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Convention on Biological Diversity

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Review of findings from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services thematic assessment on Invasive alien species and their control, and their implications under the work of the Convention

Review of findings from the *Thematic Assessment Report on Invasive Alien Species and Their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* and their implications for the work undertaken under the Convention

Note by the Secretariat

I. Background

1. In decision XII/25 the Conference of the Parties to the Convention on Biological Diversity requested the Executive Secretary to bring the deliverables of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) to the attention of the Subsidiary Body on Scientific, Technical and Technological Advice for its consideration with regard to the relevance of the findings for the work of the Convention, and for the development, as appropriate, of recommendations to the Conference of the Parties.

2. In decision 14/36 the Conference of the Parties welcomed the approval by the IPBES Plenary to undertake the thematic assessment of invasive alien species and their control. The summary for policymakers of the assessment[1] was considered and approved by the IPBES Plenary at its tenth session held in Bonn, Germany, from 28 August to 2 September 2023.

3. In decision 15/27 the Conference of the Parties noted with concern that invasive alien species are one of the five direct drivers of biodiversity loss worldwide, as reported by IPBES in its 2019 *Global Assessment Report on Biodiversity and Ecosystem Services*[2] and recognized that anthropogenic changes in the environment, including land- and sea-use change, direct exploitation

* CBD/SBSTTA/25/1/Rev.1.

[1] Helen E. Roy and others, "Summary for policymakers of the thematic assessment of invasive alien species and their control of the Intergovernmental Platform on Biodiversity and Ecosystem Services" (advanced unedited version, 4 September 2023) (Bonn, IPBES, 2023).

[2] IPBES, *Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (Bonn, 2019).

of organisms, climate change and pollution, added further complexity and increased risk of biological invasions and consequent threats to biodiversity.

4. Section II below contains an overview of the work done on invasive alien species under the Convention on Biological Diversity, section III contains an overview of the findings of the assessment, section IV discusses the implications of the findings of the assessment for the work undertaken under the Convention, and section V contains elements for a draft recommendation.

5. The present document was prepared following the approval of the summary for policymakers at the tenth session of the IPBES Plenary. It replaces document CBD/SBSTTA/25/8.

II. Work done on invasive alien species under the Convention on Biological Diversity

6. This section presents a summary of the work undertaken under the Convention on Biological Diversity on invasive alien species, including the work undertaken to support the implementation of Aichi Biodiversity Target 9 of the Strategic Plan for Biodiversity 2011–2020. It provides an overview of the gaps identified in the international framework, as well as the scientific and technical guidance documents developed to support Parties and stakeholders in addressing the challenges posed by invasive alien species.

7. These scientific and technical guidance documents will provide a good basis to support the implementation of the Kunming-Montreal Global Biodiversity Framework, adopted by the Conference of the Parties at its fifteenth meeting, and in particular its Target 6 (Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority sites, such as islands).

8. An overview of the work is provided below.

9. In decision VI/23, the Conference of the Parties adopted guiding principles for the prevention, introduction and mitigation of the impacts of alien species that threaten ecosystems, habitats or species. These principles provide highly relevant guidance.

10. The importance of strengthening international collaboration and cooperation among various organizations and stakeholders to address the issue of invasive alien species has been continuously highlighted by the Parties to the Convention. Some decisions of the Conference of the Parties have focused on cooperation, on addressing gaps in the international regulatory framework and on providing guidance to implement the programme of work on invasive alien species (e.g. decisions VII/13, VIII/27 and IX/4).

11. The Conference of the Parties has also recognized the role of conveyances as pathways for invasive alien species, and in decision XII/17, has encouraged Parties, other Governments and relevant organizations to take actions to address pathways, such as marine biofouling, ballast water, emergency relief, aid and response, and tourism, among others. The decision includes a call to Parties to use the pathway categorization framework provided in document CBD/SBSTTA/18/9/Add.1, which facilitates an analysis of pathways and their relative importance for prioritizing management actions.

12. Acknowledging the gaps in international standards that can be used at an international level to avoid the spread of invasive alien species that are not covered by current standards, the Conference of the Parties adopted decisions X/38, XI/28, XII/16 to address the threat posed by invasive alien species introduced as pets, aquarium and terrarium species, as live bait and live food.

13. Understanding the need to support Parties with the implementation of the Strategic Plan for Biodiversity 2011–2020 and its targets, especially Target 9, on invasive alien species, the Conference

of the Parties, in decision XII/17, provided elements for Parties and other Governments to consider when updating and implementing their national or regional invasive alien species strategies, as well as to provide further guidelines for the implementation of Aichi Biodiversity Target 9.

14. More recently, through decision 15/27, the Conference of the Parties also recognized the need to support Parties with the implementation of Target 6 of the Framework and requested the Secretariat to advise on existing capacity and needs for monitoring, preventing and controlling the introduction and spread of invasive alien species and, thereafter as relevant, update the online toolkit on invasive alien species of the Convention, to provide guidance towards the implementation of Target 6.

15. A number of technical guidance documents and reference tools have been developed under the Convention, including:

(a) CBD Technical Series No. 1 (*Assessment and Management of Alien Species that Threaten Ecosystems, Habitats and Species*);

(b) CBD Technical Series No. 2 (*Review of the Efficiency and Efficacy of Existing Legal Instruments Applicable to Invasive Alien Species*);

(c) CBD Technical Series No. 48 (*Pets, Aquarium and Terrarium Species: Best Practices for Addressing Risks to Biodiversity*);

(d) CBD Technical Series No. 91 (*The Application of Classical Biological Control for the Management of Established Invasive Alien Species Causing Environmental Impacts*);

(e) CBD Technical Series No. 94 (*The Global Taxonomy Initiative 2020: A Step-by-Step Guide to DNA Barcoding*).

III. Overview of the findings of the assessment on invasive alien species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

A. Objective and scope

16. The IPBES assessment of invasive alien species and their control[3] is global in scope and will comprise six chapters and a summary for policymakers. The summary for policymakers includes three annexes on the communication of the degree of confidence, knowledge and data gaps, and examples of data and knowledge products.

17. The assessment critically evaluates evidence on biological invasions[4] and impacts of invasive alien species. In alignment with the Sustainable Development Goals and the Framework, the assessment outlines key responses and policy options for prevention, early detection, and effective control of invasive alien species and mitigation of their impacts in order to safeguard nature, nature's contributions to people, and good quality of life.

18. The assessment clarifies the concepts of "native species", "alien species", "established alien species" and "invasive alien species". It defines "invasive alien species" as a subset of established alien species that are known to have established and spread, with negative impacts on biodiversity, local ecosystems and species. Many invasive alien species also have impacts on nature's contributions to people (embodying different concepts, such as ecosystem goods and services and nature's gifts) and good quality of life. In the context of the assessment, management of biological invasions includes the development of decision-support tools; prevention (supported by regulation)

[3] IPBES, *Thematic Assessment Report on Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (Bonn, forthcoming).

[4] The term is used to describe the process involving the intentional or unintentional transport or movement of a species outside its natural range by human activities and its introduction to new regions, where it may become established and spread.

and preparedness planning and actions; eradication, containment and control of invasive alien species; and site- and ecosystem-based management and ecosystem restoration.

19. The assessment considers how biological invasions are facilitated by direct and indirect drivers of change in nature,[5] noting that interactions among invasive alien species can enable further biological invasions. It also considers how biological invasions, and ultimately the impacts of invasive alien species, can be facilitated by natural drivers of change, in particular natural hazards (such as floods, storms and wildfires) or by biodiversity loss itself.

B. Figures and facts from the assessment

1. Invasive alien species

20. There are more than 37,000 alien species established worldwide, out of which more than 3,500 are invasive alien species threatening nature, nature's contributions to people and/or good quality of life. The total number of alien species is expected to increase by 36 per cent by 2050, compared to 2005.

2. Impacts

21. Most of the impacts (75 per cent) are reported in the terrestrial realm, while 14 per cent of impacts are reported in the freshwater realm and 10 per cent in the marine realm.

22. Invasive alien species have contributed to 60 per cent of recorded global extinctions and have been the sole driver of 16 per cent of these. The highest percentage of global extinctions attributed mainly to invasive alien species have occurred on islands (90 per cent).

23. The estimated annual economic costs of biological invasions in 2019 was more than $423 billion, and the highest proportion of economic costs of biological invasions is attributed to invasive alien species damaging nature's contributions to people and good quality of life (92 per cent), with the remainder related to management of biological invasions (8 per cent). Global economic costs of biological invasions have quadrupled every decade since 1970.

24. The benefits to people that some invasive alien species provide do not mitigate or undo their negative impacts, among which reduction in food supply is the most frequently reported impact (more than 66 per cent).

25. People with the greatest direct dependence on nature may be disproportionately affected by invasive alien species. More than 2,300 invasive alien species have been documented on lands managed, used and/or owned by indigenous peoples. Biological invasions negatively affect the autonomy, rights and cultural identities of indigenous peoples and local communities.

3. Policy and management

26. Globally, 156 out of 196 (80 per cent) countries have targets for managing biological invasions in their national biodiversity strategies and action plans, while 145 countries (67 per cent) have targets aligned with Aichi Biodiversity Target 9.

27. While 69 per cent of countries address invasive alien species through sector specific legislation (e.g. plant protection in the agricultural sector), only 17 per cent of them have national legislation or regulations focussed specifically on biological invasions.

28. Invasive alien species and their negative impacts can be prevented and mitigated through effective management.

29. Prevention and preparedness are the most cost-effective options and thus crucial for managing the threats from invasive alien species. Prevention is particularly critical in marine and connected water systems, where most attempts for eradicating or containing invasive alien species have mostly

[5] Identified in the IPBES *Global Assessment Report on Biodiversity and Ecosystem Services*.

failed. Eradication has been successful, especially for small and slow-spreading populations of invasive alien species in isolated ecosystems.

30. Containment and control can be an effective option for invasive alien species that cannot be eradicated for various reasons in terrestrial and closed water systems but most attempts in marine and connected water systems have been largely ineffective.

31. Over the past decade, the number of countries with national checklists for invasive alien species, including databases, has more than doubled. There have been 1,550 documented eradication programmes conducted in 998 islands with an 88 per cent success rate; there is also a high success rate (more than 60 per cent) of biological control programmes for invasive alien plants and invertebrates.

32. The threat of invasive alien species could be reduced with closer collaboration and coordination across sectors and countries to support the management of biological invasions. Public awareness, commitment and engagement in capacity-building are crucial for the prevention and control of invasive alien species. There is compelling evidence for immediate and sustained action to manage biological invasions and mitigate the negative impacts of invasive alien species.

C. Summary of key messages and background messages from the summary for policymakers

33. The following paragraphs provide key information from the summary for policymakers of the assessment. Readers are encouraged, however, to refer to the full assessment, including its summary for policymakers.

34. The summary for policymakers includes 22 key messages and 33 background messages grouped under the following headings:

(a) Invasive alien species are a major threat to nature, nature's contributions to people, and good quality of life;

(b) Globally, invasive alien species and their impacts are increasing rapidly and predicted to continue rising in the future;

(c) Invasive alien species and their negative impact can be prevented and mitigated through effective management;

(d) Ambitious progress to manage biological invasions can be achieved with integrated governance.

35. A synthesis of the most important knowledge and data gaps identified and collated through the assessment are presented in the summary for policymakers,[6] in which these gaps are grouped as follows:

(a) Gaps on biomes, units of analysis and species groups;

(b) Regional gaps in data and knowledge;

(c) Interoperable data for monitoring invasive alien species and effects of drivers of biodiversity change;

(d) Gaps on how invasive alien species affect nature's contributions to people;

(e) Management and policy approaches;

(f) Gaps to fill to support the implementation of policy and management;

(g) Gaps in knowledge on invasive alien species of particular relevance to indigenous peoples and local communities.

[6] See appendix II to the summary for policymakers.

IV. Implications of the findings of the assessment for the work undertaken under the Convention

36. It is recognized in the assessment that invasive alien species are a major threat to nature, nature's contributions to people and good quality of life, and that their impacts are increasing rapidly and are predicted to continue to do so in the future. It is also noted that these impacts can be prevented and mitigated through effective management and that ambitious progress to manage biological invasions can be achieved with integrated governance.

37. Figures and facts are provided on the magnitude of the problem and the impacts from invasive alien species, which highlight the importance of taking urgent action to address these challenges. These facts confirm that earlier attention to the matter of invasive alien species under the Convention was very necessary and critical. However, the assessment indicates that overall, policies and their implementation have been insufficient in managing biological invasions and preventing and controlling invasive alien species.

A. Information for the implementation of the Kunming-Montreal Global Biodiversity Framework

38. The assessment provides information relevant to support the implementation of Target 6 of the Framework by providing options for preventing or reducing the negative impact of invasive alien species. Some of these options directly relate to some of the components of the target, such as pathways management and species- and site-based approaches. In this respect, the importance of considering pre-border, border and post-border risks, as well as surveillance, early detection and rapid response, eradication, containment and widespread control (including biological control) was noted. Similarly, confirmation that the use of certain approaches (e.g. species-based and site-based) for the management of invasive alien species in terrestrial and closed water systems have been successful and cost-effective can be useful for selecting the right approach to address invasive alien species in these systems.

39. In the case of managing biological invasions in marine and connected water systems, it is noted in the assessment that pathway management (e.g. ballast water and biofouling) is by far the most effective option.

40. Information is also provided through the assessment on how mitigation of risks of invasive alien species will affect areas, such as conservation of biodiversity, food security, sustainable cities, climate change, good health and well-being. The assessment suggests that an approach that acknowledges the interactions between invasive alien species and other drivers of global change can guide policy alignment and mutually supportive efforts towards addressing these drivers. This information can therefore inform actions at a national and international level for the implementation of the Framework, such as considerations for restoration, special planning and sustainable use among others.

41. Furthermore, information relevant to a number of the cross-cutting considerations for the implementation of the Framework (i.e. section C of the Framework) is captured in the assessment, which highlights the relevance of interdisciplinary and transdisciplinary approaches that are sensitive to different knowledge systems, value perceptions and cultural attributes to address the issue of invasive alien species. The assessment suggests that engaging stakeholders, including the private sector, and indigenous peoples and local communities is important for social acceptability and can improve environmental, social and economic outcomes.

B. Effective management of invasive alien species

42. Information from the assessment on status and trends of invasive alien species, as well as on their impacts on nature, nature's contribution to people and good quality of life can support the prioritization of actions, undertaking of management measures and informed decision-making. In particular, the breakdown of information by region, taxonomic groups and units of analysis (e.g. boreal forests and woodlands, cultivated areas, inland surface waters/waterbodies) facilitates the

understanding of the challenges, which in turn, can enable timely management, capacity-building, technology transfer and cooperation efforts.

43. Information is also provided on the important role of multi-stakeholder engagement for the management of invasive alien species, which can improve public acceptability and adoption of new tools and technologies to support actions to tackle invasive alien species, for instance those for eradication.

44. Other direct drivers (land/sea use change, direct exploitation of organisms, climate change and pollution) interact with, and often exacerbate the vulnerability to, or impact of invasive alien species. Thus, invasive alien species may need to be considered in the implementation of many other targets of the Framework, in addition to Target 6.

45. The role of indirect drivers of change facilitating transport and introduction of invasive alien species is noted in the assessment. Indirect drivers associated, in particular, with economic activities, international trade being the most important, are increasingly having an impact at early stages of the biological invasion process. It is also noted in the assessment that the transport of invasive alien species along trade supply chains (e.g. in shipping containers) may be poorly managed and consequently may constitute a biosecurity risk. This information highlights an area that may benefit from further action and coordination.

46. Similarly, the relevance of open and interoperable information systems for the management of invasive alien species is also noted, suggesting that the strengthening of existing open information systems can reduce the cost and facilitate the undertaking of management options, including prioritization of actions, early detection and rapid response. A list of examples on data and knowledge products is also provided in the assessment. This information can be useful for the overall management of biological invasions as these data and knowledge products provide information on taxonomy, identification, special data and pathways.

47. The assessment highlights that adaptive management integrating site and/or ecosystem-based approaches can improve management approaches under ongoing climate-related crisis and land-use change. This information can be relevant in the development of national management strategies and the update of national biodiversity strategies and actions plan.

C. Integrated governance[7] and cooperation to address invasive alien species

48. It is noted in the assessment that invasive alien species can be overcome through a context-specific integrated governance approach for addressing biological invasions, including well-resourced, coordinated and sustained strategic actions, with closer collaboration across sectors and countries. Similarly, it is indicated that collaborative, multisectoral and transdisciplinary approaches, such as One Health approach, provide frameworks to prevent and control invasive alien species by strengthening the interconnectedness between the human, animal, plant and environmental health sectors. This information reaffirms the importance of section C of the Framework, which suggests, among other elements, that the Framework should be implemented taking into consideration the One Heath approach, among other holistic approaches. This information can be useful in guiding actions by Parties to the Convention on how to address the challenges posed by invasive alien species at the national and international levels.

49. At the national level, consideration of integrated governance can be relevant, for instance, in the development of national biodiversity strategies and action plans to identify roles for the various actors involved and how their collaboration, including cross-sectoral collaboration, could be sustained over time and be translated into improving policy coherence.

[7] As defined in the glossary of the assessment: establishment of relationships between the roles of actors, institutions and instruments, and involving as appropriate all those elements of the socioecological system that characterize biological invasion and its management, for the purpose of identifying the strategic interventions needed to improve invasive alien species prevention and control outcomes.

50. At the regional or international levels, integrated governance could imply enhancing coordination and collaboration across international and regional mechanisms and sharing efforts and commitments and understanding the specific role of all actors and their potential contribution to the sustainability of international cooperation initiatives aimed at tackling invasive alien species. In this sense, at the international level, cross-sectoral collaboration can be supported by the strengthening the collaborative activities of the Inter-Agency Liaison Group on invasive alien species established under the Convention.

51. The integrated governance of managing invasive alien species could also benefit the engagement of a wide range of stakeholders at all levels, including those involved in gender- and age-specific activities, as well as indigenous peoples and local communities, some of which have greatest direct dependence on nature.

V. Recommendations

52. The Subsidiary Body may wish to recommend that the Conference of Parties, at its sixteenth meeting, adopt a decision along the following lines:

The Conference of Parties,

Recalling decisions 15/4 and 15/27 of 19 December 2022,

Also recalling Target 6 of the Kunming-Montreal Global Biodiversity Framework,[1]

1. *Welcomes* the approval of the summary for policymakers of the thematic assessment of Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Service by the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services at its tenth session;

2. *Endorses* the key messages contained in the summary for policymakers of the assessment;

3. *Notes* the relevance of the findings of the assessment for the implementation of the Kunming-Montreal Global Biodiversity Framework, in particular its Target 6;

4. *Encourages* Parties, other Governments, relevant organizations, indigenous peoples local communities and other stakeholders to make use, as appropriate, of the information contained in the assessment in the implementation of the Convention on Biological Diversity[2] and the Kunming-Montreal Global Biodiversity Framework, including through the update, revision and implementation of their national biodiversity strategies and action plans, and the preparation of their seventh and subsequent national reports;

5. *Encourages* Parties, and invites other Governments, as appropriate:

(a) To make use of the information available in the assessment, including the status of and trends in invasive alien species, the role of direct and indirect drivers in the introduction and establishment of invasive alien species, and effective management options, such as cross-sectoral collaboration, for the implementation of Target 6 of the Framework;

(b) To develop policy instruments that seek synergies among relevant sectors to manage invasive alien species, and to consider the use of existing multisectoral approaches for achieving the necessary coordination;

(c) To strengthen national regulatory instruments to reduce the transport and introduction of invasive alien species through the use of relevant, or development of new, voluntary guidance and

[1] Decision 15/4, annex.
[2] United Nations, *Treaty Series*, vol. 1760, No. 30619.

codes of conduct, including for the regulation of online trade and areas that are not already covered by existing standards;

(d) To support research, capacity-building and technical and scientific cooperation to address the knowledge and data gaps identified in the assessment;

(e) To support, including through the provision of financial resources, the development, update and long-term operation of information platforms to support the management of invasive alien species;

(f) To engage a wide range of stakeholders and indigenous peoples and local communities in the management of invasive alien species;

6. *Encourages* relevant organizations and stakeholders, as appropriate, to address knowledge and data gaps identified in the assessment by, among other things, promoting further research on areas relevant to the management of invasive alien species, and supporting capacity-building and technical and scientific cooperation;

7. *Requests* the Executive Secretary to further strengthen collaboration among relevant organizations through the Inter-Agency Liaison Group on Invasive Alien Species, among other things, to facilitate international collaboration towards the management of invasive alien species and ensure the participation of indigenous peoples and local communities;

8. *Encourages* Parties, other Governments and organizations in a position to do so to provide support for the activities of the Inter-Agency Liaison Group on Invasive Alien Species;

9. *Requests* the Executive Secretary, subject to the availability of resources, to consider and use the findings of the assessment regarding knowledge-sharing and capacity-building activities to support Parties with the implementation of Target 6 of the Framework.