# NATIONAL ECOSYSTEM ASSESSMENTS TO SUPPORT IMPLEMENTATION OF THE CONVENTION ON BIOLOGICAL DIVERSITY

UN environment programme | WCMC

NATIONAL ECOSYSTEM ASSESSMENT INITIATIVE

Convention on Biological Diversity

Japan Biodiversity Fund

**The UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) is a global center of excellence on biodiversity. The Centre operates as a collaboration between the UN Environment Programme and the UK-registered charity WCMC. Together we are confronting the global crisis facing nature.**




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## Authors

Abigail Burns - Maximilien Gueze - Jerry Harrison - Abisha Mapendembe - Emma Martin - James Vause, Lucie Guirkinger - Daniela Guarás - Shaenandhoa García-Rangel - Claire Brown.



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# SUMMARY

National ecosystem assessments provide countries with an up-to-date, comprehensive, and critical synthesis of knowledge on biodiversity and ecosystem services framed around key policy questions[1]. These assessments lay out the status of and trends in biodiversity and ecosystem services in any given country, their drivers of change, the impacts those drivers are having today and could have in the future, and the effectiveness of interventions and responses. The operating principles, conceptual framework, and assessment process of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) can be tailored to country needs to guide the development of national ecosystem assessments[2]. Through stakeholder engagement and capacity development, national ecosystem assessments can perform a supporting role throughout key aspects of the implementation of the Convention on Biological Diversity (CBD) at the national level, from planning through reporting.

## A national ecosystem assessment can support:

### Biodiversity planning by

- Providing planners with relevant, authoritative, comprehensive, cross-cutting, and up-to-date information, including a review of the effectiveness of actions for biodiversity and ecosystem services at a national level and improved proposals towards implementation of the CBD;

- Working as a mechanism to identify and build on different knowledge systems, datasets and indicators that are relevant and useful in national biodiversity planning;

- Drawing attention to the benefits that biodiversity and ecosystem services provide to sectoral and cross-sectoral activities as well as their impacts, thus informing decision-makers about dependencies and stimulating a systematic integration of biodiversity considerations into planning;

- Highlighting the multiple values of biodiversity and the contributions that it makes to different segments of society, including indigenous peoples and local communities, and the ways that these can be accounted for in decision-making;

- Identifying key actors involved in the conservation and sustainable use of biodiversity and ecosystem services in-country, including businesses, indigenous peoples and local communities, and practitioners, and developing guidance on how to mobilize and build the capacity of these actors for concerted actions in support of biodiversity;

- Supporting processes—such as identifying national policy priorities and sustaining a continuous dialogue among stakeholders to maintain ownership—leading to the development and update of National Biodiversity Strategies and Action Plans (NBSAPs).

## National reporting by

• Providing an up-to-date, comprehensive, and critical synthesis of knowledge on biodiversity and ecosystem services across the natural and social sciences, as well as Indigenous and local knowledge systems;

• Working as a mechanism to identify and use knowledge systems, datasets, and indicators that are relevant for national reporting;

• Improving understanding of how data, information, and knowledge—including indicators and indigenous and local knowledge—can be used more effectively to assess the progress and impact of biodiversity-related actions;

• Highlighting knowledge gaps and helping to promote action through monitoring and research, which will in turn enhance the knowledge base, supporting more comprehensive reporting for the CBD and other biodiversity agreements in the long term.

## Technical and scientific cooperation by

• Bringing together individuals across disciplines and a wide range of knowledge holders, leading to further understanding of different perspectives and fostering matchmaking;

• Catalyzing country-level cooperation among institutions supporting national processes;

• Establishing and/or enhancing a national science-policy platform to institutionalize technical, scientific, and multi-stakeholder cooperation beyond the assessment. This facilitates the use of findings and bolsters action towards the CBD objectives;

• Enhancing connections among assessment practitioners, including indigenous peoples and local communities, within countries and internationally, fostering knowledge and sharing experience.

## Capacity-building by

• Leading on the development of national capacities at the interface between science, policy, and practice as part of implementing the assessment process;

• Identifying further capacity-building needs and advising on how to address them;

• Providing opportunities for developing and strengthening specific skills such as stakeholder and knowledge holder engagement, relationship-building, mobilization, and the compilation, integration, and use of data, information, and knowledge.

**Communication, education, and public awareness by**

- Providing a knowledge base on which to draw when developing communication, education, and public awareness activities and materials that will be directly relevant to CBD implementation;
- Framing clear communication goals for the assessment that are relevant for different audiences, enhancing communication of CBD-related activities at the national level;
- Presenting key messages targeted to decision-makers through the Summary for Policymakers, and developing materials tailored to other stakeholders.

**In addition, a national ecosystem assessment can potentially support resource mobilization by**

- Leading communication with key economic sectors - both public and private - on the value of biodiversity and priority actions needed to halt the loss of biodiversity and ecosystem services;
- Identifying priority financial actions to address drivers of change, including using existing resources more effectively or redirecting them towards interventions tackling drivers of change and/or supporting sustainable use;
- Drawing attention to non-financial resources that can be deployed to be mutually reinforcing across sectors and that have the potential to slow down drivers of change in biodiversity and ecosystem services.

Considering this, national ecosystem assessments are well positioned to play a crucial role in the implementation of the Post-2020 Global Biodiversity Framework and other global biodiversity-related commitments. Examples of impacts on CBD implementation are already starting to show as the community of practice grows around the science-policy-practice interface within countries[3].

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# INTRODUCTION

Over many years and in many different circumstances, national decision-making has failed to fully consider relevant knowledge and information to capture the value of biodiversity and ecosystem services to society[4]. This has resulted in widespread biodiversity loss and a serious decline in ecosystem services (e.g., crop pollination, water purification, flood protection, and carbon sequestration) that support livelihoods and human well-being, and together are estimated to be worth one-and-a-half times as much as global gross domestic product (GDP)[5].

Between 1997 and 2011, land use change drove the yearly loss of ecosystem services with an economic value ranging between 4 to 20 USD trillion, whereas that associated to land degradation was worth a further 6 to 11 USD trillion per year[5]. Tools and approaches that support the integration into decision-making of knowledge related to biodiversity and ecosystem services are crucial to avoid future losses.

A national ecosystem assessment is a nationally driven process that provides countries with an up-to-date, comprehensive, and critical synthesis of knowledge on biodiversity and ecosystem services framed around key policy questions[1, 3]. It can also highlight the value and effectiveness of different policy options and play an important role in fostering collaboration and enhancing knowledge holder and stakeholder engagement at the science-policy interface, identifying knowledge gaps and increasing national capacity. In addition, a national ecosystem assessment can help build an improved understanding about the relevance and values of biodiversity and ecosystem services to multiple sectors and can support country responses to a range of intergovernmental agreements and processes, including implementation of the Convention on Biological Diversity (CBD), communicating mutually reinforcing messages. As such, the role of a national ecosystem assessment in supporting implementation of the CBD spans over various key aspects of the CBD implementation process (see Figure 4), from planning—for example, by facilitating knowledge holder and stakeholder engagement and reinforcing capacities—to the implementation phase by supporting the integration of biodiversity and ecosystem services across sectors, as well as providing information to help monitor and report progress towards policy objectives.

The Conference of the Parties (COP) to the CBD recognizes the value of national ecosystem assessments, and through its decision 14/1 encouraged Parties to carry out such assessments[9] (see also decisions VIII/9[6], IX/15[7], and XII/1[8]). The present document, produced with support from the Japan Biodiversity Fund through the CBD Secretariat, incorporates the results of lessons learned and experiences shared by National Focal Points during two workshops aimed at reinforcing the dialogue between science and policy in the Asia-Pacific region. The first workshop was held in Bangkok, Thailand in October 2019, which was co-hosted by Global Environmental Strategies (IGES) and the University of Tokyo Institute for Future Initiatives (IFI), and hosted by the Office of Natural Resources and Environmental Policy and Planning (ONEP) of the Ministry of Natural Resources and Environmental Policy and Planning, Government of Thailand; and the second was held in Kunming, China in December 2019 which was hosted by UNEP-WCMC and the Yunnan Provincial Ecology and Environment Department. This document also incorporates the results of a survey distributed to workshop participants. This guidance was developed primarily for CBD National Focal Points as a means of increasing awareness and understanding of the national ecosystem assessment process

and how it can support implementation of the Convention. However, it may also be useful to those involved in national biodiversity planning and monitoring.

Although this document is mainly focused on the contribution of national ecosystem assessments, assessment processes at other scales can also make a valuable contribution at the national level. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) carries out global, regional, methodological, and thematic assessments. In developing its own assessment process and associated programs of capacity-building and support, IPBES has produced guidance that is valuable at the national level and at the same time encourages the implementation of national ecosystem assessments[4].

Section 1 and Section 2 of this document provide short introductions to ecosystem assessments and the IPBES assessment process. Section 3 contains the main body of the document and explores how national ecosystem assessments can facilitate implementation of the CBD, taking into consideration the different dimensions and stages of the policy cycle, from planning through reviewing and reporting. The section is structured following six themes proposed at the Bangkok and Kunming workshops, which relate to different aspects of implementation of the Convention: biodiversity planning, national reporting, technical and scientific cooperation, capacity-building, communication, education, and public awareness, and resource mobilization. Case studies, identified through the workshops and the survey, are provided as practical examples.

# 1. THE LANDSCAPE OF ASSESSMENTS

## What are ecosystem assessments?

Ecosystem assessments are processes that aim to evaluate current knowledge about the interrelationships between human activities and biodiversity[3,4] .An ecosystem assessment primarily provides a critical synthesis on the status of, and trends in, biodiversity and ecosystem services and their direct and indirect drivers of change (Figure 1). Such assessments can also address the impacts of these changes on the economy, human health, and well-being, and analyze future scenarios and potential pathways for a range of responses and policy options[3]. Ecosystem assessments can take place at different geographic scales, ranging from global or regional to national or local. While varying in scale, assessments can also focus on a specific topic.

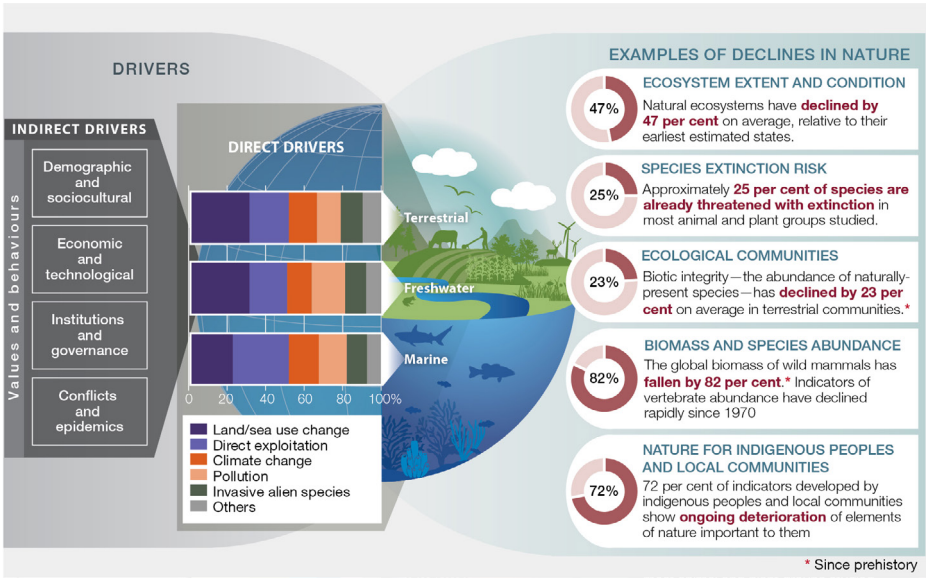


**Figure 1.** Examples of global declines in biodiversity as depicted by The Global Assessment Report on Biodiversity and Ecosystem Services. From IPBES, 2019. *Global Assessment Report on Biodiversity and Ecosystem Services*, p.31[4].

# GLOBAL ECOSYSTEM ASSESSMENTS

Global ecosystem assessments provide an analysis of the status and trends of biodiversity and ecosystem services worldwide, their impact on human well-being, and the effectiveness of responses. There are several global assessments mandated through different conventions, agreements, or initiatives, which can also inform national-level decision-making.

**These include the following:**

- **The Global Forest Resources Assessment (FRA)**[10] is published every five years by the Food and Agriculture Organization of the United Nations (FAO) and provides information on the extent of forest resources, their condition, management, and uses. Its most recent publication (FRA 2020)[11] presents a comprehensive picture of the ways in which the world's forest resources are changing in order to support the development of sound policies, practices, and investments around forestry.

- **The Global Environment Outlook (GEO)**[12] is the flagship publication of the United Nations Environment Programme (UNEP), and is published every six years. It was requested by Member States to provide a periodic assessment of the state of the world's environment, as well as an overview of current challenges faced and action needed to achieve a sustainable future. The most recent report, GEO-6[13], was released in 2019.

• **The Global Biodiversity Outlook (GBO)**[14] is a periodic report mandated by the CBD COP. It aims to provide an overview of the status and trends of biodiversity and an analysis of the actions taken by the global community to implement the three objectives of the Convention: the conservation of biological diversity; the sustainable use of the components of biological diversity; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies[15]. The GBO includes a forward-looking scenario component which supports decision-making by Parties. The assessment is based on a set of agreed global indicators. The latest report, GBO-5 (2020)[16], examines progress towards the goals of the Strategic Plan 2011–2020 and the Aichi Biodiversity Targets[17].

• **The Millennium Ecosystem Assessment (MA)**[18, 19] published in 2005, evaluated the consequences of ecosystem change for human well-being. The findings provide a scientific appraisal of the condition of and trends in the world's ecosystems and the services they provide to people, as well as the scientific basis for action towards their conservation and sustainable use.

• **The Economics of Ecosystems and Biodiversity (TEEB)**[20] is a global initiative which integrates the values of biodiversity and ecosystem services into decision-making at all levels. The TEEB's synthesis report[21], published in 2012, highlights the importance of the economic contribution of biodiversity and ecosystem services to human well-being, and suggests steps towards mitigating the loss of these contributions due to mismanagement or neglect. Among recent activities, the TEEBAgriFood Scientific and Economic Foundations Report[22] published in 2018, provides a framework of evaluation to guide the assessment of food systems and their complex linkages to the environment, society, and human health.

• **The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) assessments**[23] are global, regional, methodological, and thematic evaluations of knowledge on biodiversity and ecosystem services, and assess their interlinkages at a global level. The landmark Global Assessment Report on Biodiversity and Ecosystem Services (2019)[24] responded to an invitation by the CBD COP to prepare a global assessment of biodiversity and ecosystem services and the effectiveness of responses, including the Aichi Biodiversity Targets[25, 26]. More information on IPBES is provided in Section 2.

# WHAT IS A NATIONAL ECOSYSTEM ASSESSMENT?

A national ecosystem assessment is a nationally driven process to develop an up-to-date, comprehensive, and critical synthesis of knowledge, including across the natural and social sciences and encompassing indigenous and local knowledge, on biodiversity and ecosystem services and their interlinkages to people[3,27,28]. National ecosystem assessments follow similar approaches to other ecosystem assessments but are contextualized to suit country needs and to address specific policy questions. These assessments lay out the status of and trends in biodiversity and ecosystem services in a given country, their drivers of change, the impacts that those drivers are having now and are likely to have in the future, and the effectiveness of interventions and responses[29]. A national ecosystem assessment is an inherently consultative process (see Box 2) that seeks to mobilize available knowledge on biodiversity and ecosystem services, as well as to foster sustainable and long-lasting collaborations across sectors (see Section 3.3) and build national capacity (see Section 3.4). These important legacies from the assessment process are coupled with the involvement of a wide range of national expertise (e.g., scholarly disciplines, practitioners, and technical experts from different sectors, and indigenous peoples and local communities (see Section 3.3) that can support the integration of biodiversity considerations into cross-sectoral strategies.

Published in 2011, the United Kingdom (UK)'s national ecosystem assessment[30] was one of the leading country initiatives arising from the findings of the Millennium Ecosystem Assessment (2005)[18]. It aimed to identify and develop effective policy responses to drivers of change in biodiversity and ecosystem services[31]. It provided a detailed evaluation of eight ecosystems across the UK and suggested that if these ecosystems were properly protected, an additional GBP 30 billion could be added to the UK economy, whereas degradation of these same ecosystems would cost the economy GBP 20 billion per year. This assessment was instrumental in providing the UK Government and other stakeholders with an alternative perspective on biodiversity and ecosystem services, incentivizing action at both the national and international levels. Several countries undertook ecosystem assessments at the national level inspired by the Millennium Ecosystem Assessment[18]. Others are carrying out national ecosystem assessments using guidance and resources produced by these experiences and the IPBES assessments[32].

The CBD COP urged Parties and invited "other Governments, as appropriate, to consider undertaking national assessments of biodiversity and ecosystem functions and services"[9]. CBD decision 14/1 also calls for the provision of financial and technical support for Parties to undertake these assessments at a national level[9]. Recommendation 22/4 of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) highlights the value of IPBES assessments and encourages Parties to undertake such evaluations at the national level[25].

# 2. THE INTERGOVERNMENTAL SCIENCE-POLICY PLATFORM ON BIODIVERSITY AND ECOSYSTEM SERVICES

## What is IPBES?

Established in 2012, IPBES has 137 Members as of 2021. IPBES is an independent intergovernmental body which aims to reinforce the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, and to promote long-term human and sustainable development. It works in four complementary areas or functions[33]:

1.Generation of new knowledge
2.Assessments
3.Policy support tools and methodologies
4.Building capacity

## What are IPBES assessments?

Under its "Assessments" function, IPBES conducts global, regional, thematic, and methodological assessments while also encouraging countries to undertake their own national-level assessments using the processes developed by this platform[32, 34] IPBES assessments cover past, present, and future trends in the interactions between people and nature, at multiple scales and in all types of ecosystem (e.g., terrestrial, marine, and inland water), including anthropic ecosystems.

### The IPBES ecosystem assessment process has the following key characteristics[32]:

• It is a policy-driven process, in which key findings and messages aim to answer policy-relevant questions posed at the start of the assessment and potentially adapted throughout.

• It operates through an open and transparent process, run by a selected and balanced group of experts (e.g., in terms of disciplines, geography, gender, and knowledge systems), using agreed methodologies and support tools. Coupled with an external peer review process, this promotes the credibility, legitimacy, and relevance of the outputs generated.

• It is inherently consultative, engaging people from across sectors and scales. The assessment undergoes a rigorous review process—both internally and externally—to ensure that relevant stakeholders support the findings and key messages.

• Stakeholders are involved in the whole of the assessment process to ensure credibility, legitimacy, and relevance at the policy level.

• It utilizes a specific conceptual framework developed by IPBES to align thinking pathways across the assessment and to provide focus on key issues and relationships between these pathways.

• It synthesizes and evaluates existing literature (both peer-reviewed and grey literature), rather than carrying out primary research. It brings together diverse disciplines and knowledge systems, including indigenous and local knowledge, an important component of the knowledge base within an IPBES assessment.

• It presents findings and knowledge gaps that are policy-relevant but not policy-prescriptive, including the range of available views. Findings are described using common confidence terms, which increases the consistency and transparency of the report.

## The IPBES conceptual framework

The IPBES conceptual framework, published in 2015 (Figure 2)[35, 36], builds on conceptual frameworks developed for previous assessment processes, such as the Millennium Ecosystem Assessment (2005)[18] and The Economics of Ecosystems and Biodiversity (2010)[20]. It enables an exploration of the interrelationships between biodiversity and ecosystems and quality of life at different temporal and spatial scales, and from different perspectives (including those of science and indigenous and local knowledge). While the conceptual framework was developed for use within assessments being carried out at global and regional scales, it is also applicable at the national level. The Sub-Global Assessment Network has developed a set of e-learning modules to explore the IPBES conceptual framework[32].

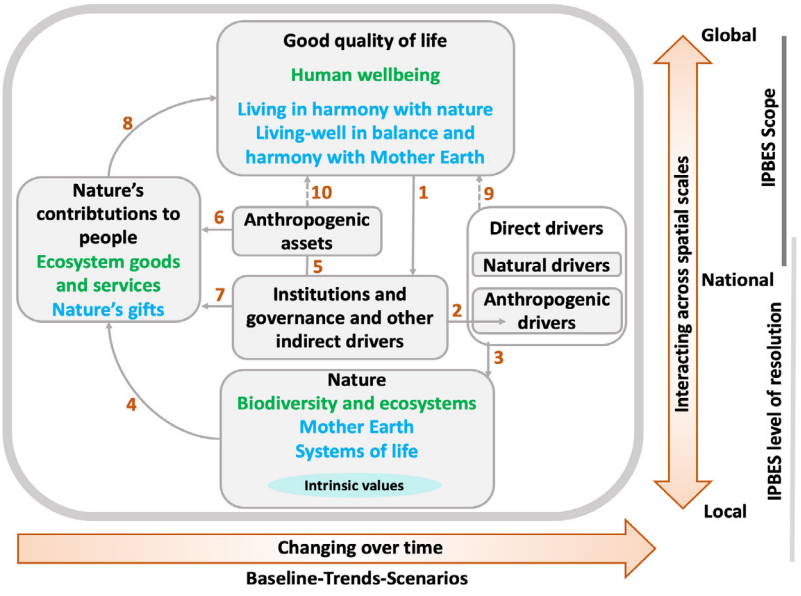


**Figure 2.** The IPBES conceptual framework. From IPBES, 2015. *Conceptual Framework, Rationale for a conceptual framework for the platform*[36].

## The IPBES assessment process

The IPBES assessment process, outlined in the rules and procedures for the platform, follows four distinct stages (Figure 3)[32]:

**1.Requests and scope:** This stage explores the rationale behind the assessment by looking at key policy questions, existing data, and key design and technical considerations (e.g., timeframe, geographic boundaries, estimated costs). Stakeholders are actively involved in synthesizing the scoping report, which then goes through the Plenary for approval.

**2.Expert evaluation of the state of knowledge:** This stage—the key implementation phase of the assessment—involves selecting authors, collating and assessing data, information, and knowledge, and writing the assessment report. The evaluation also draws on an in-depth dialogue with stakeholders and knowledge holders, particularly with indigenous peoples and local communities. IPBES has demonstrated that the indigenous and local knowledge component has added value to assessments and has expanded the science-policy interface through the inclusion of these multiple knowledge systems.

**3.Approval and acceptance:** This occurs within the Plenary setting.

**4.Use of the assessment findings:** This stage focuses on the launch of the assessment and a wide dissemination of the assessment findings, approaches, and knowledge gaps. IPBES organizes a range of events supporting the use of its assessments in international meetings, in policy, in academia, and in civil society.


**Figure 3.** The IPBES assessment process. From IPBES, 2018. *Guide on the production of assessments*, p.16[32].

## The types of IPBES assessment

IPBES develops different types of assessment depending on the focus requested[32]:

• **Regional and global assessments** (see Section 1). Regional and global assessments evaluate the status of and trends of biodiversity, ecosystem functions, ecosystem services, and their interlinkages, and the impacts of biodiversity, ecosystem functions, and ecosystem services, and threats to them, on human well-being. The overall objective of regional assessments is to strengthen the science-policy interface on biodiversity, ecosystem functions, and ecosystem services at the regional and subregional levels. Global assessments in turn contribute to the process for evaluation and renewal of the Strategic Plan for Biodiversity and the Aichi Biodiversity Targets

• **Thematic assessments**, which focus on a specific subject and can vary in scale. IPBES has carried out or is carrying out thematic assessments on pollinators, pollination, and food production; land degradation and restoration; sustainable use of wild species; invasive alien species; transformative change; and the interlinkages between biodiversity, food, and health in the context of climate change.

• **Methodological assessments**, which provide a toolkit for relevant stakeholders around specific methods deemed useful for decision-making with respect to biodiversity and ecosystem services. IPBES has carried out or is carrying out methodological assessments on scenarios and models; on the diverse conceptualization of multiple values of nature; and on business and biodiversity.

## IPBES and national ecosystem assessments

The IPBES Plenary, at its third session in 2015, adopted a set of capacity-building priorities that included highlighting the need for and the value of building capacity at the national level around the science-policy interface of biodiversity and ecosystem services by means of national ecosystem assessments [34, 37]. The subsequent IPBES Capacity-building Rolling Plan[2] (see Box 1) identifies a number of activities to address these priorities. These activities are undertaken by the IPBES capacity-building task force, supported by a Technical Support Unit (TSU), as well as other TSUs, partners[a], and stakeholders (e.g., indigenous peoples and local communities)[4]. Countries interested in conducting a national ecosystem assessment are encouraged to tailor the IPBES assessment process to their national circumstances, adapting the methods to fit the local context, including the development or enhancement of a national science-policy platform (see Box 4) to approve outputs deriving from the assessment process.

As previously stated, national ecosystem assessments can effectively develop transdisciplinary capacities to provide decision-makers with the best available information and can support CBD implementation at the national level. Beyond contributing towards biodiversity-specific policies, plans, and strategies, they can also provide a knowledge base for integrating biodiversity considerations into other sectors (e.g., agriculture, water, and forestry) or for mobilizing different actors (e.g., indigenous peoples and local communities). They can also help inform and facilitate the implementation of other multilateral environmental agreements and intergovernmental processes (e.g., the Sustainable Development Goals[38], the Paris Agreement[39]). If a national ecosystem assessment is not yet available, Parties to the Convention can draw upon any global or regional assessments available to support national implementation of the CBD, taking into account any limitations of scale.

[a] The NEA Initiative at UNEP-WCMC supports this work plan by assisting countries carrying out national ecosystem assessments. This work is undertaken in collaboration with the United Nations Development Programme (UNDP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) within the framework provided by the Biodiversity and Ecosystem Services Network (BES-Net).

Although these assessments may not contain sufficient levels of detail on each country, they can still support national implementation of the CBD. A national ecosystem assessment will further help to contextualize and enhance the integration of key findings and messages from these international assessments into decision-making. The support provided by national ecosystem assessments for implementation of the CBD is explored in detail in Section 3.

## Box 1. IPBES and capacity-building[2]

In 2017, the IPBES Plenary adopted a number of capacity-building priority needs, which were incorporated into its capacity-building rolling plan, strengthening the science-policy interface and individual and institutional capacity to engage in the production and use of IPBES products[2]. The capacity-building rolling plan is based around three strategies:

1. Learning and engagement
2. Facilitating access to expertise and information
3. Strengthening national and regional capacities.

Strategy 3 addresses in particular the importance of building capacity to undertake, use, and improve national assessments of biodiversity and ecosystem services, through:

a. Promoting and facilitating self-assessment of national capacity

b. Promoting and facilitating national and sub-global assessments of biodiversity and ecosystem services

c. Promoting and facilitating national and regional platforms and networks.

Some of the activities of the Capacity-building Rolling Plan, such as support to national ecosystem assessments, rely on implementing partners for the development of guidance and capacity.

# 3. HOW CAN ASSESSMENTS PROVIDE SUPPORT TO IMPLEMENTATION OF THE CBD AT A NATIONAL LEVEL?

## The CBD and national ecosystem assessments

The Articles of the Convention include provisions relating to the development of national strategies, plans, or programs for the conservation and sustainable use of biodiversity (National Biodiversity Strategies and Action Plans (NBSAPs)), the development of national reports, and the promotion of technical and scientific cooperation, among other measures[40]. To advance the implementation of the Convention, the COP adopts decisions on a range of issues derived from these Articles and from other provisions of the Convention, including with respect to the integration of biodiversity across sectors, the establishment of national Clearing-House Mechanisms, and capacity-building. Each of these measures and activities requires an up-to-date knowledge base for effective implementation.

A national ecosystem assessment can be an invaluable tool for contributing to this knowledge base. While there are no specific requirements for Parties to the CBD to carry out a national ecosystem assessment, there is an increasing body of evidence highlighting how the processes and outputs of assessments can be instrumental in driving political momentum towards action on biodiversity[3, 9]. As mentioned previously, COP decision 14/1 highlights the value and use of key findings from the assessments conducted by IPBES[9]. It further urges Parties to undertake national assessments of biodiversity and ecosystem functions and services[40], noting ongoing work in this regard within UNDP's BES-Net[27], with technical support from UNEP-WCMC[3], as well as from UNESCO on indigenous and local knowledge.

The following sub-sections explore how national ecosystem assessments can support CBD implementation at the national level, based on key aspects of implementation of the Convention: biodiversity planning, national reporting, technical and scientific cooperation, capacity-building, communication, education, and public awareness, and resource mobilization (see Figure 4). Each sub-section describes key challenges to national implementation of the CBD and ways in which a national ecosystem assessment can help address these. These insights were drawn from the two science-policy dialogues held with CBD and IPBES National Focal Points for the Asia-Pacific region in 2019. Case studies, identified through the workshops and a related survey, are provided as practical examples. It should be recognized that even if a country has not conducted a national ecosystem assessment, other outputs from global and regional assessments may also provide valuable information, complementing those used to develop the NBSAP, to support implementation of the CBD.


**Figure 4.** National ecosystem assessments can support implementation of the Convention on Biological Diversity through six key aspects: biodiversity planning, national reporting, technical and scientific cooperation, capacity-building, communication, education, and public awareness, and resource mobilization.

# 3.1 BIODIVERSITY PLANNING

## Key messages

A national ecosystem assessment can support **Biodiversity planning** by:

• Providing planners with relevant, authoritative, comprehensive, cross-cutting, and up-to-date information, including a review of the effectiveness of actions for biodiversity and ecosystem services at a national level and improved proposals towards implementation of the CBD;

• Working as a mechanism to identify and build on different knowledge systems, datasets and indicators that are relevant and useful in national biodiversity planning;

• Drawing attention to the benefits that biodiversity and ecosystem services provide to sectoral and cross-sectoral activities as well as their impacts, thus informing decision-makers about dependencies and stimulating a systematic integration of biodiversity considerations into planning;

• Highlighting the multiple values of biodiversity and the contributions that it makes to different segments of society, including indigenous peoples and local communities, and the ways that these can be accounted for in decision-making;

• Identifying key actors involved in the conservation and sustainable use of biodiversity and ecosystem services in-country, including businesses, indigenous peoples and local communities, and practitioners, and developing guidance on how to mobilize and build the capacity of these actors for concerted actions in support of biodiversity;

• Supporting processes—such as identifying national policy priorities and sustaining a continuous dialogue among stakeholders to maintain ownership—leading to the development and update of National Biodiversity Strategies and Action Plans (NBSAPs).

## Background

National planning for the sustainable management of biodiversity and ecosystem services involves a range of knowledge holders and stakeholders, and is relevant at multiple scales (e.g., national to local). NBSAPs are the key instruments for articulating this process in the context of the CBD, and their periodical update is crucial to ensure their relevance within each national context[41].

Integrating considerations of biodiversity and ecosystem services into national development and sectoral policies, plans, programs, projects, and practices is central to planning in the context of the CBD[40,41]. This derives from an increased understanding of the multiple values of nature and the dependencies and impacts of sectoral and cross-sectoral plans on biodiversity[42]. NBSAPs can also help integrate biodiversity and ecosystem services considerations into national responses to other agreements and biodiversity-related Sustainable Development Goals (SDGs) (in particular SDG 14 and SDG 15), as stated by the CBD COP[43]. The CBD's long-term strategic approach to mainstreaming[44] details the activities that can be performed to this end, including natural capital accounting and the valuation of biodiversity and ecosystem services. Engagement across knowledge holders, sectors, and actors also ensures "reciprocal" mainstreaming, i.e., the incorporation of development and sectoral and cross-sectoral priorities into NBSAPs[45].

## What are the challenges?

Some challenges can inhibit the biodiversity planning process:

• A lack of clarity, understanding, and long-term vision of the objectives and priorities for biodiversity, development, and other sectors. This can lead to an NBSAP being a technical document poorly connected to sectoral and cross-sectoral policies and with objectives that prioritize short-term gains over long-term benefits.

• A lack of clarity, understanding, and long-term vision of the objectives and priorities for biodiversity, development, and other sectors. either nationally, e.g., between different sectoral policy cycles, or internationally, e.g., between a national development planning cycle and the Post-2020 Global Biodiversity Framework. This can result from the absence of mechanisms to involve the same stakeholders in policy planning and implementation[46].

• A lack of comprehensive and reliable knowledge and data to show how biodiversity and ecosystem services can support and improve economic and social development, and a lack of knowledge and data sharing among sectors, actors, and knowledge holders, including indigenous peoples and local communities.

• Difficulty in ensuring the continuity of mandates when there is a change of government.

• Ineffective monitoring and assessment of previous policies and legal frameworks relevant to biodiversity (e.g., absence of data and information on the policy options that have been most effective under different circumstances).

Integrating biodiversity and ecosystem services considerations into broader plans and decision-making processes comes with its own challenges, although the process undergoes continuous improvement as new entry points, information, knowledge, decision support tools, and implementation instruments emerge and evolve[43]:

• A lack of systematic integration, as the integration of biodiversity and ecosystem services considerations into sectors other than forestry, agriculture, fisheries, or tourism is uncommon. While mainstreaming is recognized as an overall objective for most post-2010 NBSAPs, the degree of translation into concrete targets and actions varies.

• An underestimation of the length of time required for successful integration. Integration is a long-term, iterative process that requires ongoing support for implementation, monitoring, evaluation, and adaptation to successes and failures.

• A lack of broad skillsets to lead the integration of biodiversity considerations into strategies across sectors, including political, technical, and institutional knowledge of multiple sectors, as well as effective leadership, communication, and interpersonal skills.

• Difficulty in measuring the success or impacts of biodiversity mainstreaming interventions. The nature of the integration process means that it requires the use of both quantitative and qualitative indicators, which can sometimes be difficult to develop, track, and update.

NBSAP implementation is often challenged by budget constraints. This can be compounded by the hierarchy of the responsible ministries, agencies, and institutions responsible for biodiversity in the government and the level of available resources and capacity, which may result in uncoordinated and fragmented implementation.

## How can a national ecosystem assessment help to address these challenges?

A national ecosystem assessment provides a critical evaluation of existing data, information, and knowledge from a range of sources and knowledge systems[3]. The national ecosystem assessment process can feed into all stages of the policy cycle, including for issue identification, design of policy responses, implementation of new policies, monitoring of impacts, and review of policies[47]. Thus, it reinforces the NBSAP development and updating process.

A national ecosystem assessment can help decision-makers face the challenges in the biodiversity planning process through:

• **Agenda setting:** A national ecosystem assessment can deliver up-to-date, reliable, comprehensive, and cross-cutting information to support future biodiversity planning (see Case study 1). It provides information regarding the importance of biodiversity and ecosystem services and related issues that need policy attention, such as actions towards their conservation, management, and restoration. Assessments carried out at the sub-national, regional, or global scale can also be drawn upon in developing biodiversity plans, as can thematic assessments (e.g., the IPBES Assessment on Pollinators, Pollination and Food Production[48]).

• **Design:** A national ecosystem assessment, following the IPBES approach, aspires to involve relevant knowledge holders and stakeholders, including indigenous peoples and local communities (see Box 2), across all stages of the assessment process, supporting buy-in from different sectors. It aims to create and reinforce dialogue among stakeholders, sectors, and knowledge holders about their understanding of priorities and objectives, improve policy coordination around biodiversity and ecosystem services, and reduce fragmentation in biodiversity planning.

• **Implementation and review:** A national ecosystem assessment can provide an evaluation of the effectiveness of existing biodiversity and ecosystem services policies by reviewing their impacts in the country, including, as appropriate, relevant literature from other countries and other circumstances. The assessment can identify progress made in addressing national biodiversity goals and targets, national development plans, and green growth strategies, and help to understand the implications of not achieving these targets. If used in the assessment, scenarios and models can shed light on the effectiveness of plans and policies and provide a means to synthesize and interpret policy, planning, and the monitoring of information. This includes learning from experience.

Additionally, national ecosystem assessments provide a compendium of knowledge (including indigenous peoples and local communities) about the dependencies of key economic sectors on biodiversity and ecosystem services, which can support the integration of biodiversity planning. Involvement and buy-in for the national ecosystem assessment from a wide range of knowledge holders and stakeholders, including national and local government entities, the private sector, civil society organizations, non-governmental organizations, decision-makers, indigenous peoples and local communities, and academia can further help to integrate biodiversity and ecosystem services considerations into the activities of key sectors. National ecosystem assessments can also contribute to systematizing the integration of biodiversity and ecosystem services considerations into sectoral policy, by highlighting indirect linkages and impacts from specific economic sectors and informing action beyond those that directly affect or are affected by changes in them.

Some of the outputs of national ecosystem assessments, such as national science-policy platforms (see Box 4), identified pathways, corresponding policy options, and knowledge gaps, combined with a thoughtful communication plan, can enhance sectoral awareness of the need for a long-term vision and strategies to align national and sectoral policy cycles with international goals and agreements. Knowledge holder and stakeholder engagement and buy-in fostered by national ecosystem assessments can create an enabling environment that bridges gaps between NBSAPs and other national policies and can catalyze action.

## Case study 1: The links between the Japan Biodiversity Outlooks and Japan's NBSAP

The National Biodiversity Strategy of Japan 2012–2020 (NBS-J) is the latest update of Japan's NBSAP[49]. It was formulated as a road map for achieving the Aichi Biodiversity Targets[26] at a national level while providing direction to reach the overarching goal of living in harmony with nature. The strategy was underpinned by the latest data from the Japan Biodiversity Outlook (JBO-1), published in 2010 following two years of work by 208 experts, who comprehensively assessed the status and trends of Japanese biodiversity between the late 1950s and early 2000s[50].

The JBO-1's methodology was based on the Millennium Ecosystem Assessment[51], taking an ecosystem services approach to include socio-economic considerations. Additionally, the JBO-1 assessed the progress made towards achieving the previous set of targets for Japan (the 2010 Biodiversity Targets). One of its focuses was ecosystem restoration, which has also been one of the main priorities in the NBS-J (the "Centennial Plan" to restore ecosystems). Drawing upon the JBO-1 and other initiatives, Japan's intention was to promote the systematic implementation of nature restoration measures[49].

When it was launched, it was explicitly stated that the JBO-1 would be reviewed to reflect new knowledge, new issues relating to CBD implementation, and new targets under the NBS-J. The Japan Biodiversity Outlook 2 was published in 2016 as the result of collaborative work by 120 experts[52]. It was based on the IPBES conceptual framework and included an evaluation of the ecosystem services missing in the JBO-1, as well as an assessment of the drivers and measures resulting in biodiversity loss and their impacts on human well-being.

## Box 2. Working with indigenous and local knowledge in a national ecosystem assessment

In the context of a national ecosystem assessment, stakeholders are individuals, groups, or organizations who are affected by or who can affect an issue regarding biodiversity and ecosystem services and associated policies, decisions, and actions. Knowledge holders are stakeholders with knowledge on topics pertaining to the assessment, including, for example, indigenous peoples and local communities.

Due to their intricate relationship with nature, many indigenous peoples and local communities hold detailed and diverse knowledge of biodiversity and ecosystems. At least 25% of global land cover is owned and/or managed by indigenous peoples[4], and they make significant contributions to the conservation of biodiversity. Indigenous peoples and local communities are therefore critical stakeholders in a national ecosystem assessment as their knowledge may strengthen policy development and implementation, while in turn policies supported by the assessment may directly affect their livelihoods and well-being. UNESCO is working through the BES-Net Initiative[27] in collaboration with UNDP and UNEP-WCMC to support countries undertaking national ecosystem assessments to find the most appropriate synergies, methods, and innovative analysis when working with indigenous peoples and local communities.

### Methods and resources for working with indigenous and local knowledge

The Multiple Evidence Base approach provides a model for weaving scientific, indigenous, and local knowledge systems to mobilize and synthesize the best available knowledge for a national ecosystem assessment[53]. In addition, working with intermediary partners and having a dedicated indigenous and local knowledge taskforce can enhance knowledge mobilization. Also, IPBES' work with indigenous and local knowledge offers guiding procedures, approaches, and methods for engaging indigenous peoples and local communities in an ecosystem assessment[54].

A number of methods present opportunities for mobilizing indigenous and local knowledge in the national ecosystem assessment process:

• **Literature review:** This is one of the most frequently used methods in national ecosystem assessments, and involves reviewing published and unpublished work on indigenous and local knowledge.

• **Contributing authors:** Indigenous peoples and local communities are encouraged to participate as authors in national ecosystem assessments. For instance, Cameroon highlighted key indigenous and local knowledge messages throughout its assessment, engaging indigenous peoples and local communities as contributing authors and making major contributions in the writing of case studies.

• **Community-led research and mapping techniques:** Community participatory research and mapping tools are utilized to mobilize indigenous and local knowledge to fill knowledge gaps in national ecosystem assessments. For example, Bosnia and Herzegovina is using direct-to-digital mapping with local communities in its national ecosystem assessment to map the status of local ecosystems and historical changes over time.

• **Dialogue and walking workshops:** Workshops are organized to mobilize indigenous and local knowledge and to review and discuss assessment findings. Dialogue workshops mirror IPBES indigenous and local knowledge workshops, which provide space for dialogue between assessment authors and indigenous peoples and local communities[55].

• **Trialogues:** Trialogues are a triangular communication and capacity-building methodology promoted by BES-Net[56]. They bridge the gap between and within communities of policy, science, and practice, including indigenous peoples and local communities, to facilitate the exchange of knowledge and the incorporation of multiple disciplines and knowledge systems. For example, throughout their national ecosystem assessment processes, Colombia and Cameroon engaged with indigenous peoples and local communities through a trialogue approach[57,58].

• A combination of methods enhances the mobilization of indigenous and local knowledge and the quality of a national ecosystem assessment. For instance, Colombia included a chapter on bio-cultural diversity in its assessment by incorporating a range of the above methods.

# 3.2 NATIONAL REPORTING

## Key messages

A national ecosystem assessment can support **National reporting** by:

• Providing an up-to-date, comprehensive, and critical synthesis of knowledge on biodiversity and ecosystem services across the natural and social sciences, as well as indigenous and local knowledge systems;

• Working as a mechanism to identify and use knowledge systems, datasets, and indicators that are relevant for national reporting;

• Improving understanding of how data, information, and knowledge—including indicators and indigenous and local knowledge—can be used more effectively to assess the progress and impact of biodiversity-related actions;

• Highlighting knowledge gaps and helping to promote action through monitoring and research, which will in turn enhance the knowledge base, supporting more comprehensive reporting for the CBD and other biodiversity agreements in the long term.

## Background

National reports are the mechanism by which a Party communicates the measures taken for implementation of the CBD, and the effectiveness of these. A report can include information on the status and trends of biodiversity and ecosystem services, the strategies and actions put in place, the achievement of targets, resource gaps and needs, and potential options for addressing outstanding challenges. The lessons learned incorporated in the report, as well as capacity and resource needs, can guide future action for integrating biodiversity into decision-making.

National reporting to international agreements is also intended to have value at the national level, helping to track national implementation and communicate successes, challenges, and experience gained. The knowledge base upon which to develop a national report should be relevant, reliable, and up to date. This can include drawing on resources and information across scales, sectors, and multiple knowledge systems, including indigenous and local knowledge, and using indicators to measure progress against the three main objectives of the CBD.

## What are the challenges?

National Focal Points have found that the main challenges pertaining to national reporting include:

• Low quantity, quality, consistency, reliability, and comprehensiveness of datasets, information, and knowledge needed to develop national reports;

• Incomplete sets of indicators, and/or insufficient data to deliver reliable indicators;

• Including information from multiple sources in meaningful ways, e.g., challenges in incorporating citizen science and indigenous and local knowledge (see Box 3);

• Reporting accurately on the values of biodiversity and ecosystem services;

• Addressing conceptual issues such as ecosystem services and human well-being;

• A lack of effective monitoring systems;

• Uncertainty around how to report the breadth of national progress and activities towards implementation of the Convention in succinct and meaningful ways;

• A lack of resources, since national reporting can be quite resource-intensive, particularly if monitoring procedures for tracking the implementation and impact of NBSAPs are not already in place.

Additionally, Parties have identified challenges in national reporting stemming from intergovernmental agreements. Globally, the current focus in harmonizing national reporting to the different biodiversity-related conventions is on more consistent use of indicators, modular reporting approaches, interoperability in the management and sharing of knowledge, data, and information, improved guidance, and the further development of tools to support national reporting processes. However, it is at the national level where the challenges are felt most keenly, in particular:

• Differences in definitions and interpretations across conventions and processes;

• Use of different sources of knowledge, data, and information for different reporting obligations;

• Variations in the use of metrics and indicators between conventions and processes;

• Differences in understanding of the relationships between biodiversity and other sectors;

• Bringing all key players together and drawing on all relevant knowledge holders and stakeholders. This challenge is compounded by the fact that, when there is a change in National Focal Point, handover processes are not always comprehensive and that in many cases National Focal Points for different conventions are often different individuals based in different ministries, which might hinder collaboration;

• Inefficiencies arising from potential duplication, e.g., when two different reporting processes require similar types of information. The information may be transferred across reports but it may not be accurate or relevant to them.

## Box 3. Challenges involved in incorporating indigenous and local knowledge in biodiversity-related processes

• Indigenous and local knowledge is often oral, tacit, and tied to practice; therefore, it requires innovative approaches and skills to facilitate documentation. Indigenous knowledge is also often systems-based, and different disciplines of social and natural sciences may therefore be needed to understand the knowledge of a single elder[59].

• The urge by scientists to "validate" indigenous and local knowledge, based on an assumption that science should set the benchmark by which other knowledge systems are assessed, can lead to frustration on both sides, and can result in valuable knowledge being lost. Instead, as far as possible, indigenous peoples and local communities should be given the space to validate their own knowledge, while disparities between science and indigenous and local knowledge can be presented side by side—for instance, in a national ecosystem assessment report[53].

• Time may be required to build trusting relationships with indigenous and local knowledge holders.

• Historical injustices and neglect of intellectual property rights may make some communities wary of cooperation with scientists and governments. Free, prior, and informed consent, as well as respect for fundamental human rights is required in working with indigenous and local knowledge holders[60].

## How can a national ecosystem assessment help to address these challenges?

The scoping stage of a national ecosystem assessment helps to ensure that the assessment process and outputs are aimed at supporting policy development and decision-making on biodiversity and ecosystem services and promoting their integration across sectors and scales. This can be done, for example, by ensuring alignment with NBSAP development and review or by helping countries to meet their commitments to international commitments like the CBD (see Case study 2). In addition, national ecosystem assessments are concerned with three activities that are directly relevant to the development of national reports:

1. Improving understanding of the status and trends of biodiversity and ecosystem services and their drivers of change, as well as the impact of that change on human well-being. This can support the national reporting process by:

• Describing the progress being made in addressing national goals and targets;

• Detailing the implications of not achieving those targets;

• Understanding the effectiveness and urgency of different response options.

2. Compiling and evaluating information and knowledge from multiple sources, critically analyzing and synthesizing findings to generate a knowledge base and presenting this in a policy-relevant format. This includes bringing together knowledge from different systems, including indigenous and local knowledge (see Box 2), along with a synthesis of the understanding of what this knowledge means for decision-making. All of this may be of value for national reports (see Case study 2), for example by:

• Integrating indicators, knowledge, and datasets, coupled with explanations of what the indicators are showing;

• Using scenarios and results from scenario analysis and modelling to illustrate potential future outcomes;

• Illustrating the multiple values of biodiversity and ecosystem services and the potential implications of biodiversity loss;

• Mobilizing indigenous and local knowledge. As highlighted in Box 2, a national ecosystem assessment provides a platform for mobilizing and synthesizing indigenous and local knowledge. It also creates dialogue spaces between scientists, policymakers, and indigenous and local knowledge holders. Furthermore, UNESCO has developed a practical guide for working with indigenous and local knowledge holders in a national ecosystem assessment.

3. Identification of knowledge gaps. National ecosystem assessments are also important for identifying what data, information, and knowledge is unavailable. This can help promote action through monitoring and research, and help foster the use of the resulting information and knowledge. Knowledge gaps identified may include:

• Data, information, and knowledge needs for future assessments, which can be useful in supporting future national reports;

• Identifying improvements required in policy implementation, decision-making, or monitoring and reporting.

Additionally, putting knowledge holder and stakeholder engagement at the heart of the national ecosystem assessment process can be highly valuable in building working relationships that then spill over into other activities—including national reporting. Developing such strategic partnerships and other working arrangements can increase consistency in understanding and definitions, increase efficiency in mobilizing and using resources, and help identify opportunities for activities such as cooperation in the collection, management, and use of knowledge, data, and information necessary for reporting to multiple processes. This is further facilitated if the national ecosystem assessment is linked to the development of a national science-policy platform (see Box 4).

Finally, ecosystem assessments carried out at sub-national, regional, or global scale can also be drawn upon in developing national reports, as can thematic assessments. All of these have the potential to provide valuable context for national action and achievements. Methodological assessments, such as those on scenario analysis and modelling or on values, can also be important in helping to identify tools and approaches that might be relevant for reporting.

## Case study 2: South Africa's National Biodiversity Assessment

South Africa has included in its Sixth National Report (2018)[61] a target aimed at delivering a National Biodiversity Assessment (NBA) updated every seven years, on the basis that regular monitoring and evaluation of biodiversity status and trends are essential for informed decision-making in environmental planning and management. The NBA is South Africa's primary tool for monitoring and reporting on the state of biodiversity; it provides the necessary information on biodiversity to the Department of Environmental Affairs to meet the country's international reporting commitments to the CBD. There have been three releases of the report to date, the latest of which (the Sixth National Report) was produced by the South African National Biodiversity Institute (SANBI), the institution leading the NBA process, in collaboration with over 90 partners.

The NBA 2018 took five years to complete, with input from over 470 contributors. As well as assessing the state of biodiversity across five realms (terrestrial, freshwater, estuarine, coastal, and marine), it discusses the benefits that biodiversity and intact ecosystems offer society, e.g., water and food security, supporting ecotourism, and resilience to climate change[62]. Key outputs of the NBA include the headline indicators of threat status and protection levels of species and ecosystems. In addition to informing national and international reporting processes, the NBA provides information that contributes to strategic planning and policy processes and is a key reference and educational product.

## Box 4. National science-policy platforms

National science-policy platforms are a mechanism aimed at strengthening the interface between science, policy, and society, connecting a range of stakeholders such as government entities, scientists, non-governmental organizations, and indigenous peoples and local communities, among others[63]. Further, these platforms are dedicated to sharing knowledge and discussing topics relevant to policy and country priorities related to biodiversity and ecosystem services, disseminating and facilitating access to knowledge by sustaining long-term capacity-building efforts.

They also contribute towards the integration of biodiversity considerations into national and sectoral plans and policies through the sharing of best practice between stakeholders. There is a wide range of formats for platforms, depending on institutional settings, availability of resources, and national circumstances[64]. They can be a physical entity or they can be characterized by a host institution, key activities, history, scope, or mandate.

# 3.3 TECHNICAL AND SCIENTIFIC COOPERATION

## Key messages

A national ecosystem assessment can support **Technical and scientific cooperation** by:

• Bringing together individuals across disciplines and a wide range of knowledge holders, leading to further understanding of different perspectives and fostering matchmaking;

• Catalyzing country-level cooperation among institutions supporting national processes;

• Establishing and/or enhancing a national science-policy platform to institutionalize technical, scientific, and multi-stakeholder cooperation beyond the assessment. This facilitates the use of findings and bolsters action towards the CBD objectives;

• Enhancing connections among assessment practitioners, including indigenous peoples and local communities, within countries and internationally, fostering knowledge and sharing experience.

## Background

The focus on scientific or technical cooperation under the CBD, established as the Clearing-House Mechanism, and at national level in the form of sharing knowledge, experiences, and exchange of information, is essential to effectively integrate information and technologies when implementing the Convention[65]. The Clearing-House Mechanism[64,65,66,67] has fostered the provision of knowledge to multiple audiences involved in this process. This includes matchmaking approaches and promoting communities of practice, each leading to strengthened individual and institutional capacities, improved application of technologies, exchange of expertise, and participation in joint research programs and other joint ventures[68].

## What are the challenges?

At the national level, individuals and institutions working on issues related to biodiversity and ecosystem services can be widely dispersed and not connected, resulting in several challenges:

• There may be a lack of alignment and cooperation between related processes and institutions, which results in missed opportunities to develop effective approaches for scientific and technical activities, as well as approaches across multiple knowledge systems.

• An absence of time and funding can prevent different organizations and agencies from investigating and engaging in technical, scientific, and multiple knowledge system cooperation opportunities.

• Matchmaking between different individuals and organizations can be difficult, as some may be either unaware of their needs or unwilling to disclose them, while others may be unable or reluctant to share technical and scientific or transdisciplinary knowledge and resources.

• Matching knowledge and resources with needs can also be a complicated process, as a lack of willingness to incorporate different perspectives can result in missed opportunities in transdisciplinary cooperation.

• A shortage of appropriate infrastructure or policy frameworks at the national scale can limit long-term technical and scientific cooperation or cooperation across knowledge systems. If different platforms such as the science-policy platform are ineffective, this can limit the level to which individuals and organizations can cooperate.

## How can a national ecosystem assessment help to address these challenges?

As a policy-driven and integrative process which draws upon different knowledge systems and engages stakeholders across society, the national ecosystem assessment process can contribute to promoting technical, scientific, and multiple knowledge system cooperation at both national and international levels.

At the national level, opportunities to provide support on these aspects by matching expertise and skills can be created through knowledge holder and stakeholder engagement within the national ecosystem assessment. In this context, the assessment process can also be a useful communication and capacity-building approach (see sections 3.4 and 3.5), enhancing understanding and experience in this field. This is particularly true as the assessment team (experts and authors) should be selected to encompass:

• Academic, governmental, non-governmental and private sector involvement;

• A range of scientific, technical, and socio-economic views and expertise;

• Geographic representation across the country;

• Diversity of knowledge systems (including indigenous and local knowledge; see Case study 3 and Box 2);

• Gender equity.

Additionally, the inherently consultative and inclusive process fostered by national ecosystem assessments can facilitate multidisciplinary cooperation during and potentially after the assessment, breaking down disciplinary silos between individuals and organizations. Knowledge gaps and capacity-building needs identified during the assessment can then be used as a basis for building technical and scientific cooperation, as well as cooperation across multiple knowledge systems. Additionally, a national science-policy platform (see Box 4 and Case study 3) can bring together knowledge holders and stakeholders to discuss and share experiences around technical components of the assessment and can further reinforce and lead to a framework for cooperation across multiple knowledge systems throughout, and beyond, the assessment process. This creates ongoing communities of practice and facilitates a science-policy dialogue. Technical and scientific cooperation-oriented platforms or mechanisms set up internationally to support ecosystem assessments provide opportunities for enhancing connections between assessment practitioners in other countries and within assessment networks, e.g., IPBES, the Sub-Global Assessment Network (SGAN), BES-Net, and the Ecosystem Services Partnership[69]. In turn, these connections can enhance technical and scientific cooperation between Parties.

Finally, for countries that have not yet developed a fully functional Clearing-House Mechanism, a science-policy platform can help deliver upon this commitment, while for those with an established platform the assessment process can solidify it. By aligning the science-policy platform with the Clearing-House Mechanism and by sharing resources, both are likely to receive more engagement and more contributions from relevant stakeholders, knowledge holders, experts, and policymakers.

## Case study 3: The role of Cameroon's national science-policy platform in fostering cooperation among stakeholders

Cameroon's national science-policy platform (NP-SPBES) was created by a ministerial decision in 2017 to facilitate scientific input on biodiversity and ecosystem services into decision-making and to enhance the implementation of NBSAPs. It acts as a consultative body for all national biodiversity and ecosystem services assessments, ensuring the participation of key stakeholders and knowledge holders, as well as helping to disseminate key findings. The NP-SPBES is composed of 30 members led by the Ministry of Environment, Nature Protection and Sustainable Development (MINEPDED) and includes key policymakers, academics, international and national non-governmental organizations, and indigenous and local knowledge holders. In addition, it informs the NBSAP Committee about its activities and outputs, which reinforces and supports the advice given to MINEPDED. The platform promotes scientific cooperation by bringing together experts and knowledge holders to discuss the latest advances in biodiversity science—as, for example, was the case during a national Trialogue workshop organized in 2019 under the auspices of BES-Net[57].

In 2017, the NP-SPBES initiated a comprehensive national ecosystem assessment, supported by the NEA Initiative at UNEP-WCMC and BES-Net[1]. The assessment set out to provide the latest and most comprehensive insights on biodiversity and ecosystem services in the country, including information on values, status and trends, drivers of change, future scenarios, and policy options. Assessment experts, including early-career fellows, form a central community of practice within the NP-SPBES, ensuring the technical soundness of the assessment and liaising with the platform's steering committee, which validated the report and delivered its outputs to MINEPDED.

Assessment practitioners from Cameroon also engaged in other national-level processes such as the Sixth National Report to the CBD and international activities such as the Post-2020 Global Biodiversity Framework. Additionally, practitioners engage in capacity-building and knowledge-sharing events within the wider assessment community supported by the NEA Initiative[1].

# 3.4 CAPACITY-BUILDING

## Key messages

A national ecosystem assessment supports **Capacity-building** by:

• Leading on the development of national capacities at the interface between science, policy, and practice as part of implementing the assessment process;

• Identifying further capacity-building needs and advising on how to address them;

• Providing opportunities for developing and strengthening specific skills such as stakeholder and knowledge holder engagement, relationship-building, mobilization, and the compilation, integration, and use of data, information, and knowledge.

## Background

The CBD addresses capacity-building through several of its articles, including on technical and scientific cooperation (see Section 3.3), research and training, and public education and awareness[70] (see Section 3.5). Over the years, the COP has adopted decisions inviting Parties, relevant organizations, and the Secretariat to implement measures to enhance capacity-building to support and facilitate the implementation of the CBD[71]. Parties are encouraged to identify and communicate their capacity-building needs, including through their NBSAPs, national reports, and specific communications.

## What are the challenges?

Limited capacity to implement activities for the conservation and sustainable use of biodiversity is one of the main difficulties in achieving the Aichi Biodiversity Targets[12]. Participants in the workshops highlighted the following challenges for capacity-building:

• Having the financial resources to carry out capacity-building activities.

• Identifying partner organizations that can effectively support capacity-building.

• Determining and effectively applying the relevant tools and approaches to build effective capacity.

• Identifying and efficiently communicating capacity-building needs and priorities.

Beyond these immediate challenges facing capacity-building, ensuring the effectiveness and continuity of capacity-building initiatives after their implementation can also be a major challenge. Unless resources are available to follow up with and support the recipients of capacity-building opportunities, initial gains can soon begin to diminish.

## How can a national ecosystem assessment help to address these challenges?

The process of planning for and carrying out a national ecosystem assessment provides capacity-building opportunities by enhancing individual skills, building links between knowledge holders and policy processes, and strengthening institutional coordination mechanisms. These approaches help build capacity at the science-policy-practice interface directly relevant to supporting CBD implementation within the national context, for example through supporting the establishment of national science-policy platforms and by building capacities of actors within these platforms (see Box 4). Once capacities have been fostered via a national ecosystem assessment, its impact goes beyond the assessment process.

For example, the dissemination of training materials and lessons learned, as well as the identified benefits of undertaking an assessment, can support capacity-building regionally. A national ecosystem assessment can also highlight capacity gaps and provide the necessary justifications for addressing them (see Case study 4).

Some of the key capacities that a national ecosystem assessment can help to build can be grouped into two areas:

• Data, information, and knowledge handling skills to identify tools, needs, and priorities. A national ecosystem assessment relies on a range of knowledge systems to provide comprehensive, policy-relevant findings. This requires authors to have or to develop skills in data access, management, analysis, interpretation, and integration of various knowledge types (see Box 3).

• Knowledge holder and stakeholder engagement and relationship-building skills to mobilize resources and identify and engage partner organizations. Knowledge holder and stakeholder engagement is at the core of the national ecosystem assessment process as it supports technical and scientific cooperation (see Section 3.3) across sectors, disciplines, and scales. The assessment brings together existing initiatives and encourages the development of partnerships and synergies that extend beyond the time taken to produce its main outputs. If established/strengthened, the national platform (see Box 4) can enhance science and policy linkages and foster individual and institutional capacity for knowledge holder and stakeholder engagement.

Building on the experience of the Millennium Ecosystem Assessment[51], IPBES runs a fellowship program[72] that allows early-career professionals to fully engage with the IPBES process and build their experience and understanding of assessments by working as authors and experts. The IPBES Capacity-building Rolling Plan[2] also sets out strategies to build capacities to strengthen the science-policy interface and address capacity-building priorities. At the national level, this plan includes three elements focused on capacity self-assessment, national ecosystem assessments, and national platforms on biodiversity and ecosystem services (see Box 4). To promote these, IPBES relies heavily on the involvement of partner organizations.

The NEA Initiative at UNEP-WCMC, in collaboration with UNDP and UNESCO through BES-Net[27], provides a wide range of opportunities for developing in-country capacities for conducting a national ecosystem assessment. This is done by tailoring the IPBES assessment process and conceptual framework to national circumstances. The NEA Initiative also aims to support country partners with the integration of key findings into decision-making. All these activities contribute to capacity-building under the CBD and support implementation of the Convention.

## Case study 4: Capacity-building in the ICIMOD Hindu Kush Himalaya assessment

The Hindu Kush Himalaya (HKH) Assessment, published in 2019, is a comprehensive regional assessment of mountain environments and livelihoods, drafted by a group of more than 350 researchers, practitioners, experts, and policymakers[73]. During the assessment process, capacity was built at the interface between science and policy to reach the overarching assessment objectives of reducing scientific uncertainty regarding mountain issues, addressing policy questions, and influencing policy processes with robust evidence. Several workshops were organized to bring together different scientific and educational institutions, experts, and researchers to debate on issues related to the food, water, and energy nexus in the HKH, including drivers of change. The workshops were attended by natural and social scientists, officials from government ministries, development practitioners, and academics, providing opportunities for dialogue between technical experts and policymakers.

The HKH Assessment highlights a number of detailed institutional and individual capacity needs that have hindered policy implementation[74]. Based on the key findings of the assessment, a Call to Action was developed as a roadmap, articulating six urgent actions[75]. The HKH Assessment report is being shared with a larger audience, with the aim of building momentum for more robust regional cooperation and drawing up a roadmap for achieving the SDGs in these mountains. During these consultations, think tanks, senior experts, and high-level decision-makers discussed the key findings and debated and validated the Call to Action, as well as charting a way forward for more robust regional cooperation to sustain this globally critical region.

# 3.5 COMMUNICATION, EDUCATION, AND PUBLIC AWARENESS

## Key messages

A national ecosystem assessment can support **Communication, education, and public awareness** by:

- Providing a knowledge base on which to draw when developing communication, education, and public awareness activities and materials that will be directly relevant to CBD implementation;

- Framing clear communication goals for the assessment that are relevant for different audiences, enhancing communication of CBD-related activities at the national level;

- Presenting key messages targeted to decision-makers through the Summary for Policymakers, and developing materials tailored to other stakeholders.

## Background

Communication, education, and public awareness in the context of the CBD relates to the mix of social instruments used: (i) to reconnect people with nature and increase public awareness around the importance of biodiversity to human well-being; (ii) to reduce barriers to integrate biodiversity considerations into decision-making; and (iii) to achieve the objectives of the CBD[76, 77]. The framework for the CBD's global communication strategy aims to guide the development of effective communication strategies targeted at specific stakeholders to advance the three main objectives of the Convention[78]. It identifies key audiences and appropriate communication approaches.

Global initiatives such as those developed in partnership between UNESCO and the CBD Secretariat support and encourage action at a national level, since attitudes and behaviors towards biodiversity largely depend on national circumstances (e.g., Global Initiative on Biological Diversity Public Education and Awareness)[79]. At the country level, communication, education, and public awareness are important throughout the planning and reporting cycles (see Sections 3.1 and 3.2), and NBSAPs, national reports, and other technical and non-technical resources can be used to source information for further dissemination. Activities aim to focus on increasing understanding of the multiple values of biodiversity and communicating the importance of action to effectively preserve it. National Clearing-House Mechanisms can provide channels and approaches through which information related to the CBD and other biodiversity-related conventions can be made available to networks of organizations.

## What are the challenges?

Many different challenges arise when developing and delivering communication, education, and public awareness to support national implementation of the CBD. Participants in the Bangkok and Kunming workshops narrowed these down into three key challenges:

• Lack of clear communication, education, and awareness-raising goals;

• Lack of understanding or ineffective engagement of the correct audiences and the relevant channels, types of message, and format that will motivate them;

• Lack of the necessary knowledge base to address different audiences.

### Box 5. Summary for Policymakers

A Summary for Policymakers is a key output of any national ecosystem assessment. It is usually delivered in the form of a document that uses policy-relevant, concise, and tailored language to present the key messages identified in the assessment[1], [81]. This is targeted at decision-makers involved in the coordination of policies across sectors and in the creation of strategic, locally relevant mixes of successful policy instruments. Multiple SPMs can be developed and tailored to various types of stakeholder.

Key messages of a Summary for Policymakers are selected strategically from key findings in the technical assessment report to present the most relevant points to each audience in a way that promotes credibility. Key messages are followed by a set of background messages which tell a comprehensive and consistent story deriving from the technical report.

## How can a national ecosystem assessment help to address these challenges?

It is strongly recommended that a clear communication strategy is developed from the outset of a national ecosystem assessment to ensure good internal and external communication and to maintain sufficient and diverse stakeholder engagement throughout the assessment process.

Communication and engagement activities during an assessment will vary depending on national circumstances. Communication is also important towards the end of the assessment to ensure adequate dissemination of key findings, including appropriate preparatory work with audiences to receive them.

Beyond acting as a communication process and tool, a national ecosystem assessment also provides communication, education, and awareness-raising content (see Case study 5). The assessment evaluates at a national level the relationships between biodiversity and human well-being, as highlighted by the CBD framework for a global communication strategy[78].

Elements of an assessment, such as an economic valuation of biodiversity or a scenario analysis (if included), can be meaningful to engage stakeholders on issues and perspectives that can be conflicting. Likewise, the different outputs of an assessment, e.g., the Summary for Policymakers (see Box 5), are useful for translating scientific findings into messages understandable to different audiences. For example, the assessment could provide the resources and materials necessary to inform a national curriculum. If established, a national science-policy platform (see Box 4), can also channel communication at the science-policy interface that aligns with the objectives of the CBD.

By raising awareness about the importance of biodiversity, a national ecosystem assessment can reinforce CBD activities, supporting country-level action towards biodiversity conservation and sustainable use. Further, it can integrate a range of knowledge types, including indigenous and local knowledge, and translate findings into a policy-relevant narrative, thereby enhancing cross-sectoral consideration of biodiversity values. Finally, the assessment can also provide a base to support governmental action towards achieving targets laid out in the NBSAP.

## Case study 5: The Colombian national ecosystem assessment

Colombia launched its national ecosystem assessment in 2021, following the IPBES methodology and involving authors with expertise in both natural and social sciences[58, 80]. A wide range of knowledge holders and stakeholders, including indigenous peoples and local communities, were involved in the assessment from the outset. At the beginning of the scoping phase, the assessment team put in place a communication strategy that aimed to promote and strengthen the construction of knowledge to guide decisions concerning biodiversity and ecosystem services at different political and social levels. The strategy focused not only on communicating the existence of the assessment and its rationale, but also on how knowledge holders and stakeholders could engage with the process (e.g., responding to calls for experts or for feedback). In addition to the political sphere, the strategy aimed to reach and raise awareness among a wide audience of Colombian citizens, including indigenous peoples and local communities, Afro-Colombians, farming communities, public and private sectors and academia. To do this, multiple creative channels were drawn upon:

- A website, which was established to publicize the assessment and send out calls for experts and for reviews of drafts;

- Multiple social media posts linked to the organizations and members of the assessment's advisory committee, including the Ministry of Environment and Sustainable Development (Minambiente), the Administrative Department of Science, Technology, and Innovation (Colciencias), and the Alexander von Humboldt Biological Resources Research Institute;

- Newsletter articles, press conferences, and press releases;

- Graphic and audiovisual pieces relating to different chapters of the assessment;

- An original podcast.

A key part of the strategy was to develop a Summary for Policymakers to adequately translate assessment findings for stakeholders. The assessment team also wrote a dedicated chapter on bio-cultural diversity that highlighted the intricate relationships between the cultures and knowledge of indigenous peoples and local communities and biodiversity conservation. In addition, the assessment team also put in place steps to socialize the key findings even further, outlining how press releases, press conferences, newsletter articles and stakeholder meetings (with stakeholders from the public and private sector) can be leveraged to promote their uptake by policymakers and stakeholders.

# 3.6 RESOURCE MOBILIZATION

### Key messages

A national ecosystem assessment can support **resource mobilization** by:

• Leading communication with key economic sectors—both public and private—on the value of biodiversity and priority actions needed to halt the loss of biodiversity and ecosystem services;

• Identifying priority financial actions to address drivers of change, including using existing resources more effectively or redirecting them towards interventions tackling drivers of change and/or supporting sustainable use;

• Drawing attention to non-financial resources that can be deployed to be mutually reinforcing across sectors and that have the potential to slow down drivers of change in biodiversity and ecosystem services.

## Background

Resource mobilization in the context of the CBD is addressed in multiple ways, as suggested by a framework proposed by the CBD Panel of Experts on Resource Mobilization[82, 83, 84]. Parties are encouraged to develop national resource mobilization plans, using NBSAPs to identify funding needs, gaps, and priorities. Parties are also encouraged to explore alternative channels for biodiversity funding, at both the national and international levels, as well as to integrate biodiversity considerations into sectoral planning and development programs. Funding is also available for eligible countries through the CBD's financial mechanism[85], the Global Environment Facility[86] ( see Box 6), and through other financial institutions, including the Green Climate Fund (CGF)[87], at the interface between climate change and biodiversity.

Beyond financial flows, some drivers of biodiversity loss may be addressed by changes in how resources are used throughout the economy (such as those in the agriculture, infrastructure, or mining sectors), which may not necessarily result in monetary allocations going towards the objectives of the CBD but will reduce needs elsewhere. As such, the needs of each Party will be different and will likely extend beyond simply increased funding. While some Parties may need access to capacity-building opportunities, others may need support to provide the right evidence to catalyze cross-government change and policy/subsidy reform. Cross-sectoral resource mobilization is crucial given the wide-ranging drivers of biodiversity loss. Integrating biodiversity into the policymaking agenda, the development of natural capital accounting, and activities towards recognition of the multiple values of biodiversity can also be invaluable in helping to secure sustainable resource provision.

## Box 6. The Global Environment Facility

The Global Environment Facility is an international partnership committed to addressing global environmental issues[88]. It serves as the financial mechanism for five environment-related conventions, including the CBD, and provides essential support to Parties. The Global Environment Facility 's trust fund is replenished through pledges from Parties and development banks. The Global Environment Facility Council allocates funding to assist eligible countries in meeting the objectives of the CBD. Guidance issued by the CBD provides operational criteria and financing priorities for the choice of Global Environment Facility-funded biodiversity projects and programs. The latest adopted guidance has three key priority clusters[89]:

- To mainstream biodiversity across sectors as well as landscapes and seascapes;
- To address direct drivers to protect habitats and species;
- To further develop biodiversity policy and institutional frameworks.

National ecosystem assessments can support the integration of biodiversity and ecosystem services considerations across sectors and institutional frameworks. Therefore, eligible countries could use their Global Environment Facility allocation to fund such assessments or even the response options that the assessments identify.

## What are the challenges?

While the amount spent on protecting and restoring biodiversity has increased (USD 78–91 billion per year through 2015–2017), investment is significantly higher for activities that could potentially have a negative impact on nature[90]. Additionally, there is a significant funding gap between what is currently provided and what is required to effectively protect and invest in biodiversity and ecosystem services, although this varies considerably from one country to another. Challenges to resource mobilization include:

• Identifying resource gaps and needs, particularly when the actions required to meet biodiversity goals are either unknown or uncertain.

• Setting funding priorities, which requires an understanding of what actions will yield the greatest return; in particular:

  o Understanding perverse incentives and developing ways to address them through national policy/ reform;

  o Understanding the value of natural capital to mobilize further funding;

  o Understanding opportunities to use existing resources more effectively by integrating considerations regarding biodiversity and ecosystem services across sectors.

• Difficulties in communicating funding priorities to those able to offer resources and possibly changing their behavior to be ecologically sustainable.

• Developing the necessary knowledge base to justify incremental funding requests and to support changes in the regulatory enabling environment.

• Securing ongoing and sustained commitment, whether it involves time, funds, or political capital.

Beyond financial resources, challenges in mobilizing other resources include:

• A lack of awareness by actors of resource needs to halt biodiversity loss and inability to identify the extent of non-financial resources available;

• A lack of willingness or ability to share resources to address mutual interests, which may result from silos and communication barriers across sectors and scales.

Stakeholder engagement, especially strong policy support, underpins most of these challenges. An increased awareness of the multiple values and importance of biodiversity and ecosystem services is necessary to support improvement in the mobilization of resources and the reduction of harmful impacts.

## How can a national ecosystem assessment help to address these challenges?

National ecosystem assessments include descriptions of potential approaches to address negative drivers of change. These approaches include the identification of resource needs and alternatives for resource allocation to support biodiversity considerations.

By identifying drivers of change, a national ecosystem assessment can play an important role in detecting where subsidies are potentially harmful to biodiversity. In this regard, it can deliver robust and

policy-relevant information needed by governments and the private sector for policy reform. In addition, a national ecosystem assessment can include an economic valuation and/or natural capital perspective. It can help collate baseline data for the country's accounts and identify gaps in accounting (see Case study 6). Therefore, national ecosystem assessments can help in overcoming resource mobilization challenges faced in CBD implementation.

A national ecosystem assessment can help collate and communicate existing information and priorities to entities able to offer resources. Beyond purely financial resources, this can also draw public attention to the existence of mutual interests across sectors and to the existence of non-financial resources that can be leveraged to halt and reverse biodiversity loss.

By identifying and presenting gaps—whether in knowledge, capacity, or resources—a national ecosystem assessment can lend support to developing justifications for further funding requests to address the loss of biodiversity and ecosystem services.

## Case study 6: The follow-on phase of the UK's national ecosystem assessment

The first comprehensive assessment of ecosystem services in the UK was produced in response to a recommendation by the House of Commons following the Millennium Ecosystem Assessment[91]. Finalized in 2011, the assessment delivered extensive information on the state, the value (economic and social), and the possible future status of ecosystems across the UK. The Government then supported a two-year follow-on phase focused on developing the economic analysis to enhance its understanding of the value of natural capacity stocks, with the aim of improving their representation in national wealth accounts, and to examine the macroeconomic impacts of the findings[30].

The UK's national ecosystem assessment contributed to the establishment of the Natural Capital Committee, whose work included examining risks to the country's natural capital. In addition, a report on the economic case for investment in natural capital was built upon the national ecosystem assessment, informing a proposal by the Natural Capital Committee for a 25-year investment plan to protect and improve natural capital in England[92].

# CONCLUSION

In 2018, decision 14/1 of the CBD urged Parties and invited governments to undertake national assessments of biodiversity and ecosystem functions and services[9]. National ecosystem assessments can play an important role in supporting CBD implementation at the national level by providing a critical synthesis of knowledge on biodiversity and ecosystem services and enhancing national capacities at the science-policy interface.

Knowledge holder and stakeholder engagement fostered by national ecosystem assessments can enhance cooperation across multiple knowledge systems and technical disciplines at the country level, supporting the integration of biodiversity and ecosystem services considerations across sectors and within cross-sectoral plans. Science-policy platforms created and strengthened during an assessment process can also catalyze these processes and build communication channels between a wide range of actors.

Capacity-building fostered by national ecosystem assessments provides opportunities for developing and strengthening specific skills that are at the core of national CBD implementation. The knowledge base synthesized by national ecosystem assessments can form a basis for developing education and public awareness activities and materials, and the key messages highlighted by the Summary for Policymakers can enable decision-makers to account for the full value of biodiversity. Furthermore, national ecosystem assessments can contribute to mobilizing both financial and non-financial resources to support CBD implementation at the national level.

Considering this, national ecosystem assessments are well equipped to play a key role in the implementation of the CBD's Post-2020 Global Biodiversity Framework and other global biodiversity-related commitments. Examples of impact on CBD implementation are already starting to show as the community of practice grows within countries[3].

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NATIONAL ECOSYSTEM ASSESSMENT **INITIATIVE**

The NEA Initiative hosted by UNEP-WCMC contributes to a world where countries are able to assess the status and drivers of change to biodiversity and are empowered to transform policies to account for people and nature[1]. The NEA Initiative builds capacity, provides support, and fosters knowledge exchange through a highly qualified, multicultural, and interdisciplinary team of practitioners and partners. Our approach is tailored to country needs, building a community of practice across five continents.

Since 2017, the NEA Initiative has worked with 14 countries to conduct or scope their national ecosystem assessments. Our support is delivered in collaboration with the United Nations Development Programme (UNDP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) through the Biodiversity and Ecosystem Services Network (BES-Net). Through this work, the NEA Initiative supports the rolling work program up to 2030 of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the IPBES Capacity-building Rolling Plan.

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UN environment programme WCMC