversity;

(d) Undertake methodological assessments on the effectiveness of various policy instruments and policy and planning support tools for understanding on how to achieve transformational change, and to characterize and quantify successful approaches and cases of the conservation and sustainable use of biodiversity, and their impacts;

(e) Assess the potential positive and negative impacts of productive sectors and undertake a methodological assessment of the criteria, metrics and indicators of the impacts of productive sectors on biodiversity and ecosystem services as well as the benefits derived from biodiversity and ecosystem services, with a view to enabling business to reduce such negative impacts and to promote consistency in assessment and reporting, taking into account the direct and indirect pressures on biodiversity as well as the interconnections between them.



## II. ACCOUNT OF PROCEEDINGS

### INTRODUCTION

1. The twenty-second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity was held in Montreal, Canada, at the headquarters of the International Civil Aviation Organization, from 2 to 7 July 2018.

#### Attendance

2. The meeting was attended by representatives of the following Parties and other Governments:

Algeria	Georgia	Republic of Moldova
Angola	Germany	Romania
Antigua and Barbuda	Greece	Rwanda
Argentina	Guatemala	Saint Kitts and Nevis
Australia	Guinea	Saint Lucia
Austria	Guinea-Bissau	Saudi Arabia
Barbados	Haiti	Senegal
Belarus	Iceland	Serbia
Belgium	India	Seychelles
Bhutan	Indonesia	Singapore
Bolivia (Plurinational State of)	Ireland	Slovakia
Bosnia and Herzegovina	Italy	Solomon Islands
Botswana	Jamaica	Somalia
Brazil	Japan	South Africa
Bulgaria	Jordan	South Sudan
Burkina Faso	Kenya	Spain
Cabo Verde	Kuwait	Sri Lanka
Cambodia	Lao People's Democratic Republic	State of Palestine
Cameroon	Madagascar	Sudan
Canada	Malawi	Suriname
Central African Republic	Malaysia	Sweden
China	Maldives	Switzerland
Colombia	Mali	Syrian Arab Republic
Comoros	Malta	Tajikistan
Cook Islands	Mexico	Thailand
Costa Rica	Micronesia (Federated States of)	Togo
Croatia	Morocco	Tonga
Cuba	Myanmar	Tunisia
Czech Republic	Namibia	Turkey
Denmark	Nepal	Turkmenistan
Djibouti	Netherlands	Uganda
Dominica	New Zealand	Ukraine
Dominican Republic	Niger	United Kingdom of Great Britain and Northern Ireland
Ecuador	Norway	United Republic of Tanzania
Egypt	Oman	United States of America
Estonia	Pakistan	Venezuela (Bolivarian Republic of)
Ethiopia	Palau	Viet Nam
European Union	Peru	Yemen
Finland	Philippines	Zimbabwe
France	Republic of Korea	
Gambia		

3. Observers from the following United Nations bodies, specialized agencies, convention secretariats and other bodies also attended: Food and Agriculture Organization of the United Nations, Global Environment Facility, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, International Treaty on Plant Genetic Resources for Food and Agriculture, UN Women, UNEP Regional Office for Latin America and the Caribbean, UNEP World Conservation Monitoring Centre, UNEP/MAP Regional Activity Centre for Specially Protected Areas, United Nations Development Programme, United Nations Division for Ocean Affairs and the Law of the Sea, United Nations Environment Programme, United Nations Framework Convention on Climate Change, United Nations Office for Project Services, United Nations University Institute for Advanced Study of Sustainability, and World Health Organization.

4. The following organizations were also represented by observers:

African Centre for Biodiversity	Centro Interdisciplinario de Investigación y Desarrollo Alternativo U Yich Lu'Um
African Indigenous Women Organization (Nairobi)	Centro para la Investigación y Planificación del Desarrollo Maya
African Union	CEPA Japan
African Wildlife Foundation	Children and Nature Network
Aichi Prefecture	China University of Political Science and Law
All India Forum of Forest Movements	Commission des Forêts d'Afrique Centrale
American Bird Conservancy	Community Development Centre
Andes Chinchasuyo	Conservation International
ARA - Working Group on Rainforests and Biodiversity	Cornell University
Armenian Forests	CropLife International
ASEAN Centre for Biodiversity	Design and Environment Inc.
Asociación Latinoamericana para el Desarrollo Alternativo	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (German International Cooperation Agency)
Association des Scientifiques Environnementalistes pour un Développement Intégré	DivSeek
Avaaz	Duke University
Biodiversity Matters	Ecological Movement "BIOM"
Biofuelwatch	EcoNexus
Bioversity International	Ecoropa
BirdLife International	Enda Santé
Bombay Natural History Society	Envirocare
Botanic Gardens Conservation International	ETC Group
Bureau for Regional Outreach Campaigns	Federation of Community Forestry Users, Nepal (FECOFUN)
Canadian Council on Ecological Areas	Federation of German Scientists
Canadian Institutes of Health Research	Forest Peoples Programme
Canadian Parks and Wilderness Society	Foundation for the National Institutes of Health
Carnegie Council for Ethics in International Affairs	Fridtjof Nansen Institute
CBD Alliance	Friends of the Earth International
Center for Support of Indigenous Peoples of the North/Russian Indigenous Training Centre	Friends of the Earth U.S.
	Friends of the Siberian Forests
	Frontier Co-op

Fundación Ambiente y Recursos Naturales	International Seed Federation
Fundación de Expresión Intercultural, Educativa y Ambiental	International Society for Biosafety Research
Fundación para la Promoción del Conocimiento Indígena	International Union of Biological Sciences
Future Earth	Island Conservation
Gamarjoba	International Union for Conservation of Nature
Gangwon Province (Republic of Korea)	J. Craig Venter Institute
Ghana Aquaculture and Fish Network (GAFNET)	Jabalbina Yalanji Aboriginal Corporation
Global Biodiversity Information Facility	Japan Agency for Marine-Earth Science and Technology
Global Forest Coalition	Japan Biodiversity Youth Network
Global Industry Coalition	Japan Committee for IUCN
Global Ocean Biodiversity Initiative	JAPAN NUS Co.
Global Youth Biodiversity Network	Japan Wildlife Research Center
Greens Movement of Georgia/Friends of the Earth Georgia	Kalpavriksh
Group on Earth Observations	Karen Environmental and Social Action Network
Group on Earth Observations Biodiversity Observation Network	Korea Federation for Environmental Movement
Heinrich Böll Foundation	Les Amis de la Terre
Helmholtz Centre for Environmental Research - UFZ	Locally-Managed Marine Areas - Madagascar Network (MIHARI)
Helsinki Commission	Massachusetts Institute of Technology
ICCA Consortium	McMaster University
Imperial College London	National Forum for Advocacy
International Indigenous Forum on Biodiversity	Natural Justice (Lawyers for Communities and the Environment)
Indigenous Information Network	NC State University
Indigenous Peoples of Africa Co-ordinating Committee	NEPAD Planning and Coordinating Agency
Institut de la Francophonie pour le développement durable	Network of Regional Governments for Sustainable Development
Institute for Biodiversity Network	Network of the Indigenous Peoples of Solomons
Inter-American Institute for Global Change Research	Organic & Natural Health Association
International Center for Technology Assessment	Organisation for Economic Co-operation and Development
International Chamber of Commerce	PBL Netherlands Environmental Assessment Agency
International Federation of Pharmaceutical Manufacturers and Associations	People and Nature Reconciliation
International Fund for Animal Welfare	Philippine Association for Intercultural Development
International Institute for Sustainable Development	Plataforma Dominicana de Afrodescendientes
International Partnership for the Satoyama Initiative	Programme régional de Conservation de la zone Côtière et Marine en Afrique de l'Ouest
International Potato Center	Protect Our Water and Environmental Resources
	Public Research and Regulation Initiative
	Pueblo Originario Kichwa de Sarayaku
	Ramsar Convention on Wetlands

Red de Mujeres Indígenas sobre Biodiversidad de América Latina y el Caribe	The Nature Conservancy
Réseau des gestionnaires d'aires marines protégées en Méditerranée	The Pew Charitable Trusts
Réseau Guinéen des Zones Humides (REGUIZOH)	Third World Network
Rueda de Medicina	Torres Strait
Rural Integrated Center for Community Empowerment	United Organisation for Batwa Development in Uganda
Saami Council	Université de Sherbrooke
Seascope Consultants Ltd.	University of British Columbia
Shirika La Bambuti - Programme Intégré pour le développement du peuple pygmée	University of California, San Diego Campus
Society for Wetlands and Biodiversity Conservation - Nepal	University of Edinburgh
State University of New York at Plattsburgh	University of Guelph
Stockholm Resilience Centre	University of São Paulo
Strong Roots Congo	University of Sheffield
Sustainable Forestry Initiative	University of Strathclyde
Tanzania Alliance for Biodiversity	University of the Arts London
Tata Institute for Genetics and Society - University of California San Diego	Unnayan Onneshan
Tebtebba Foundation	USC Canada
The Development Institute	Wellcome Trust
	Wetlands International
	Wildlife Conservation Society
	World Agroforestry Centre
	WWF - Brazil
	WWF International

## ITEM 1. OPENING OF THE MEETING

5. The meeting was opened at 10.10 a.m. on Monday, 2 July 2018, by Ms. Theresa Mundita Lim (Philippines), Chair of the Subsidiary Body. She recalled that the Convention was in its twenty-fifth year, which should be celebrated by ever more concrete, useful outcomes that would serve to ensure achievement of the 2020 Aichi Biodiversity Targets. At the current meeting, the Subsidiary Body would, for the first time, consider agenda items under the Convention, the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, signalling a more holistic, inclusive approach. In that respect, she reminded representatives that recommendations to the Conference of the Parties serving as the meeting of the Parties to each protocol could be made only by signatories to the respective protocols. Furthermore, in nominating new members to the Bureau of the Subsidiary Body, representatives should consider electing those from countries that were party to both the Convention and its two protocols; in the event that a new member was from a country that was not party to the two protocols, an alternate who fulfilled that criterion should be nominated. Recalling that the Subsidiary Body had been invited to constantly improve the quality of its advice, she urged representatives to present ideas that were relevant to science and policy, to improve the efficiency of the Subsidiary Body and to expand the engagement of the members of its Bureau so that the best possible scientific advice was provided to the Conference of the Parties.

6. Turning to the broader question of biodiversity, Ms. Lim emphasized that the rate of loss was continuing and, in some places, even increasing, and it was unlikely that the Aichi Targets would be achieved. Efforts must be redoubled or tripled to realize the 2050 Vision of the Strategic Plan for Biodiversity, which was to live in harmony with nature, by ensuring that ecosystems could continue to provide essential services and secure the planet's variety of life, while contributing to human well-being. Parties should ensure that adequate financial resources were provided, capacity was built, biodiversity

issues and values were mainstreamed, appropriate policies were effectively implemented and decisions were based on sound science and the precautionary approach. An ambitious, effective post-2020 global biodiversity framework was required, and she expressed the hope that the current meeting would make positive strides in that direction.

7. She then reviewed each element of the very full agenda of the meeting, and encouraged delegates to adopt transformational and behavioural changes in both substance and working methods in order to reach the 2020 milestones, with greater coordination and unity and clear, understandable, straightforward recommendations, which were also addressed to colleagues in other sectors.

8. Opening statements were made by Ms. Cristiana Paşca Palmer, Executive Secretary of the Convention on Biological Diversity, and Mr. Andreas Obrecht on behalf of Mr. Erik Solheim, Executive Director of the United Nations Environment Programme (UNEP).

9. The Executive Secretary welcomed the representatives to the meeting and reminded them that 2018 was the twenty-fifth anniversary of the entry into force of the Convention. She expressed gratitude to the Governments of Australia, Canada, Finland, Japan, New Zealand, Norway and Sweden, as well as the European Union and Tourisme Montréal, for providing the financial resources to support the participation of representatives of developing countries and countries with economies in transition and the representatives of indigenous peoples and local communities. In terms of updates, the preparations for discussions on the post-2020 framework were noted, and a paper outlining the process would be discussed by the Subsidiary Body on Implementation. Further activities on programmatic areas of work that had contributed to the implementation of the Aichi Biodiversity Targets were also mentioned. That work had been conveyed as a central message in all consultations with the Parties, encouraging accelerated actions to implement their national commitments. She applauded the investment by Canada of Can\$ 1.3 billion to conserve land, waterways and wildlife and protect species at risk and a law in Mexico on sustainable forest management and its 10 Presidential decrees creating hundreds of water reserves. Intersessionally, the Government of Switzerland had hosted a second dialogue on transformative change. The outcomes of that dialogue, and the first dialogue on transformative change, also hosted by Switzerland, would be discussed at a seminar on 8 July 2018, before the opening of the second meeting of the Subsidiary Body on Implementation.

10. The loss of biodiversity and the destruction of ecosystems continued at unprecedented rates, and the recent regional assessment reports of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) had presented a worrying picture for all regions of the world. The 2018 *Global Risk Report* of the World Economic Forum listed ecological collapse, together with biodiversity loss, as being among the top global risks. The Strategic Plan for Biodiversity 2011-2020 and the 20 Aichi Biodiversity Targets had been insufficient to halt biodiversity loss and arrest the destruction of ecosystems; global limits were at risk of being transgressed, and, in some cases, had already been breached. Ecosystem destruction was aggravated by other global changes, and, in turn, compounded and contributed to further challenges to food security, health and climate challenges. The complexity of, and interdependency between, social and economic systems and natural systems required measures interconnected through an Earth systems approach; the biodiversity crisis could not be halted by measures taken in isolation or in silos.

11. Further economic growth could facilitate sustainable development if it was decoupled from the degradation of biodiversity and reinforced nature's capacity to contribute to people's lives. That, however, would require a far-reaching change in both global and national policies. The dominant development and economic growth models ignored the constraints of the ecological limits on human development and were rooted in unsustainable patterns of consumption and production. They neglected to incorporate both the costs of natural capital loss and the benefits stemming from ecosystem services, services that provided the essential infrastructure that supported both life on Earth and human development. A strong scientific, and economic, case was needed to demonstrate the relevance of biodiversity to ministers of finance, as well as to the investment and business community. The Secretariat had increasingly reached out to new partners, recognizing that, without their involvement and that of

high-level government and political decision makers, there would be limited prospects for transformative change in the way in which decisions and action that impact ecosystems were taken and implemented.

12. The Subsidiary Body on Scientific, Technical and Technological Advice had to provide the scientific knowledge needed to build a strong case for the importance of biodiversity. “Robust science” was required to demonstrate that the solutions provided by biodiversity could achieve sustainable development priorities and craft sustainable pathways guiding transformative change. To achieve that, the Subsidiary Body on Scientific, Technical and Technological Advice needed to build on the three objectives of the Convention and the agreed vision of living in harmony with nature by 2050. The Subsidiary Body had to respond to the calls for evidence-based and science-based target-setting in the post-2020 biodiversity framework.

13. It was time for scientists to be heard on the issue just as loudly and clearly as they were heard on climate change. To avoid the catastrophic collapse of planetary systems, scientists had to work across disciplines to address the root causes of ecosystem destruction, explore innovative solutions and approaches, and synthesize the existing scientific evidence to assess the gaps in knowledge. Above all, better communication by scientists about science was required at all levels. Often, analyses done remained captured within a small circle of experts, while language barriers prevented the wider dissemination of science done at national level. All sources of knowledge needed to be tapped, including traditional knowledge and that of indigenous communities.

14. In closing, she said that the English phrase the “elephant in the room” was a way of expressing that an obvious truth was being ignored; but there was also an African phrase, or proverb, “a gentle hand may lead even an elephant by a hair”. She urged the Subsidiary Body to work hard so that biodiversity was no longer “the elephant in the room” and that “robust science” was the gentle but firm hand leading towards 2020 and beyond.

15. Mr. Obrecht informed the Subsidiary Body that UNEP and the World Conservation Monitoring Centre were working together on matters to be discussed at the current meeting, including protected areas and other measures for enhanced conservation management, marine and coastal biodiversity and biodiversity and climate change, and that the two entities considered the assessment of progress towards the Aichi Targets to be very important to their work in the coming years. He noted, too, that the sixth edition of the *Global Environment Outlook*, which was in a last round of review prior to its launch in early 2019, would provide another important piece of the global environmental context for the development of the post-2020 global biodiversity framework. Finally, he underscored the importance of the discussion on the second work programme of IPBES and encouraged the Subsidiary Body to provide concrete and focused input into its preparation.

16. Following the statements, the Subsidiary Body paused in memory of Mr. Cheikh Ould Sidi Mohamed, the national focal point for Mauritania and a member of the current Bureau of the Conference of the Parties; Mr. Benoit Nzigidahera, secondary national focal point for Burundi; and Mr. Johansen Volker, national focal point for Liberia and a member of the Compliance Committee under the Cartagena Protocol. All three had passed away recently.

## **ITEM 2. ORGANIZATIONAL MATTERS**

### **Adoption of the agenda and organization of work**

17. At the 1st session of the meeting, on 2 July 2018, chaired by Ms. Theresa Mundita Lim (Philippines), the Subsidiary Body took up consideration of the agenda of the meeting.

18. The Subsidiary Body adopted the following agenda on the basis of the provisional agenda prepared by the Executive Secretary in consultation with the Bureau (CBD/SBSTTA/22/1):

1. Opening of the meeting.
2. Organizational matters: adoption of the agenda, organization of work and election of officers.

3. Digital sequence information on genetic resources.
4. Risk assessment and risk management of living modified organisms.
5. Synthetic biology.
6. Updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options for accelerating progress.
7. Protected areas and other measures for enhanced conservation and management.
8. Marine and coastal biodiversity: ecologically or biologically significant marine areas, addressing anthropogenic underwater noise and marine debris, biodiversity in cold-water areas and marine spatial planning.
9. Biodiversity and climate change: ecosystem-based approaches to climate change adaptation and disaster risk reduction.
10. Invasive alien species.
11. Conservation and sustainable use of pollinators.
12. Second work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
13. Other matters.
14. Adoption of the report.
15. Closure of the meeting.

#### **Election of officers**

19. In accordance with the elections held at the twentieth and twenty-first meetings of the Subsidiary Body, the Bureau at its twenty-second meeting comprised the following members:

Chair: Ms. Theresa Mundita Lim (Philippines)  
 Vice-Chairs: Mr. Hendrick Segers (Belgium)  
 Ms. Senka Barudanović (Bosnia and Herzegovina)  
 Ms. Eugenia Arguedas Montezuma (Costa Rica)  
 Mr. Sigurdur Thrainsson (Iceland)  
 Ms. Ilham Atho Mohamed (Maldives)  
 Mr. Marthin Kaukaha Kasaona (Namibia)  
 Mr. Adams Toussaint (Saint Lucia)  
 Mr. Yousef Al-Hafedh (Saudi Arabia)  
 Mr. Samuel Diémé (Senegal)  
 Mr. Sergiy Gubar (Ukraine)

20. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body formally elected the following officers, for a term commencing at the end of the twenty-second meeting and expiring at the end of the twenty-fourth meeting, to replace the members from Belgium, Costa Rica, Saudi Arabia, Senegal and Ukraine: Ms. Marina von Weissenberg (Finland), Ms. Kongchay Phimmakong (Lao People's Democratic Republic), Mr. Hesiquio Benítez Díaz (Mexico), Mr. Larbi Sbair (Morocco) and Mr. Sergiy Gubar (Ukraine).

21. The Subsidiary Body also elected Ms. Helena Brown (Antigua and Barbuda), Mr. Oleg Borodin (Belarus), Mr. Moustafa Fouda (Egypt) and Mr. Byoung Yoo Lee (Republic of Korea) as substitutes for, respectively, Mr. Toussaint (Saint Lucia), Mr. Gubar (Ukraine), Mr. Sbair (Morocco) and Ms. Mohamed (Maldives) on the Bureau for issues related to the Nagoya Protocol, and Mr. Norbert Bärlocher (Switzerland) as a substitute on the Bureau for issues related to the Cartagena Protocol and the Nagoya Protocol.

22. The Chair informed the Subsidiary Body that Ms. Ilham Atho Mohamed, Bureau member from Maldives, would assist her by chairing the sessions of the meeting on agenda items 4, on risk assessment

and risk management of living modified organisms, and agenda item 5, on synthetic biology; Ms. Eugenia Arguedas Montezuma, from Costa Rica, would chair the sessions on agenda item 6, on updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress, and agenda item 7, on protected areas and other measures for enhanced conservation and management; Mr. Adams Toussaint, from Saint Lucia, would chair the sessions on agenda item 8, on marine and coastal biodiversity, and item 9, on biodiversity and climate change; Mr. Sigurdur Thrainsson, from Iceland, would chair the sessions on item 10, on invasive alien species, and item 11, on conservation and sustainable use of pollinators; and Ms. Senka Barudanović, from Bosnia and Herzegovina, would chair the sessions on agenda item 12, on the second work programme of the Intergovernmental Science-Policy on Biodiversity and Ecosystem Services.

23. It was agreed that Mr. Samuel Diémé (Senegal) would act as Rapporteur for the meeting.

24. At the invitation of the Chair, the Rapporteur made a statement on behalf of all the participants in the meeting. He congratulated the Chair of the Subsidiary Body, the members of the Bureau, and the Executive Secretary and her team for the high quality of the preparations for the meeting. He also thanked the Government of Canada for hosting the meeting and those Parties that had generously provided funding to facilitate the participation of representatives from developing countries. He had no doubt that the deliberations would be productive and thanked the Chair for giving him the opportunity to speak.

### **ITEM 3. DIGITAL SEQUENCE INFORMATION ON GENETIC RESOURCES**

25. At the 1st session of the meeting, on 2 July 2018, the Subsidiary Body took up agenda item 3. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary (CBD/SBSTTA/22/2) with an annex containing the outcomes of a meeting of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources held from 13 to 16 February 2018 at the offices of the Secretariat in Montreal. It also had before it, as information documents, a synthesis of views and information on the potential implications of the use of digital sequence information on genetic resources for the three objectives of the Convention and the objective of the Nagoya Protocol (CBD/SBSTTA/22/INF/2); case studies and examples of the use of digital sequence information in relation to the objectives of the Convention and the Nagoya Protocol (CBD/SBSTTA/22/INF/2/Add.1); digital sequence information on genetic resources in relevant ongoing international processes and policy debates (CBD/SBSTTA/22/INF/2/Add.2); a fact-finding and scoping study on digital sequence information on genetic resources in the context of the Convention on Biological Diversity and the Nagoya Protocol (CBD/SBSTTA/22/INF/3); and the report of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources (CBD/SBSTTA/22/INF/4).

26. Statements were made by representatives of Australia, Belarus, Belgium, Bolivia (Plurinational State of), Brazil, Canada, China, Colombia, Costa Rica, Ecuador, Ethiopia, European Union, France, Germany, Guatemala, India, Indonesia, Japan, Jordan, Malawi (on behalf of the African Group), Malaysia, Mexico, Micronesia (Federated States of), Morocco, Netherlands, New Zealand, Norway, Philippines (also on behalf of the member States of the Association of Southeast Asian Nations (ASEAN)), Republic of Korea, Rwanda, Samoa, South Africa, Sudan, Sweden, Switzerland, Thailand, Turkey, Uganda, United Kingdom, United Republic of Tanzania, Venezuela (Bolivarian Republic of) and Yemen.

27. Statements were also made by representatives of the Global Biodiversity Information Facility (GBIF), the Global Youth Biodiversity Network (GYBN) and the International Indigenous Forum on Biodiversity (IIFB).

28. Following the exchange of views, the Chair established a contact group facilitated by Mr. Hendrick Segers (Belgium) and Mr. Hesiquio Benitez (Mexico), with the mandate to develop draft recommendations for consideration by the Conference of the Parties to the Convention and the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol.

29. At the 12th session of the meeting, on 7 July 2018, the Subsidiary Body considered the revised draft recommendation submitted by Mr. Benitez.



30. In response to a request from Japan for clarification on the status of the agenda item on digital sequence information in relation to the process for new and emerging issues, the Deputy Executive Secretary, explained that the mandate given to the Subsidiary Body to address the issue of digital sequence information came from decisions XIII/16 and NP 2/14 and that it was independent of the process of the Subsidiary Body for identifying new and emerging issues established in decision VIII/10. He reminded participants that the process in decision VIII/10 was one way of addressing new and emerging issues. That process gave the opportunity in every biennial cycle for any Party or observer to make proposals for new issues to be added to the agenda of the Subsidiary Body. With such an open call, criteria were necessary to screen such proposals in order to inform the Subsidiary Body before it made its recommendations to the Conference of the Parties. However, that process in no way limited the ability of the Conference of the Parties or the meeting of the Parties to the Protocol, as sovereign bodies, to place issues on the agenda. The issue of digital sequence information had been put on the agenda by the Conference of the Parties and the meeting of the Parties to the Nagoya Protocol and therefore did not need to be channelled through an additional process in the Subsidiary Body.

31. The Subsidiary Body continued its consideration of the revised draft recommendation at the 13th session of the meeting, on 7 July 2018.

32. The representative of Mexico made a statement, requesting that it be reflected in the report on the meeting. Thanking the members of the Latin American and Caribbean Group, Africa and the like-minded megadiverse countries for their effort to reach consensus on a decision on digital sequence information on genetic resources, she regretted that, after 25 years, Parties had still failed to address the third objective of the Convention, on fair and equitable benefit-sharing. Following the adoption of the Nagoya Protocol, 105 countries were now working to make the third objective of the Convention a reality. Great strides had also been made in the methodologies for the sequencing and characterization of physical genetic resources, facilitating the management and distribution of the information in various formats, including digital. To assert that, because such information was intangible, placing it in the public domain was not subject to benefit-sharing when it was used for commercial purposes weakened and jeopardized the credibility of the Convention. The advancement of science was needed to advance biodiversity research, but clearly the same information also benefited those who used it to develop commercial products. Some countries already recognized in their national legislation that using genetic resources was equivalent to using the information resulting from access to it, and that when it was used for commercial purposes, the benefits must be shared. It was also recognized that there were gaps in the issue that had to be addressed in the context of the Convention and the Protocol. Deciphering a genome was an advance for science, but clarity was needed regarding any intention to use such information for the development of drugs and medical treatments for commercial purposes that benefited all of humanity. In accordance with their global commitment to the 2030 Agenda and specifically to Sustainable Development Goal 8, “Decent work and economic growth”, Parties had to promote the development of the bioeconomy, which, in many cases, was based on research and development with genetic resources and their information. Parties had also to fulfil the ethical and social responsibility of distributing benefits to the custodians and suppliers of genetic resources. The global community that advocated sustainable development had to strike a balance between the sovereign rights of the Parties and the advancement of biotechnology for commercial purposes. Regrettably, visions of progress were based solely on economic interests, which was why consensus on an issue of such importance had not been reached. There were valuable elements in the document for constructive work, including recognition of the distribution of benefits resulting from the commercial use of digital sequence information, the traceability of those benefits and the recognition that some countries already had national legislation. She called on Parties to work constructively on the issue on the road to Egypt in order to make the document a decision of the Conference of the Parties, with a road map that would assist all Parties.

33. The representative of Cameroon made a statement on behalf of the African Group, requesting that it be recorded in the report on the meeting. The text of the statement was as follows:

“Africa would like to appreciate all Parties who considered the issue of digital sequence information generated from genetic resources and contributed positively to the discussions.

However, we note with very deep concern the lack of progress in the outcomes of this discussion over the last five days. Africa is strongly of the opinion that access to genetic resources and freedom to utilize information inherent to genetic resources without due, fair and equitable benefit-sharing runs counter to the substantive function of this gathering here as the scientific and technical body of the Convention on Biological Diversity. Africa believes that one of the most fundamental reasons behind our failure to protect biodiversity from its increasing loss over the decades is the fact that the custodians of biodiversity are not getting fair and appropriate benefit that should provide the incentive to ensure its conservation and sustainable use. We reiterate our commitment to fully implement the Convention on Biological Diversity, including its third objective, and we therefore call on negotiating partners to engage in good faith in negotiating fair and appropriate benefit-sharing measures for digital sequence information. Africa hopes to move forward with the discussions to eventually reach a consensus at the fourteenth meeting of the Conference of the Parties and believes that we can find a balance between the utilization of digital sequence information and developing mechanisms for fair and equitable benefit-sharing.”

34. The representative of Brazil recalled that, at its thirteenth meeting, the Conference of the Parties had requested the Subsidiary Body to consider the outcomes of the Ad Hoc Technical Expert Group and to make recommendations to the Conference of the Parties at its fourteenth meeting on the potential implications of the use of digital sequence information on genetic resources for the three objectives of the Convention. Referring to the report of the Ad Hoc Technical Expert Group, she stated that digital sequence information originated at some point from a physical source of genetic resources, that digital sequence information was thus within the scope of the Convention, and that the utilization of digital sequence information on genetic resources implies benefit-sharing. Noting that science and biotechnology should be fostered, Brazil, in coordination with Latin American and Caribbean, African, and megadiverse countries, had made a pragmatic proposal for simplified measures of access to digital sequence information for non-commercial research purposes. The corollary to such simplified access was the fair and equitable sharing of benefits arising from the commercial use of digital sequence information. She expressed regret at the resistance of some developed countries to discussing the implications of digital sequence information for the third objective of the Convention. She considered that the lack of progress was negative for science, conservation of biodiversity and the Convention.

35. The draft recommendation, as orally amended, was adopted as recommendation 22/1. The text of the recommendation, as adopted, is contained in section I of the present report.

#### **ITEM 4. RISK ASSESSMENT AND RISK MANAGEMENT OF LIVING MODIFIED ORGANISMS**

36. At the 2nd session of the meeting, on 2 July 2018, chaired by Ms. Ilham Atho Mohamed (Maldives), the Subsidiary Body took up agenda item 4. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on risk assessment and risk management of living modified organisms (CBD/SBSTTA/22/3), a synthesis of submissions by Parties in response to paragraph 6 of decision CP-VII/12 (CBD/SBSTTA/22/INF/11) and a note on the Open-ended Online Forum on Risk Assessment and Risk Management (CBD/SBSTTA/22/INF/12).

37. Statements were made by representatives of Parties to the Cartagena Protocol: Belgium, Bolivia (Plurinational State of), Brazil, China, Colombia, Costa Rica, Finland, France, Germany, Guatemala, India, Indonesia, Japan, Kuwait, Malawi, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Peru, Philippines (also on behalf of the ASEAN member states), Republic of Moldova, Rwanda (on behalf of the African Group), South Africa, Sri Lanka, Sweden, Switzerland, Thailand and Ukraine (speaking on behalf of the Central and Eastern European countries present).

38. Statements were also made by representatives of Canada and Venezuela (Bolivarian Republic of).

39. Statements were also made by representatives of GYBN, the Federation of German Scientists, IIFB, the Public Research and Regulation Initiative (PRRI) and Third World Network.

40. Following the exchange of views, the Chair established a contact group facilitated by Mr. Tim Strabala (New Zealand) with the mandate to develop draft recommendations for consideration by the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety.

41. At the 12th session of the meeting, on 7 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the facilitator of the contact group. The draft recommendation, as orally amended, was adopted as recommendation 22/2. The text of the recommendation, as adopted, is contained in section I of the present report.

## **ITEM 5. SYNTHETIC BIOLOGY**

42. At the 2nd session of the meeting, on 2 July 2018, chaired by Ms. Ilham Atho Mohamed (Maldives), the Subsidiary Body took up agenda item 5. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on synthetic biology (CBD/SBSTTA/22/4), and, as information documents, an analysis against the criteria set out in paragraph 12 of decision IX/29 (CBD/SBSTTA/22/INF/17), and a synthesis of views provided through the peer review of the report of the Ad Hoc Technical Expert Group on Synthetic Biology (CBD/SBSTTA/22/INF/18).

43. Statements were made by representatives of Australia, Belgium, Bolivia (Plurinational State of), Canada, Colombia, Costa Rica, Ethiopia, Finland, France, Germany, Guatemala, India, Indonesia, Japan, Kuwait, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Philippines, Republic of Korea, Republic of Moldova, Rwanda (on behalf of the African Group), South Africa, Sweden, Switzerland, Thailand, Ukraine (speaking on behalf of the Central and Eastern European countries present), United Kingdom and Venezuela (Bolivarian Republic of).

44. Statements were also made by representatives of ETC Group, Friends of the Earth East Africa (also speaking on behalf of Friends of the Earth International), IIFB and Union Paysanne (also speaking on behalf of La Via Campesina).

45. Following the exchange of views, the Chair said that she would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

46. At the 7th session of the meeting, on 5 July 2018, chaired by Ms. Theresa Mundita Lim (Philippines), the Subsidiary Body considered the revised text submitted by the Chair.

47. Statements were made by representatives of Australia, Belarus, Bolivia (Plurinational State of), Brazil, Canada, Costa Rica, Ethiopia, European Union, Finland, Germany, Japan, Mexico, Morocco, New Zealand, Niger, Republic of Moldova, Rwanda, Sweden, Switzerland, Uganda and Venezuela (Bolivarian Republic of).

48. At the 8th session of the meeting, on 5 July 2018, chaired by Ms. Theresa Mundita Lim (Philippines), the Subsidiary Body continued its consideration of the revised text.

49. Statements were made by representatives of Australia, Belgium, Bolivia (Plurinational State of), Brazil, Canada, Ecuador, Egypt, European Union, Finland, France, Germany, Guatemala, Indonesia, Japan, Mexico, Morocco, Nepal, Netherlands, New Zealand, Norway, Republic of Moldova, Rwanda, Sweden, Switzerland, United Kingdom and Venezuela (Bolivarian Republic of).

50. Following the exchange of views, the Chair asked Ms. Nathalie Campos-Reales (Mexico) to facilitate a group of friends of the Chair to help prepare a revised text for the consideration of the Subsidiary Body.

51. At the 11th session of the meeting, on 6 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the facilitator. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.6.

52. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.6 as recommendation 22/3. The text of the recommendation, as adopted, is contained in section I of the present report.

**ITEM 6.       UPDATED SCIENTIFIC ASSESSMENT OF PROGRESS TOWARDS  
SELECTED AICHI BIODIVERSITY TARGETS AND OPTIONS FOR  
ACCELERATING PROGRESS**

53. At the 3rd session of the meeting, on 3 July 2018, chaired by Ms. Eugenia Arguedas Montezuma (Costa Rica), the Subsidiary Body took up agenda item 6. In considering the item, the Subsidiary Body had before it a note on the updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress (CBD/SBSTTA/22/5); Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services summaries for policymakers of the thematic assessment of land degradation and restoration and of the regional assessments of biodiversity and ecosystem services for Africa, the Americas, Asia and the Pacific, and Europe and Central Asia (CBD/SBSTTA/22/INF/5); Updated scientific assessment of progress towards selected Aichi Biodiversity Targets and options to accelerate progress (CBD/SBSTTA/22/INF/10); Options to accelerate progress towards selected Aichi Biodiversity Targets (11 and 12) (CBD/SBSTTA/22/INF/23); Identifying and scaling local solutions for achieving global targets: the Panorama – solutions for a healthy planet initiative (CBD/SBSTTA/22/INF/26); Updated status of Aichi Biodiversity Target 11 (CBD/SBSTTA/22/INF/30); Effective use of knowledge in developing the post-2020 global biodiversity framework (CBD/SBSTTA/22/INF/31); Supporting achievement of Aichi Biodiversity Target 12 of the Strategic Plan for Biodiversity 2011-2020 (CBD/SBSTTA/22/INF/32); Evidence supporting enhanced action on connecting people with nature as a key strategy for achieving the Aichi Biodiversity Targets and implementing the Convention on Biological Diversity post-2020 (CBD/SBSTTA/22/INF/34); and Literature-based assessment and lessons-learned analysis of progress towards the Aichi Biodiversity Targets – input of the Royal Society for the Protection of Birds and BirdLife International to the twenty-second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice and the fourteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD/SBSTTA/22/INF/35).

54. Presentations were made by Mr. Mark Rounsevell, University of Edinburgh (United Kingdom) and Karlsruhe Institute of Technology (Germany), and Ms. Sonali Senaratna Sellamuttu, International Water Management Institute, Lao People's Democratic Republic; and by Ms. Nichole Barger, University of Colorado, United States.

55. Mr. Rounsevell and Ms. Senaratna Sellamuttu reported on the IPBES assessments in Africa, the Americas, Asia and the Pacific, and Europe and Central Asia. Care had been taken to ensure that the results were genuinely relevant to policymaking. The findings showed that nature's contributions to people depended on biodiversity but were decreasing with increases in material use of those contributions and with decreases in biodiversity in various ecosystems in all regions. The direct causes were changes in land use, climate change, increasing introduction of invasive alien species, pollution and unsustainable use of natural resources. Those were exacerbated by indirect causes including economic, demographic, scientific, technological, social and cultural influences. Recommendations must be based on those complex, dynamic interactions.

56. The assessment showed that some regions had a disproportionate impact on others but that shifting intensification of land use would only shift the ecological footprint. A further finding had been a loss in indigenous and local knowledge, which had implications for biodiversity-friendly land management practices. The conclusion was that, if current trends continued, the Aichi Biodiversity Targets would not be met, except for those that were more procedural, such as designating protected areas. The policy options for achieving the Targets included synergies and trade-offs between Sustainable Development Goals 14 and 15 and integration of biodiversity and ecosystem services into other Goals. Alternative development pathways would still have trade-offs, although some successes in nature conservation gave hope for the future and policy options and opportunities for mainstreaming biodiversity

and nature's contributions to people into public and private decision-making. The most important option would be to decouple economic growth from environmental damage, including by removing subsidies for harmful activities.

57. Ms. Barger described the global assessment of land degradation and restoration. Land degradation was occurring in virtually every ecosystem in the world, the severity and consequences of which depended on the social and ecological context and when the degradation had taken place. The problem was increasing with increasing demands on the capacity of land. Although some activities demonstrated that the problem could be reduced, they were woefully insufficient. The causes of land degradation were overconsumption of ecosystem-derived goods, decoupled consumption-production systems, failure to perceive land degradation as important, different definitions, fragmented policy responses with incentives to further degrade land, and worsening climate change. Land degradation was a pervasive, systemic issue, with 75 per cent of the earth's land surface covered by cropland, managed forests, grazing lands, habitation and infrastructure; it had been estimated that less than 10 per cent would remain free of human impact by 2050. Degradation of the earth's land surface was one of the main reasons for loss of biodiversity. Between 2000 and 2009, land degradation was responsible for annual emissions of up to 4.4 billion tons of carbon dioxide; therefore, halting and reversing land degradation could contribute substantially to maintaining global warming under 2°C. The combination of land degradation and climate change was projected to reduce global crop yields by 2050 to such a degree that up to 700 million people would be forced to migrate.

58. The benefits of land restoration would exceed the cost by an average margin of 10:1 and have a number of other benefits, including increasing employment, increasing spending by businesses and households, greater gender equality and greater local investment in education. In drylands, in which nearly 40 per cent of the global population lived, restoring degraded land could decrease violent conflict. The proven options included better monitoring and verification, intersectoral coordination of policies, elimination of perverse incentives to degrade land and promotion of incentives for sustainable land management. Interventions could be made at many levels, from global and regional treaties, to national and local governments, to land custodians. The report of the assessment outlined effective interventions and proven restoration practices.

59. Statements were made by representatives of Algeria, Australia, Belgium, Bolivia (Plurinational State of), Brazil, Cambodia, Cameroon (on behalf of the African Group), Canada, China, Ecuador, European Union, Finland, France, Guatemala, India, Jamaica, Japan, Jordan, Morocco, Namibia, Nepal, Netherlands, New Zealand, Peru, Serbia (on behalf of the Central and Eastern European countries present), Singapore (on behalf of the ASEAN member States), South Africa, Sweden, Switzerland, Uganda, United Kingdom, Venezuela (Bolivarian Republic of) and Zimbabwe.

60. A statement was also made by the representative of the State of Palestine.

61. Statements were also made by representatives of BirdLife International, GYBN, IIFB, the International Union for Conservation of Nature (IUCN), IPBES and the World Wildlife Fund (WWF).

62. Following the exchange of views, the Chair said that she would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

63. At the 7th session of the meeting, on 5 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the Chair.

64. Interventions were made by representatives of Argentina, Australia, Belgium, Brazil, Cameroon, Canada, European Union, Finland, Guatemala, Indonesia, Japan, Jordan, Mexico, Morocco, Netherlands, New Zealand, Niger, Norway, South Africa, Sweden and United Kingdom.

65. After the exchange of views, the Chair proposed that an open-ended drafting group, facilitated by Mr. Vincent Fleming (United Kingdom), discuss those paragraphs on which consensus had not been reached.

66. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the facilitator of the contact group. The draft recommendation, as orally amended, was adopted as recommendation 22/4. The text of the recommendation, as adopted, is contained in section I of the present report.

#### **ITEM 7. PROTECTED AREAS AND OTHER MEASURES FOR ENHANCED CONSERVATION AND MANAGEMENT**

67. At the 3rd session of the meeting, on 3 July 2018, chaired by Ms. Eugenia Arguedas Montezuma (Costa Rica), the Subsidiary Body took up agenda item 7. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary (CBD/SBSTTA/22/6) on protected areas and other effective area-based conservation measures. In addition to a proposed recommendation, the document contained four annexes, with (a) voluntary guidance on the integration of protected areas and other effective area-based conservation measures into wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the Sustainable Development Goals; (b) voluntary guidance on effective governance models for management of protected areas, including equity, taking into account work being undertaken under Article 8(j); (c) scientific and technical advice on definition, management approaches and identification of other effective area-based conservation measures and their role in achieving Aichi Biodiversity Target 11 (decision XIII/2, para. 10(b)); and (d) considerations in achieving Aichi Biodiversity Target 11 in marine and coastal areas. The Subsidiary Body also had before it information documents on integration of protected areas and other effective area-based conservation measures into wider land- and seascapes (CBD/SBSTTA/22/INF/6); mainstreaming of protected areas and other effective area-based conservation measures across sectors to contribute, inter alia, to the sustainable development goals and as natural solutions to combat climate change (CBD/SBSTTA/22/INF/7); and protected and conserved areas governance in the Convention on Biological Diversity: a review of key concepts, experiences and sources of guidance (CBD/SBSTTA/22/INF/8). Finally, it had before it reports of a technical expert workshop on other effective area-based conservation measures for achieving Aichi Biodiversity Target 11 (CBD/PA/EM/2018/1/2) and an expert workshop on marine protected areas and other effective area-based conservation measures for achieving Aichi Biodiversity Target 11 in marine and coastal areas (CBD/MCB/EM/2018/1/3).

68. Statements were made by representatives of Australia, Belgium, Ecuador, European Union, France, Guatemala, India, Indonesia, Japan, Maldives, Micronesia (Federated States of) (also on behalf of Cook Islands, Palau and Tonga), Morocco, Myanmar (also on behalf of the ASEAN member States), New Zealand, South Africa, Switzerland and United Kingdom.

69. At the 4th session of the meeting, on 3 July 2018, chaired by Mr. Adams Toussaint (Saint Lucia), the Subsidiary Body continued its discussion of the item.

70. Statements were made by representatives of Argentina, Belarus, Bolivia (Plurinational State of), Brazil, Cambodia, Canada, Cook Islands, Costa Rica, Cuba, Finland, Georgia, Germany, Jamaica, Jordan, Malawi, Malaysia, Mexico, Norway, Peru, Republic of Korea, Seychelles, Sri Lanka, Sweden, Venezuela (Bolivarian Republic of) and Zimbabwe (on behalf of the African Group).

71. Statements were also made by representatives of the Food and Agriculture Organization of the United Nations (FAO) and UNEP.

72. Further statements were made by representatives of the African Indigenous Women's Organisation (AIWO) (also on behalf of the All India Forum of Forest Movements (AIFFM) and the Global Forest Coalition (GFC)), GYBN, the ICCA Consortium (also on behalf of GFC), IIFB, IUCN and the network of marine protected area managers in the Mediterranean (MedPAN).

73. Following the exchange of views, the Chair said that he would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

74. At the 9th session of the meeting, on 6 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised draft recommendation submitted by the Chair. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.2.

75. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.2, as orally amended, as recommendation 22/5. The text of the recommendation, as adopted, is contained in section I of the present report.

**ITEM 8. MARINE AND COASTAL BIODIVERSITY: ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS, ADDRESSING ANTHROPOGENIC UNDERWATER NOISE AND MARINE DEBRIS, BIODIVERSITY IN COLD-WATER AREAS AND MARINE SPATIAL PLANNING**

76. At the 4th session of the meeting, on 3 July 2018, chaired by Mr. Adams Toussaint (Saint Lucia), the Subsidiary Body took up agenda item 8.

77. At the invitation of the Chair, Mr. Moustafa Fouda, chair of the first meeting of the informal advisory group on ecologically or biologically significant marine areas, which had been held on Saturday, 30 June, and Sunday, 1 July 2018, delivered a short report on the work of the group. Having recalled the group's terms of reference, he reported that 19 of the 30 members had been present. They had discussed approaches to revising training manuals, including one on the use of traditional knowledge, and preliminary results and approaches to increasing the functionality of the group and information-sharing. A report was being prepared, providing short- and long-term advice on actions, which would be circulated first to the group and then to the Subsidiary Body at a future meeting.

78. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on marine and coastal biodiversity (CBD/SBSTTA/22/7), a draft summary report on the description of areas meeting the scientific criteria for ecologically or biologically significant marine areas (CBD/SBSTTA/22/7/Add.1), a compilation of submissions on experiences in the use of measures to avoid, minimize and mitigate the significant adverse impacts of anthropogenic underwater noise on marine and coastal biodiversity (CBD/SBSTTA/22/INF/13), a compilation of submissions on experiences in the implementation of marine spatial planning (CBD/SBSTTA/22/INF/14), a compilation and synthesis of submissions on experiences in mainstreaming biodiversity in fisheries (CBD/SBSTTA/22/INF/15), a compilation of peer review comments on the report of the Expert Workshop to Develop Options for Modifying the Description of Ecologically or Biologically Significant Marine Areas, for Describing New Areas, and for Strengthening the Scientific Credibility and Transparency of this Process (CBD/SBSTTA/22/INF/25), an information document on identifying and scaling local solutions for achieving global targets: the Panorama – Solutions for a Healthy Planet initiative (CBD/SBSTTA/22/INF/26), a compilation of national experiences in achieving Aichi Biodiversity Target 11 in marine and coastal areas, including area-based management measures used in marine fisheries and other ocean sectors (CBD/SBSTTA/22/INF/27), the report of the Expert Workshop to Develop Options for Modifying the Description of Ecologically or Biologically Significant Marine Areas, for Describing New Areas, and for Strengthening the Scientific Credibility and Transparency of this Process (CBD/EBSA/EM/2017/1/3), the report of the Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas in the Black Sea and Caspian Sea – Baku, 24-29 April 2017 (CBD/EBSA/WS/2017/1/4), the report of the Expert Workshop on Marine Protected Areas and other Effective Area-based Conservation Measures for Achieving Aichi Biodiversity Target 11 in Marine and Coastal Areas (CBD/MCB/EM/2018/1/3), and the report of the Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas in the Baltic Sea - Helsinki, 19-24 February 2018 (CBD/EBSA/WS/2018/1/4).

79. Statements were made by representatives of Argentina, Australia, Belgium, Brazil, Canada, China, Costa Rica, Denmark, Finland, France, Germany, Greece, India, Indonesia, Jamaica, Japan, Jordan, Malaysia, Maldives, Mexico, Morocco, New Zealand, Norway, Philippines (on behalf of the

ASEAN member states), Republic of Korea, Saint Lucia, Seychelles, Singapore, Sweden, Turkey, Turkmenistan (on behalf of the Central and Eastern European countries present) and United Kingdom.

80. Statements were also made by representatives of the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations, FAO and UNEP.

81. A statement was made by the representative of IIFB.

82. Following the exchange of views, the Chair said that he would prepare a revised text for the consideration of a contact group, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing. The contact group would be chaired by Mr. Moustafa Fouda and would have the mandate to consider annex 3 of document CBD/SBSTTA/22/7.

83. At the 12th session of the meeting, on 7 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the chair of the contact group. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.8.

84. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.8, as orally amended, as recommendation 22/6. The text of the recommendation, as adopted, is contained in section I of the present report.

#### **ITEM 9. BIODIVERSITY AND CLIMATE CHANGE: ECOSYSTEM-BASED APPROACHES TO CLIMATE CHANGE ADAPTATION AND DISASTER RISK REDUCTION**

85. At the 5th session of the meeting, on 4 July 2018, chaired by Mr. Sigurdur Thrainsson (Iceland), the Subsidiary Body took up agenda item 9. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on biodiversity and climate change: ecosystem-based approaches to climate change adaptation and disaster risk reduction (CBD/SBSTTA/22/8); voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction (CBD/SBSTTA/22/INF/1); an information document on identifying and scaling local solutions for achieving global targets: the Panorama – solutions for a healthy planet initiative (CBD/SBSTTA/22/INF/26); and the report of the Workshop on Transdisciplinary Research and Governance on Climate-related Geoengineering (CBD/SBSTTA/22/INF/33).

86. Statements were made by representatives of Antigua and Barbuda, Argentina, Belgium, Bolivia (Plurinational State of), Brazil, Cambodia, Canada, Cuba, Egypt, Ethiopia, European Union, Finland, France, Gambia, Germany, India, Italy, Jamaica, Malawi, Malaysia, Maldives, Mexico, Morocco, Netherlands, New Zealand, Norway, Palau (also on behalf of Cook Islands, Micronesia (Federated States of) and Tonga), Nepal, Peru, Philippines (on behalf of the ASEAN member states), South Africa, Sudan, Sweden, Switzerland, Tajikistan (on behalf of the Central and Eastern European countries present), Uganda, United Kingdom and Venezuela (Bolivarian Republic of).

87. A statement was also made by the representative of the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations.

88. Further statements were made by representatives of GFC (also on behalf of ICCA Consortium), GYBN, IIFB, IUCN, Union Paysanne, USC Canada and WWF.

89. Following the exchange of views, the Chair said that he would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

90. At the 11th session of the meeting, on 6 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the Chair. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.7.



91. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.7, as orally amended, as recommendation 22/7. The text of the recommendation, as adopted, is contained in section I of the present report.

#### **ITEM 10. INVASIVE ALIEN SPECIES**

92. At the 5th session of the meeting, on 4 July 2018, chaired by Mr. Sigurdur Thrainsson (Iceland), the Subsidiary Body took up agenda item 10. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on invasive alien species (CBD/SBSTTA/22/9) and, as information documents, guidance for interpretation of the categories on introduction pathways under the Convention (CBD/SBSTTA/22/INF/9), a progress report on invasive alien species (CBD/SBSTTA/22/INF/22), a report on unintentional introductions of invasive alien species by the Invasive Species Specialist Group of IUCN (CBD/SBSTTA/22/INF/29), a document on the World Customs Organization's framework of standards for cross-border e-commerce (CBD/SBSTTA/22/INF/38) and a report on the capacity-building workshop for Caribbean small island developing States towards achieving Aichi Biodiversity Target 9 (CBD/IAS/WS/2017/1/2).

93. Statements were made by representatives of Antigua and Barbuda, Australia, Belgium, Bolivia (Plurinational State of), European Union, Finland, Germany, India, Indonesia (on behalf of the ASEAN member states), Mexico, Micronesia (Federated States of) (also on behalf of Cook Islands, Palau, Solomon Islands and Tonga), Morocco, New Zealand, Niger, Norway, Republic of Korea, Sweden and Switzerland.

94. At the 6th session of the meeting, on 4 July 2018, the Subsidiary Body, chaired by Ms. Senka Barudanović (Bosnia and Herzegovina), continued its discussion of the item.

95. Statements were made by representatives of Belarus (on behalf of the Central and Eastern European countries present), Canada, Costa Rica, Cuba, Dominican Republic, Ecuador, Egypt, Ethiopia, France, Guatemala, Italy, Lao People's Democratic Republic, Peru, Seychelles, South Africa, Sudan, United Kingdom and Venezuela (Bolivarian Republic of).

96. Statements were also made by representatives of GYBN, IIFB, Island Conservation and IUCN.

97. Following the exchange of views, the Chair said that she would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

98. At the 10th session of the meeting, on 6 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised text submitted by the Chair. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.4.

99. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.4, as orally amended, as recommendation 22/8. The text of the recommendation, as adopted, is contained in section I of the present report.

#### **ITEM 11. CONSERVATION AND SUSTAINABLE USE OF POLLINATORS**

100. At the 6th session of the meeting, on 4 July 2018, chaired by Ms. Senka Barudanović (Bosnia and Herzegovina), the Subsidiary Body took up agenda item 11. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on conservation and sustainable use of pollinators (CBD/SBSTTA/22/10); and, as information documents, the global survey of honeybees and other pollinators (CBD/SBSTTA/22/INF/16); relevant initiatives and activities to promote the conservation and sustainable use of pollinators (CBD/SBSTTA/22/INF/19); supporting guidance and tools for the implementation of the international initiative on the conservation and sustainable use of pollinators (CBD/SBSTTA/22/INF/20); the review of pollinators and pollination relevant to the conservation and sustainable use of biodiversity in all ecosystems, beyond their role in agriculture and food production

(CBD/SBSTTA/22/INF/21); and Identifying and scaling local solutions for achieving global targets: the Panorama – solutions for a healthy planet initiative (CBD/SBSTTA/22/INF/26).

101. Statements were made by representatives of Argentina, Belgium, Bolivia (Plurinational State of), Brazil, Canada, Costa Rica, Dominican Republic, Ecuador, European Union, Finland, France, Guatemala, India, Indonesia, Malawi, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Peru, Philippines (on behalf of the ASEAN member States), Saint Lucia, South Africa, Switzerland, Turkmenistan (on behalf of the Central and Eastern European countries present) and Venezuela (Bolivarian Republic of).

102. A statement was made by the representative of FAO.

103. Statements were also made by representatives of IIFB and IUCN.

104. Following the exchange of views, the Chair said that she would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

105. At the 10th session of the meeting, on 6 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), continued its discussion of the item. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.5.

106. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.5, as orally amended, as recommendation 22/9. The text of the recommendation, as adopted, is contained in section I of the present report.

## **ITEM 12. SECOND WORK PROGRAMME OF THE INTERGOVERNMENTAL SCIENCE-POLICY PLATFORM ON BIODIVERSITY AND ECOSYSTEM SERVICES**

107. At the 6th session of the meeting, on 4 July 2018, chaired by Ms. Senka Barudanović (Bosnia and Herzegovina), the Subsidiary Body took up agenda item 12. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on the second work programme of IPBES (CBD/SBSTTA/22/11).

108. At the invitation of the Chair, Ms. Anne Larigaurderie, Executive Secretary of IPBES, provided further information on the development of second IPBES programme of work, which would cover the next decade, up to 2030. It would support efforts to implement the post-2020 biodiversity framework, the 2030 Agenda for Sustainable Development, including the Sustainable Development Goals, and the Paris Agreement on Climate Change. The programme would be a “rolling” one, whereby its elements would be decided as it progressed. The programme would consist of two elements: a draft strategic framework that would include implementation and integration of the four functions of IPBES, institutional arrangements and strengthening resource mobilization; and the work programme, which would focus on topics to be addressed in IPBES activities and reports. IPBES would soon issue an invitation to members, observers that were allowed enhanced participation and multilateral environmental agreements related to biodiversity and ecosystem services to submit requests for topics to be addressed by IPBES. Other relevant United Nations bodies and stakeholders would also be invited to submit proposals. IPBES looked forward to receiving requests from the Conference of the Parties to the Convention on Biological Diversity at its fourteenth meeting so that IPBES could provide the scientific basis for taking the role of biodiversity into account in addressing the Sustainable Development Goals, to ensure a coherent policy across the Sustainable Development Goals with regard to the synergies and trade-offs with regard to biodiversity and the changes necessary to achieve the 2050 Vision for biodiversity.

109. Statements were made by representatives of Belgium, Canada, Costa Rica, Cuba, Egypt, European Union, Finland, France, India, Japan, Maldives, Mexico, Morocco, Netherlands, New Zealand, Norway, Philippines, Republic of Moldova (on behalf of the Central and Eastern European countries present at the meeting), South Africa, Sweden, Switzerland and United Kingdom.

110. Statements were also made by representatives of the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations and UNEP.

111. Further statements were made by representatives of IIFB and IUCN.

112. Following the exchange of views, the Chair said that she would prepare a revised text for the consideration of the Subsidiary Body, taking into account the views expressed orally by the Parties or supported by them and the comments received in writing.

113. At the 11th session of the meeting, on 6 July 2018, the Subsidiary Body, chaired by Ms. Theresa Mundita Lim (Philippines), considered the revised draft recommendation submitted by the Chair. Following an exchange of views, the revised draft recommendation, as orally amended, was approved for formal adoption by the Subsidiary Body as draft recommendation CBD/SBSTTA/22/L.3.

114. At the 13th session of the meeting, on 7 July 2018, the Subsidiary Body adopted CBD/SBSTTA/22/L.3, as orally amended, as recommendation 22/10. The text of the recommendation, as adopted, is contained in section I of the present report.

### **ITEM 13. OTHER MATTERS**

115. No other matters were raised.

### **ITEM 14. ADOPTION OF THE REPORT**

116. The present report was adopted, as orally amended, at the 13th session of the meeting, on 7 July 2018, on the basis of the draft report prepared by the Rapporteur (CBD/SBSTTA/22/L.1), on the understanding that the Rapporteur would be entrusted with its finalization.

### **ITEM 15. CLOSURE OF THE MEETING**

117. Following the customary exchange of courtesies, the twenty-second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice was closed at 6.45 p.m. on Saturday, 7 July 2018.

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