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Biological Diversity**

SUBSIDIARY BODY ON IMPLEMENTATION
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Item 7 of the provisional agenda*

KNOWLEDGE MANAGEMENT COMPONENT OF THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

Note by the Executive Secretary

I. INTRODUCTION

1.   In decision 14/25, the Conference of the Parties requested the Executive Secretary to develop, in consultation with the informal advisory committees to the Clearing-House Mechanism (CHM), the Biosafety Clearing-House and the Access and Benefit-sharing Clearing-House, a knowledge management component as a part of the preparatory process for the post-2020 global biodiversity framework.

2.   Various provisions and decisions of biodiversity-related conventions and processes recognize the critical importance of information and knowledge management to the achievement of their objectives.[1] The Strategic Plan for Biodiversity 2011-2020, included Goal E: to enhance implementation through participatory planning, knowledge management and capacity-building.[2] It also included Target 19 that "by 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied."

3.   The Strategic Plan for Biodiversity 2011-2020 recognized that achievement of its goals and targets would require enhanced support mechanisms, including the generation, use and sharing of knowledge, and noted that, collectively, Parties and stakeholders have a wealth of experience, good practice cases, tools and guidance and that there is additional useful information beyond this community. It thus called for the establishment of a biodiversity knowledge network, including a database and network of practitioners, to bring together this knowledge and experience and to make it available through the clearing-house mechanism.

4.   The fifth edition of the *Global Biodiversity Outlook* noted that significant progress has been made since 2010 in the generation, sharing and assessment of knowledge, information and data on biodiversity, with big-data aggregation, advances in modelling and artificial intelligence opening up new opportunities for improved understanding of the biosphere. However, major imbalances remain in the location and taxonomic focus of studies and monitoring. Information gaps also remain in the consequences of biodiversity loss for people, and the application of biodiversity knowledge in decision-making is limited.[3]

5.   During the meetings of the Open-Ended Working Group on the Post-2020 Global Biodiversity Framework and in the associated regional and thematic consultations, knowledge management has been

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* CBD/SBI/3/1.

[1] Examples include Articles 17 and 18 of the Convention on Biological Diversity, Article 20 of the Cartagena Protocol on Biosafety, Article 14 of the Nagoya Protocol, Articles VI and VIII of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Articles 3 and 6 of the Ramsar Convention, and Article V of the Convention on Migratory Species.

[2] Decision X/2.

[3] https://www.cbd.int/gbo/

identified as one of the critical means for the successful implementation of the post-2020 global biodiversity framework, together with resource mobilization, capacity-building, technical and scientific cooperation, and communication.

6.   The present document outlines elements of the knowledge management component of the post-2020 global biodiversity framework and possible strategies to operationalize it. Section II provides an introduction and a conceptual framework for the knowledge management component, section III outlines the rationale, objectives and expected impact of the knowledge management component; section IV presents strategies to enhance knowledge management in support of the post-2020 global biodiversity framework and section V describes possible options for an implementation framework.

A. Rationale for the knowledge management component

7.   Knowledge management is one of the key strategic means of implementation that will underpin the achievement of the goals and targets of the post-2020 global biodiversity framework. Easy and timely access to the best available, fit-for-purpose biodiversity data, information and knowledge assets is critical for effective planning, policy formulation, decision-making and implementation. However, many Governments and organizations still face several challenges in implementing effective processes and initiatives for knowledge management. In many countries, especially developing countries and countries with economies in transition, data, information and knowledge on biodiversity that policymakers, practitioners, indigenous peoples and local communities, and scientists require is limited. Moreover, much of what is available is fragmented, difficult to find, or inaccessible.

8.   An expert meeting convened by the Cambridge Conservation Initiative in Cambridge, United Kingdom, from 10 to 12 April 2018, to advance understanding of the need to base development of the post-2020 global biodiversity framework on available evidence noted, among other things, that there is significant data, information and knowledge available, but it is often not readily accessible to those who could use it to good effect. Some of the reasons for this situation are journal paywalls, confidentiality, or simply not knowing it exists or not knowing how to use it. Participants underlined the need to facilitate "discovery" of relevant data, information and knowledge from all sources and to facilitate its use. They also highlighted the potential value of developing a knowledge generation or research strategy to clearly identify the knowledge needed to support implementation of a post-2020 global biodiversity framework. Finally, the experts underscored the need to include evidence from different knowledge systems, in particular traditional knowledge systems, in any knowledge generation or research strategy if it is to be effective.[4]

9.   The knowledge management component seeks to address some of the above issues, including the barriers that prevent the effective utilization of existing biodiversity data, information and knowledge, by leveraging existing biodiversity knowledge management initiatives and networks, bridging the gaps that prevent their full usage and enhancing coordination and collaboration among them. Such efforts call for recognizing and optimizing the contributions of various government and non-government institutions, regional and international organizations, researchers, practitioners and other stakeholders involved in biodiversity knowledge management.

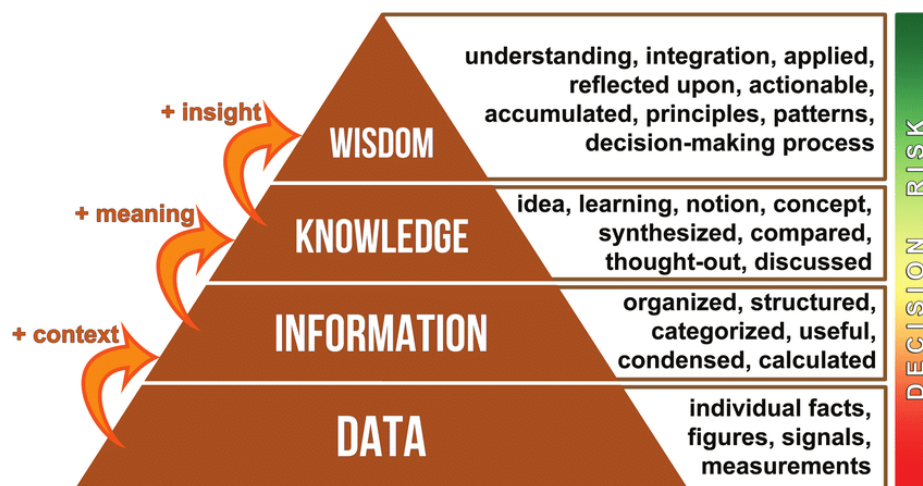## B. Scope of the knowledge management component

10.   In the context of this component, knowledge management encompasses a range of processes, strategies and practices through which biodiversity knowledge, information and data are generated, discovered and collected, organized/curated, stored, shared and used/applied to achieve biodiversity-related objectives and outcomes. Such objectives may include informed policy development, decision-making, planning and implementation or ongoing organizational learning through the collection and sharing of best practices and lessons learned from past activities in order to inform or improve future activities.

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[4] See "Effective use of knowledge in developing the post-2020 global biodiversity framework" (CBD/SBI/2/INF/33).

11.   The knowledge management component uses the following working descriptions based on the Data, Information, Knowledge and Wisdom (DIKW) hierarchy[5] (see figure 1 below):

(a)   Data are raw figures, facts or products of observations which often have no meaning on their own until they are organized, processed and interpreted;

(b)   Information can be referred to as data that is organized, structured, processed and contextualized, thus making it meaningful, useful and relevant for a specific purpose or context;

(c)   Knowledge refers to information that is transformed through cognitive processing, reflection and application resulting in awareness or understanding by individuals or communities for a specific purpose or within a given context. Knowledge can be gained through learning, experience or practice;

(d)   Wisdom relates to human intuition and insight based on repeated application of knowledge and years of experience. Wisdom is often codified into beliefs, traditions, philosophies and principles. Most of the traditional knowledge of indigenous peoples and local communities could be considered "wisdom".

Figure. The Data, Information, Knowledge and Wisdom (DIKW) Pyramid

Source: https://academic.oup.com/jas/article/97/5/1921/5382308

12.   From the above definitions, it is clear that the knowledge management component encompasses, data management, information management and other related disciplines and practices, such as records management, document management, and content management. While these terms are sometimes used interchangeably, it is important to recognize that, in the context of this component, all these activities are constituent elements that contribute to different stages of the knowledge management cycle.

13.   The knowledge management component complements strategies and mechanisms already in place or in the process of being developed to support the implementation of the post-2020 global biodiversity framework. These include the framework for a global communications strategy, the long-term strategic framework for capacity development, the proposals to enhance technical and scientific cooperation in support of the post-2020 global biodiversity framework and the mechanisms for reporting, assessment and review of implementation.

14.   This component covers various types of data, information and knowledge relevant for the conservation and sustainable use of biological diversity, ranging from scientific, technical, technological, legal and policy data and information to implementation-related information and knowledge, including case studies on experiences, best practices and lessons learned in the development and implementation of national

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[5] Source: Rowley, J. 2007. "The Wisdom Hierarchy: Representations of the DIKW Hierarchy."

biodiversity policies, plans and programmes. It also includes the decisions, recommendations and official documentation created by biodiversity-related conventions, other Rio conventions and related processes.

15.   The knowledge management component seeks to enhance interoperability, accessibility and use of relevant information and knowledge management systems, tools and mechanisms to support the post-2020 global biodiversity framework. These include but are not limited to the systems of biodiversity-related conventions, including the clearing-house mechanism of the Convention on Biological Diversity, the Biosafety Clearing-House and the Access and Benefit-sharing Clearing-House, the Ramsar Sites Information Service, and the CITES Trade Database.[6] Others include the United Nations Information Portal on Multilateral Environmental Agreements (InforMEA),[7] the Species Information Service of the International Union for Conservation of Nature (IUCN),[8] the United Nations Biodiversity Lab,[9] the World Database on Protected Areas (WDPA), the Global Database on Protected Area Management Effectiveness (GDPAME), the registry of territories and areas conserved by indigenous peoples and local communities (ICCA Registry)[10] and others.[11]

16.   The knowledge management component also proposes actions to foster coordination, collaboration and complementarity between various initiatives and institutions supporting the generation, capture, management and use of biodiversity-related data, information and knowledge and encourage global data providers to support national stakeholders and national statistical systems, which are key to national monitoring. These include: the United Nations Environment Programme's World Conservation Monitoring Centre, the task force on knowledge and data under the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), the Global Biodiversity Information Facility (GBIF), Encyclopedia of Life (EOL), the International Barcode of Life Initiative (iBOL), the Group on Earth Observations Biodiversity Observation Network (GEO BON), the Digital Observatory for Protected Areas (DOPA), the Data and Reporting Tool (DaRT), the Knowledge Hub of the United Nations Convention to Combat Desertification and the UN Stats Open Sustainable Development Goals (SDG) Data Hub. These and other initiatives and institutions are described in information document CBD/SBI/3/INF/13.

C. Pillars of the knowledge management component

17.   The knowledge management component comprises four pillars:

(a)   *People*: This includes various actors (creators, custodians, managers, curators and users of biodiversity knowledge), who are the foundation of the knowledge management component. Their roles, responsibilities and expectations need to be clarified. It is also important to promote and nurture a culture of knowledge sharing and to recognize and reward knowledge champions;

(b)   *Processes*: This includes the processes, procedures and policies guiding knowledge generation, capture, management, sharing and utilization. This also entails vision, leadership and oversight, alignment of knowledge management with goals and provision of the required resources;

(c)   *Technology*: Technology plays a key role in delivering and supporting knowledge management services. This includes technological tools, systems[12] and platforms that enable relevant actors (the people) to collect, analyse, organize, store, retrieve and share knowledge related to biodiversity;

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[6] https://www.cbd.int/chm/; http://bch.cbd.int/; https://absch.cbd.int/; https://rsis.ramsar.org/; and https://trade.cites.org/

[7] https://www.informea.org

[8] https://www.iucnredlist.org/assessment/sis

[9] https://www.unbiodiversitylab.org/

[10] See: https://www.protectedplanet.net/; https://pame.protectedplanet.net and https://www.iccaregistry.org/

[11] These and other sources are identified in the "Compendium of guidance on key global databases related to biodiversity-related conventions" developed by UNEP-WCMC, available at https://www.unep-wcmc.org/resources-and-data/biodiversitysynergies.

[12] These technologies could include web content management systems, electronic document and records management systems, collaboration tools, search engines, classification tools, and portals, as well as libraries and information centres.

(d)   *Content*: This entails the scope of the biodiversity knowledge content and how it is managed — the taxonomy and metadata, the tools and templates, and the analysis and validation (for quality assurance), the cataloguing, tagging and indexing, digitization and organization of the information and knowledge resources to facilitate easy search and retrieval.

18.   The above four pillars are interdependent and need to be addressed in a balanced and complementary manner. Knowledge management will not be effective if only the technology aspects are addressed and not the process and people-related aspects. The knowledge management component will be closely linked to biodiversity monitoring information systems and the enhanced planning, reporting and review mechanism of the post-2020 global biodiversity framework to facilitate the achievement of the targets. It will also promote a whole system approach, including raw data, such as satellite data and citizen science, processed and geospatial data, such as land cover maps, the algorithms needed to process data, indicator data, analysis and predictive analytics and insights, and publications.

II.   OBJECTIVES AND EXPECTED OUTCOMES

19.   This knowledge management component is intended to guide knowledge management by the biodiversity community in support of the post-2020 global biodiversity framework. The proposed actions will be implemented and coordinated, as appropriate, by government and non-government actors, including Parties to the biodiversity-related conventions and processes, the Convention secretariats, partner organizations and other stakeholders. The component seeks to enhance the sharing of data, information and knowledge across biodiversity-related conventions and organizations.

20.   The overall goal is to facilitate and support effective implementation of the post-2020 global biodiversity framework through enhancing the generation, collection, organization, sharing and utilization of relevant data, information and knowledge by the global community. This would require building a culture of knowledge sharing and fostering collaborative networks and online communities of practice. It would also require analysing, sharing and leveraging experiences and lessons learned from various biodiversity knowledge management initiatives. In addition, national planning and the monitoring of national plans and commitments is essential for identifying where action is needed. The knowledge management component should directly contribute to the monitoring of the post-2020 global biodiversity framework and ensure that data and indictors are at the centre of national reporting.

A.   Specific objectives

21.   The specific objectives of the knowledge management component are to enable government and non-government actors to have easy and timely access to quality data, information and knowledge to do their work and also enable the biodiversity information providers to collaborate, share and harness the information together across various platforms, treaties and related processes by:

(a)   Creating enabling environments and mechanisms for improved generation, management, sharing and utilization of biodiversity-related data, information and knowledge;

(b)   Leveraging existing relevant biodiversity knowledge management systems, initiatives and networks through coordinated and collaborative multi-stakeholder processes;

(c)   Improving discoverability and accessibility of biodiversity-related data, information and knowledge across multiple sources;

(d)   Encouraging and enabling relevant stakeholders to participate in biodiversity knowledge-sharing processes and networks;

(e)   Strengthening the capacities of relevant stakeholders to access and utilize existing biodiversity-related data, information and knowledge at the national, regional and international levels;

(f)   Facilitating monitoring and assessment;

(g)   Promoting national and global data sharing and dialogues, as well open data, open metadata and quality assurance;

(h)   Enhancing synergies among biodiversity-related conventions to facilitate more coordinated national reporting.

22.   These objectives are complementary to those set out in the long-term strategic framework for capacity development (CBD/SBI/3/7/Add.1), the proposals for enhancing technical and scientific cooperation (CBD/SBI/3/7/Add.2) and proposals for an enhanced planning, reporting and review mechanism of the post-2020 global biodiversity framework (CBD/SBI/3/11).

B. Expected outcomes and milestones

23.   The implementation of the knowledge management component is expected to result in:

(a)   Increased availability and accessibility of relevant data, information and knowledge at all levels;

(b)   Increased uptake and utilization of data, information and knowledge to support the implementation of the post-2020 global biodiversity framework;

(c)   Increased capacity of Governments and relevant stakeholders to capture, manage and utilize biodiversity-related data, information and knowledge;

(d)   Increased number of active biodiversity knowledge management support networks and communities of practice;

(e)   Enhanced real-time access to data and information for national planning and reporting in the context of biodiversity-related conventions and for global reviews, including in the context of IPBES;

(f)   Increased information sharing across biodiversity-related conventions and organizations.

24.   Ultimately, it is expected that the above improvements will enable Governments, indigenous peoples and local communities, and all stakeholders, as appropriate, to:

(a)   Improve implementation and decision-making through more effective use of available data, information and knowledge;

(b)   Increase efficiency by accessing and leveraging previous work rather than repeating it, and learning from the experiences of others;

(c)   Reduce inefficiencies in service delivery by getting the information needed in a timely manner or by reducing the amount of time spent searching for information;

(d)   Improve communication and professional and organizational development by increasing learning across governments and organizations;

(e)   Facilitate innovation by leveraging existing knowledge resources to create new products.

III. STRATEGIES TO ENHANCE BIODIVERSITY KNOWLEDGE MANAGEMENT

25.   This section outlines broad categories of strategies to be undertaken by Parties, relevant organizations and convention secretariats, as appropriate, to enhance the following stages of the knowledge management cycle in support of the post-2020 global biodiversity framework. The key specific strategic actions to facilitate the implementation of this component, including the proposed timeframes and an indicative list of lead implementers of the respective actions are presented in annex I. The proposed strategic actions are grouped under the following stages of the knowledge management cycle: knowledge generation and synthesis; knowledge discovery and collection; knowledge organization and sharing; use/application of knowledge; and knowledge audit and review to identify knowledge gaps and improve national planning and priority setting, while considering global priorities.

A. Promoting knowledge generation and synthesis

26.   Knowledge generation and synthesis encompass the creation and advancement of new knowledge and the building of an evidence base, primarily through research and academic initiatives, as well as analysis of information provided by Governments, relevant organizations and other sources. Examples of organizations and processes contributing to the generation and synthesis of biodiversity-related information

and knowledge include university research institutions, GEO-BON, IPBES,[13] global assessments by the Food and Agriculture Organization of the United Nations (FAO), UNEP-WCMC and others.

B. Facilitating knowledge discovery and collection

27.   Knowledge discovery and collection are a critical element of this component.[14] As knowledge generation grows and massive amounts of data, information and knowledge are stored in digital libraries and databases around the world, it becomes a challenge to identify and access them. There is a need to understand the breadth of what is being collected across the spectrum of sources and keep track of relevant sources. Some of the sources are publicly available while others are maintained as for-pay and/or private resources. There are a number of ongoing efforts to identify and compile existing sources of biodiversity data, information and knowledge, including those identified in the UNEP-WCMC compendia referred to above. Those efforts need to be broadened and expanded to support the post-2020 global biodiversity framework.

C. Enhancing knowledge organization and sharing

28.   The knowledge generated or collected must be organized, catalogued and mapped using appropriate metadata and descriptors for easy searchability, accessibility and retrieval. Key players, such as GBIF, GEO-BON, InforMEA and UNEP-WCMC, have developed standards that can be further elaborated and shared. Increasing access to information can be addressed by ensuring full and complete metadata tagging, including subject tagging of knowledge objects. Consistent use of shared terminology increases findability, as does full-text indexing. Increasing the interoperability of search systems and standardization and the use of common descriptors will allow for better findability of information.

29.   While there are many existing collections of biodiversity data, information and knowledge, finding and sharing them remains difficult. In addition, not all information is made available in an open-access manner, making it difficult for all stakeholders, most especially for those in developing countries to access and use it. Further work is needed to make it easier for users to find and access available information and knowledge in comprehensible formats. The latter could be achieved by taking advantage of modern technologies to enhance data, information and knowledge integration and visualization of search results. Following international standards and best practices, biodiversity-related convention secretariats have developed a variety of "common formats" that are used to describe frequently collected information.

D. Promoting the effective use and application of knowledge

30.   As noted above, collectively, Governments, organizations and other stakeholders have a wealth of biodiversity data, information and knowledge stored in databases, libraries and other repositories. However, this wealth of data is only of value if it is shared and effectively used to support biodiversity planning, policy development, decision-making, implementation, monitoring, review and reporting processes.

31.   Various initiatives, such as IPBES and the Connect Project, have made progress in providing support for Governments and stakeholders to integrate biodiversity data into decision-making. The objective of the Connect Project is to ensure that biodiversity is taken into account in decision-making across government sectors by improving development decision makers' access to and use of biodiversity information and embedding biodiversity information within national development decision-making processes. Such initiatives need to promote contextualization and utilization of existing information knowledge to support policy, planning, decision-making, implementation, monitoring and reporting.

E. Conducting knowledge audits and reviews

32.   Knowledge audits and reviews will be conducted periodically to assess how the knowledge management component is contributing to the achievement of the goals and targets of the post-2020 global biodiversity framework, to identify knowledge gaps and improve national planning and priority setting,

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[13] Some of the efforts are outlined in decision IPBES-7/1.

[14] Knowledge discovery and collection involves searching, locating, identifying and acquiring data, information and knowledge.

while considering global priorities. Different methods, including the strengths, weaknesses, opportunities and threats (SWOT) analysis, will be used, as appropriate.

IV. IMPLEMENTATION OF THE KNOWLEDGE MANAGEMENT COMPONENT

33.   The knowledge management component will be operationalized by Governments and relevant stakeholders in line with their strategic priorities to implement the post-2020 global biodiversity framework. Possible actions to facilitate the implementation of this component are presented in annex II. These build on the key actions for enhancing synergies and cooperation among the biodiversity-related conventions and international organizations in the area of information and knowledge management identified in decision XIII/24. Those actions will be implemented in manner complementary to the long-term strategic framework for capacity development, the proposals to strengthen technical and scientific cooperation, the framework for a global communications strategy, the data strategy for the Secretariat of the Convention on Biological Diversity and the enhanced planning, reporting and review mechanism of the post-2020 global biodiversity framework.

34.   Enhanced knowledge management will require effective collaboration, cooperation and coordination among Governments and relevant organizations in biodiversity data, information and knowledge processes. It may also require input and support from relevant institutional bodies and mechanisms to Governments and other key actors (including knowledge creators, managers, brokers, practitioners and users) involved. Such support could be provided, as appropriate, by:

(a)   Existing advisory committees, such as the Steering Committee of the MEA Information and Knowledge Management Initiative led by UNEP;

(b)   Advisory groups, such as the Informal Advisory Group on Technical and Scientific Cooperation[15] to be established pursuant to decision 14/24 B, paragraph 5;

(c)   Informal networks, such as the Alliance for Biodiversity Knowledge,[16] which brings together stakeholders working on the collection, curation or sharing of biodiversity data, information and knowledge;

(d)   The expanded Biodiversity Indicators Partnership (BIP) which will include more users and foster collaboration with the United Nations Statistical Commission;

(e)   An informal coalition or partnership involving relevant organizations, such as UNEP, the United Nations Development Programme (UNDP), the Global Biodiversity Information Facility (GBIF), and GEO BON.

35.   Relevant knowledge management organizations, initiatives and processes will be leveraged to support the effective implementation of the knowledge management component of the post-2020 global biodiversity framework. An interactive online database of such organizations, initiatives and processes will be established to help foster coordination, collaboration and complementarity in the generation, collection, management, sharing and use of biodiversity-related data, information and knowledge.

V. MONITORING AND REVIEW

36.   The implementation of the knowledge management component will be monitored using the information provided by Parties in their national reports to the respective biodiversity-related conventions and by organizations through their voluntary submissions to the secretariats of the biodiversity-related conventions. A headline indicator for knowledge management will be included in the monitoring framework for the post-2020 global biodiversity framework, and a complementary set of indicators which government and non-government actors can also adapt and use to monitor, assess and report on the outcomes and impact of their knowledge management efforts at the national and regional levels will be developed by the Secretariat in collaboration with experts and practitioners from Parties and relevant organizations. The information generated from the monitoring process will inform the review and updating of the knowledge management component, as appropriate, in 2030.

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[15] See CBD/SBI/3/7/Add.2, annex II.

[16] https://www.allianceforbio.org/

Annex I

STRATEGIC ACTIONS TO ENHANCE KNOWLEDGE MANAGEMENT FOR THE EFFECTIVE IMPLEMENTATION OF THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

Strategic area	Strategic action	Time frame[17]	Potential contributors[18]
A. Promoting knowledge generation and synthesis	(a) Identification of gaps in biodiversity knowledge and options for addressing them		
	(b) Expansion of collaboration among organizations and institutions to promote knowledge generation		
	(c) Enhancement of outreach to relevant research and academic communities and other institutions to encourage them to share relevant research data, information and knowledge		
	(d) Developing local and national capacity for knowledge generation through citizen science by incentivizing the collection of data, information and knowledge at the local level		
	(e) Enhancement of the use of all types of big data, including remote sensing and IoT, as well as ensuring data standards and sharing		
B. Facilitating knowledge discovery and collection	(a) Development or enhancement of web-based tools to identify and collect information and knowledge from various sources in an interactive, real-time and user-friendly manner[19]		
	(b) Promotion of knowledge discovery tools and techniques, including data mining and machine learning tools, as appropriate		
	(c) Engagement of relevant stakeholders, including knowledge creators, brokers and users in implementing agencies, conservation organizations, academic institutions, and others at the national and subnational levels in the creation and collation of knowledge		
	(d) Identification, collection and sharing, where authorized, of traditional knowledge from indigenous peoples and local communities as well as women's knowledge, in an appropriate way and with clear acknowledgements of the source[20]		
C. Enhancing knowledge organization and sharing	(a) Continued improvement of metadata quality, tagging and mapping of knowledge objects from biodiversity-related conventions through InforMEA and other sources to allow for increased findability		
	(b) Development, publicization and promotion of standards for metadata quality and tagging of biodiversity information and knowledge resources to ensure quality and compatibility		

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[17] The timeframe for the different strategic actions will be completed after discussions at the third meeting of the Subsidiary Body on Implementation.

[18] This column will be completed after the third meeting of the Subsidiary Body on Implementation and following voluntary expressions of interest from relevant partner organizations to contribute to the agreed strategic actions.

[19] These may include tools identified in the UNEP-WCMC compendia.

[20] The Open-Ended Working Group on Article 8(j) and Related Provisions, and the IPBES task force on indigenous and local knowledge could play a role in this regard.

	(c) Improvement of interoperability of information and knowledge systems of biodiversity-related conventions and other information providers across the biodiversity community			
	(d) Promotion of outreach for and development of bioinformatics and descriptive metadata training modules, in conjunction with existing capacity-development projects and plans at the international, national and subnational levels, aimed at increasing related competencies			
	(e) Promotion of voluntary guidance to improve accessibility to biodiversity data, information and knowledge			
	(f) Strengthening the capacity of Governments to efficiently manage and share information and knowledge across conventions, among other things, through making use of tools, such as the Data Reporting tool (DaRT) and the adoption of coherent and synergistic approaches			
	(g) Development of more scalable biodiversity observation data that allows for both the unbiased aggregation of national data and disaggregation of global data utilizing common standards			
	(h) Provision of guidance to governments and non-government actors on how to incentivize the engagement of various actors in knowledge management, particularly to develop a better culture of knowledge sharing and application			
D. Promoting the effective use of knowledge	(a) Development of a change management strategy, including communication and marketing, to increase the uptake, utilization and application of existing biodiversity data, information and knowledge			
	(b) Promotion and facilitation of the sharing of experience in the use of information and knowledge, including through communities of practice			
	(c) Engagement of a broader range of stakeholders in the use of new knowledge sharing tools, including social media			
	(d) Creation of mechanisms and initiatives to facilitate ongoing dialogue between the research community and policymakers, decision makers and practitioners			
	(e) Establishment of linkages between scientific and citizens' networks and communication experts to enable the translation of scientific outcomes into knowledge products			
	(f) Promotion and facilitation of the use of biodiversity data, information and knowledge in the planning processes of other sectors and in a cross-departmental way within governments			
E. Conducting knowledge audits and reviews	(a) Undertaking periodic knowlegement management surveys to assess, among other things, the types of information and knowledge they seek most frequently, the ease of access to the information they need, existing knowledge gaps, level of knowledge-sharing and the channels they prefer			
	(b) Analysis of major knowledge gaps and identification of options to address them			
	(c) Comprehensive review of the knowledge management component			

Annex II

STRATEGIC ACTIONS TO FACILITATE THE IMPLEMENTATION OF THE KNOWLEDGE MANAGEMENT COMPONENT

Strategic area	Strategic action	Time frame	Contributors
A. Capacity-building in data, information and knowledge management	(a) Strengthen the capacity of relevant institutions in bioinformatics, information and knowledge management, including through education, training and mentoring of experts and young scientists		
	(b) Support Governments to put in place enabling policies and laws, institutional arrangements and incentives for knowledge management		
	(c) Provide information and guidance on knowledge management and national database development, and share experience in data access and use		
	(d) Support Governments and, in accordance with national legislation, relevant stakeholders, in accessing existing knowledge sources		
	(e) Undertake an analysis of gaps in existing information and knowledge management tools and approaches supporting biodiversity management efforts		
	(f) Undertake a gap analysis on national knowledge management expertise and needs, including capacity development on knowledge management in the implementation of national biodiversity strategies and action plans, as appropriate		
B. Network and partnership development	(a) Catalyse and strengthen international and regional networks on biodiversity-related data, information and knowledge management		
	(b) Promote collaboration in biodiversity data, information and knowledge-sharing, including enhancing harmonization and interoperability between relevant information systems initiatives		
	(c) Enhance biodiversity monitoring through cooperation to improve the acquisition, delivery and use of Earth observation data and related services		
	(d) Identify, publicize, link and strengthen centres of expertise, communities of practice and other knowledge sources		
	(e) Enhance outreach and collaboration among key stakeholders – academia, indigenous peoples and local communities, subnational governments and national Government institutions		
C. Identification and promotion of best practices and resources	(a) Facilitate the sharing of relevant information, success stories and best practices in information and knowledgement management		
	(b) Identify, map and publicize existing relevant biodiversity data, information and knowledge sources		
	(c) Identify, promote and facilitate the implementation and scaling up of innovative knowledge management tools		
	(d) Promote the use of relevant case studies on information management		

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