CAPTURING LESSONS LEARNED FROM NATIONAL ECOSYSTEM ASSESSMENTS

VOLUME 2 STAGES OF THE ASSESSMENT

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NEA NATIONAL ECOSYSTEM ASSESSMENT INITIATIVE

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.

Disclaimer

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CONTENTS

ACRONYMS AND ABBREVIATIONS

BES-Net	Biodiversity and Ecosystem Services Network
CANARI	Caribbean Natural Resources Institute
CBD	Convention on Biological Diversity
COP	Conference of the Parties
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
NP-SPBES	National Platform for Science-Policy Biodiversity and Ecosystem Services (Cameroon)
UNDP	United Nations Development Programme
UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization

BACKGROUND

Ecosystem assessments are processes that aim to evaluate current knowledge about the interrelationships between human activities and biodiversity.[1] These assessments primarily provide a critical synthesis report on the status of, and trends in, biodiversity and ecosystem services and their direct and indirect drivers of change. Importantly, ecosystem assessments can also provide a knowledge base for informing pathways for action and policy options to respond to future scenarios. Such assessments have been carried out at different geographical scales (e.g. global, regional, national, local) and cover a range of specific topics or areas of concern.[1]

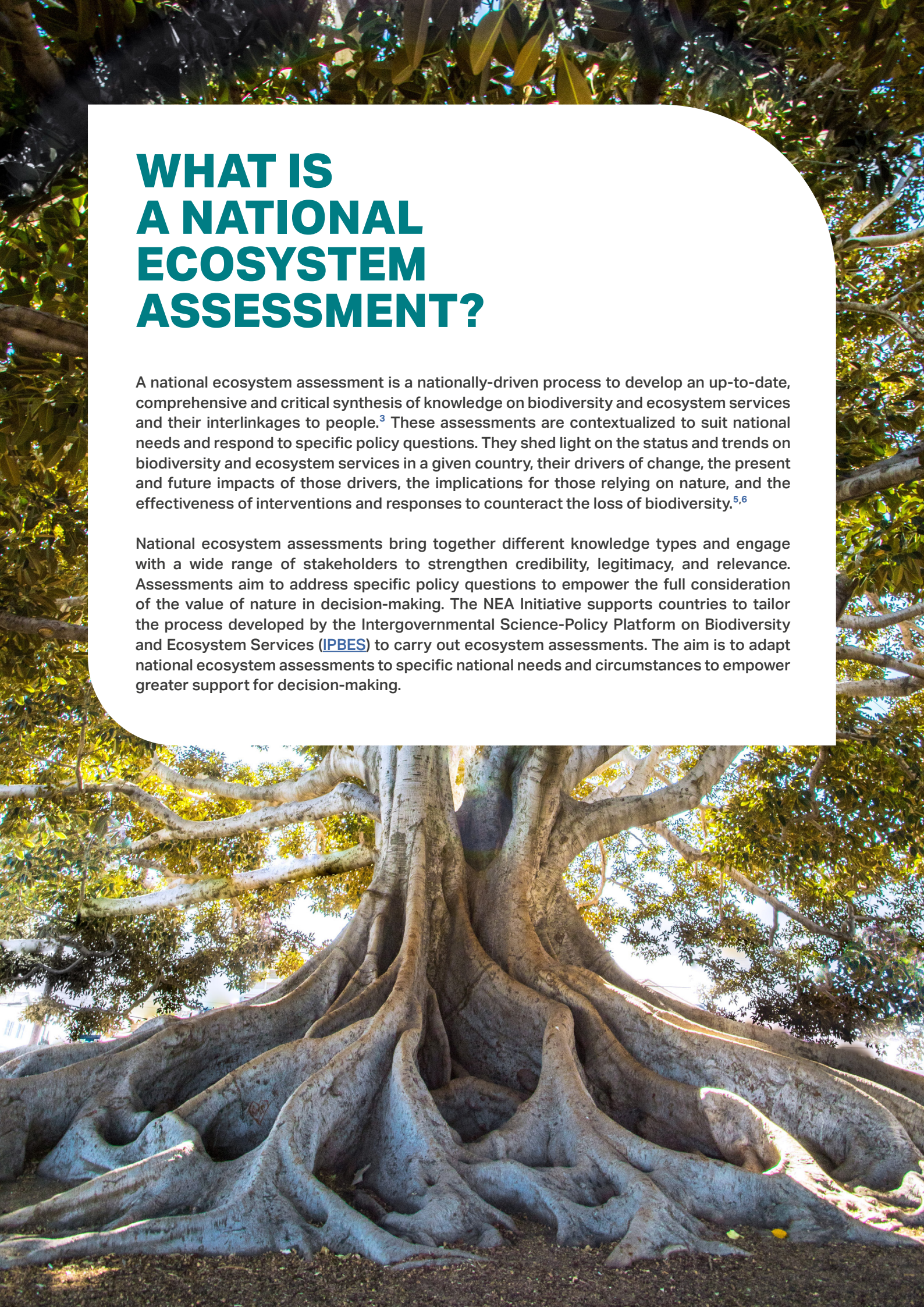
The 2005 Millennium Ecosystem Assessment was a critical moment in the history of assessments due to its focus on ecosystem services and their synergies with human well-being and development. Called for by the United Nations Secretary-General Kofi Annan in 2000, this assessment aimed to evaluate the impact of ecosystem changes on human well-being and set out an evidence base for action towards conservation and sustainable use of biodiversity. The Millennium Ecosystem Assessment was intended to support the needs of those responsible for meeting biodiversity targets and included a range of stakeholders, among them representatives of various international conventions, national governments, the private sector, and representatives from civil society, including indigenous peoples, within its governance structure.[2] The method and unique governance structure of this assessment set a strong precedent and framework for those that followed. Subsequently, the United Nations Environment Programme (UNEP) established the Sub-Global Assessment Network (SGAN) to support regional, sub-regional, national, and sub-national assessments that were catalyzed by the Millennium Ecosystem Assessment.

In 2012, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established as an independent intergovernmental body to strengthen the science-policy interface for biodiversity and ecosystem services. IPBES conducts global, regional, thematic, and methodological

assessments while also encouraging countries to undertake their own national-level assessments using the processes developed by the platform.[1] Its Global Assessment Report on Biodiversity and Ecosystem Services, published in 2019, responded to an invitation by the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) to prepare a global assessment of biodiversity and ecosystem services and the effectiveness of responses, including the Aichi Targets.[3]

In 2018, the CBD COP highlighted the value of national ecosystem assessments, with COP decision 14/1 urging "parties and invites other Governments, as appropriate, to consider undertaking national assessments of biodiversity and ecosystem functions and services".[4] Under recommendation 22/4, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), an intergovernmental scientific advisory body which provides support to countries to meet their commitments to the CBD, stressed the value of IPBES assessments and encouraged the uptake of such assessments at the national level.[3]

In 2017 the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) established the National Ecosystem Assessment Initiative (NEA Initiative) in collaboration with the United Nations Development Programme (UNDP)'s Biodiversity and Ecosystem Services Network (BES-Net) and more recently with the United Nations Educational, Scientific and Cultural Organization (UNESCO), as part of an innovative consortium between the three UN agencies to deliver tailored guidance to support countries undertaking national ecosystem assessments. This report summarizes the key lessons that countries have learned while undertaking their own national ecosystem assessment processes with support from the NEA Initiative and consortium partners. Highlighting the commonalities and differences between country partners' approaches to the assessment process can provide insight and foster innovation within the process.



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 on biodiversity and ecosystem services and their interlinkages to people.[3] These assessments are contextualized to suit national needs and respond to specific policy questions. They shed light on the status and trends on biodiversity and ecosystem services in a given country, their drivers of change, the present and future impacts of those drivers, the implications for those relying on nature, and the effectiveness of interventions and responses to counteract the loss of biodiversity.[5,6]

National ecosystem assessments bring together different knowledge types and engage with a wide range of stakeholders to strengthen credibility, legitimacy, and relevance. Assessments aim to address specific policy questions to empower the full consideration of the value of nature in decision-making. The NEA Initiative supports countries to tailor the process developed by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) to carry out ecosystem assessments. The aim is to adapt national ecosystem assessments to specific national needs and circumstances to empower greater support for decision-making.

'COMMON ELEMENTS' PRESENTED IN VOLUME I

A number of thematic topics, relevant to all stages of the assessment process, emerged from the lessons shared by country teams for this report. Volume I. Capturing Lessons Learned from Ecosystem Assessments: Common Elements describes lessons learned by countries in thematic areas of work for the assessment (stakeholder engagement, communications, etc). The common elements presented in Volume I are summarised below, and their recurrence highlights their significance to the assessment process as a whole:

i. Establishing the governance structure and building the assessment team

Setting up operational and governance structures for a national ecosystem assessment can help to ensure effective oversight of the technical, administrative, and financial aspects of the assessment process. It can also strengthen the legitimacy, credibility, and policy-relevance of its findings. The assessment team is generally comprised of a Technical Support Unit, a management or steering committee, an expert panel, and author teams.

ii. Stakeholder engagement

Stakeholder engagement underpins the national ecosystem assessment process, which is shaped and defined by its intended audience, users, and those potentially affected by future decisions based on its findings. Engaging with stakeholders and incorporating their knowledge throughout the assessment process -from the scoping stage to the use of the assessment findings- provides opportunities to identify priority information needs to be addressed, produce relevant outputs, and increase ownership and buy-in of the assessment's findings.

iii. National Biodiversity Platforms

A national biodiversity platform is a framework for bringing together key knowledge-holders and stakeholders on biodiversity and ecosystem services to support decision-making and knowledge generation. A national biodiversity platform creates enabling environments for stakeholders and knowledge holders to engage with each other. It aims to enhance knowledge-brokerage amongst science, policy and society, as well as build communities of practice, support national and sub-national governmental processes (including ecosystem assessments), and to raise awareness of biodiversity topics.

iv. Identifying and addressing capacity needs

A key objective of the national ecosystem assessment process is to build in-country capacity to carry out policy-relevant evaluations of knowledge and to foster dialogue, knowledge-sharing, and concerted action on biodiversity and ecosystem services. Identifying and addressing capacity needs within the assessment team and amongst stakeholders is crucial throughout the assessment process.

v. Communications and national ecosystem assessments

Internal and external communications are integral to the assessment process and are guided by communications strategies. This is a document which sets out the rationale and approach to how assessment teams communicate and engage with stakeholders, knowledge holders and wider audiences. Internal communications focus on improving communication and collaboration within the assessment team and with key stakeholders. External communications focus on wider audiences and target groups, aiming to better disseminate the assessment findings and targeting their integration into relevant policies, plans, and other societal processes.

KEY MESSAGES

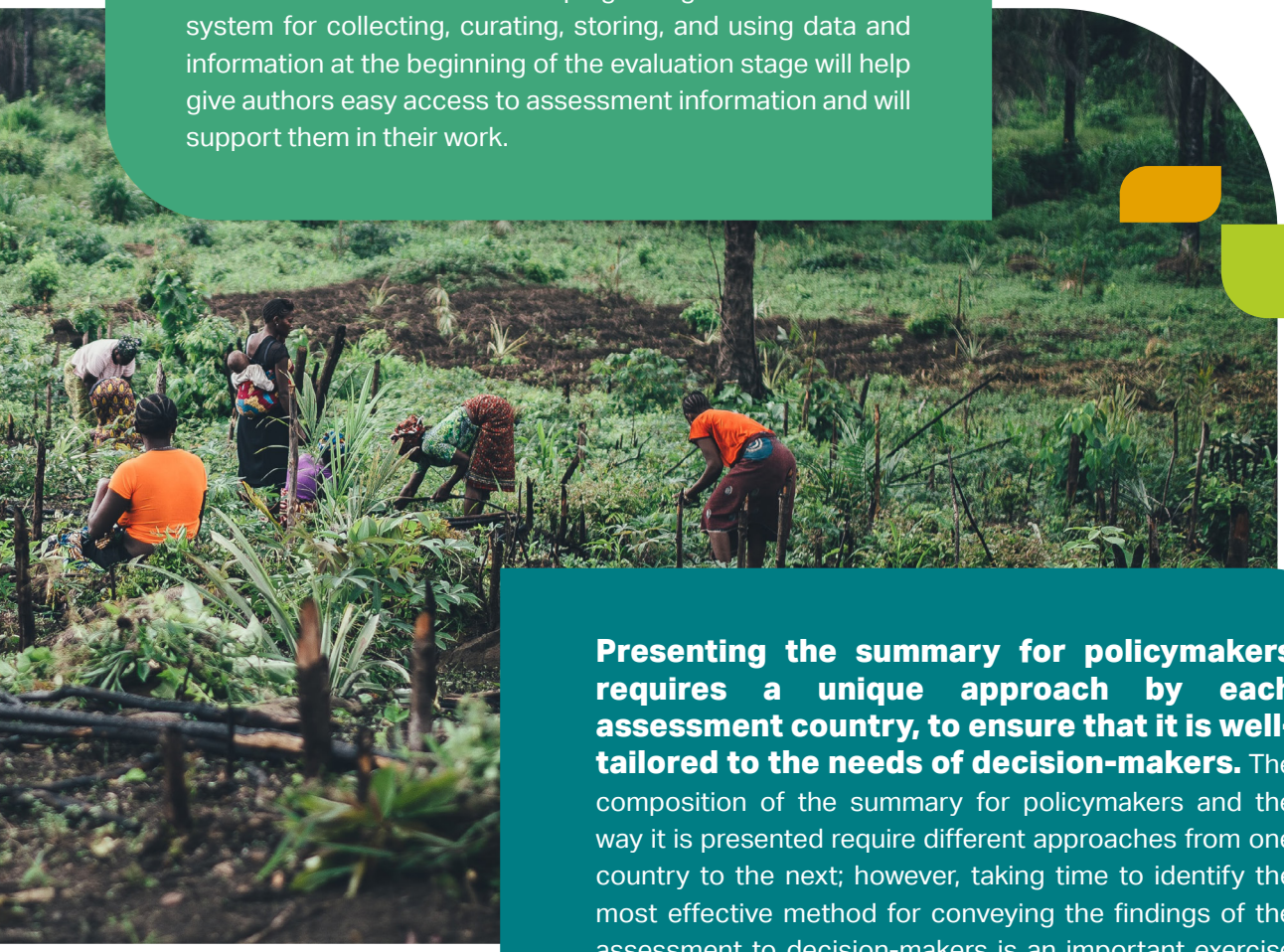
These key messages summarize lessons learned by the assessment teams for Azerbaijan, Bosnia and Herzegovina, Cambodia, Cameroon, Colombia, Ethiopia, Grenada, and Viet Nam that have thematic relevance throughout the assessment process. These lessons, drawn from UNEP-WCMC's consultations with each national team leading this process, aim to address a wide range of practical considerations that will support countries to undertake a national ecosystem assessment, while also sharing experiences and insights relevant to other types of national assessment. Importantly, the lessons aim to present the diversity of approaches to the national ecosystem assessment chosen by country teams of the NEA Initiative, as opposed to offering official guidance or prescribing a specific approach.

Theprocesses of designing the conceptual framework and key policy questions are important for laying a strong foundation for the assessment. The conceptual framework and key policy questions help to outline a clear rationale for conducting the assessment and, importantly, they also help to ensure the assessment's relevance to policy, build national ownership of the assessment, create a common understanding of its aims among the assessment's stakeholders, and promote engagement by its stakeholders.

Recruitment of authors should draw upon available capacities and networks. Diversity in knowledge types, experience, and perspectives will help build capacity for interdisciplinary collaboration, while contributing towards a robust assessment. Keeping authors and reviewers engaged and motivated throughout the assessment process is crucial. Opportunities for professional development and fulfilling personal goals and for networking, along with other incentives, are powerful motivators for their involvement in the assessment.

Achieving a coherent assessment report requires concentrated effort and careful coordination. Investing time and effort in organizing focused working sessions for authors can be very effective in achieving strong collaboration between authors and good cohesion between chapters of the assessment. Effective communication between the assessment authors and the Technical Support Unit, the body responsible for coordinating the assessment, is essential in facilitating effective coordination.

It is important to support and enable data-gathering and sharing among authors involved in the assessment. Developing an organized and secure system for collecting, curating, storing, and using data and information at the beginning of the evaluation stage will help give authors easy access to assessment information and will support them in their work.



Presenting the summary for policymakers requires a unique approach by each assessment country, to ensure that it is well-tailored to the needs of decision-makers. The composition of the summary for policymakers and the way it is presented require different approaches from one country to the next; however, taking time to identify the most effective method for conveying the findings of the assessment to decision-makers is an important exercise for every assessment team.

INTRODUCTION

Capturing Lessons Learned from National Ecosystem Assessments is an analysis of the experiences reported by eight countries while undertaking the assessment process. *Volume I. Capturing Lessons Learned from Ecosystem Assessments: Common Elements* focuses on lessons that have thematic relevance throughout the whole of the assessment process. *Volume II. Capturing Lessons Learned from Ecosystem Assessments: Stages of the Assessment* describes lessons learned by countries relating to specific stages of the national ecosystem assessment process (i.e., from the scoping stage to the approval stage). Further volumes will provide insights on topics relating to the use of assessment findings and the integration of key recommendations into decision-making. These will be drawn from further conversations with and data collected from countries supported by the NEA Initiative. Volumes I and II are intended to be complementary and to lay a foundation for highlighting key lessons emerging from national ecosystem assessments.

Contributing to a growing body of literature which explores lessons learned from ecosystem assessments, this analysis of lessons learned is the first to be produced by the NEA Initiative at UNEP-WCMC.[3] This work establishes a foundation for future exploration into lessons learned by country partners, and it is intended to be reviewed periodically to include further reflections from partners as they join the NEA Initiative. This effort aims to strengthen the collective capacity to support and deliver national ecosystem assessments.

Volumes I and II summarize key lessons learned by the assessment teams for Azerbaijan, Bosnia and Herzegovina, Cambodia, Cameroon, Colombia, Ethiopia, Grenada, and Viet Nam while implementing their national ecosystem assessments with the support of UNEP-WCMC. The lessons captured offer practical insights into the national ecosystem assessment process and serve as valuable guidance to countries that are already embarking on this journey or those that are interested in doing so in the future. The assessment teams are referred to by the name of their country for simplicity in the text of this report, however the lessons presented represent the experience of the assessment teams specifically.

METHODOLOGY

1. Literature review: Existing documents produced within the NEA Initiative were analyzed and synthesized. These included scoping and narrative reports, workshop video recordings, and a report conducted by the SGAN in 2012, entitled Lessons Learned from Carrying Out Ecosystem Assessments.[7]

2. Virtual interviews with country teams about lessons learned: Thirteen interviews were conducted with 27 interviewees from eight partner countries that were at mid-way or in the later stages of the assessment process. Interviewees included members of countries' Technical Support Units, assessment co-chairs, co-ordinating lead authors, lead authors, and contributing authors. These interviews captured key lessons and practical tips from countries' experiences of the assessment process.

3. An online lessons learned survey: An online survey was shared with country teams to encourage input from authors and members of their Technical Support Units on each of their assessments. This was to maximize accessibility for as many members of the assessment teams as possible. A total of 23 individual responses were received, covering six of the eight countries involved in this effort.

4. The Lessons Learned Workshop: A six-day online event took place in July 2021, presenting key messages from the previous stages. Country partners of the NEA Initiative also received a first draft report for review. Gaps identified in the first draft informed the agenda for the Lessons Learned Workshop, and further insights were gathered through knowledge exchange sessions, exercises, panel discussions, and presentations to help fill these gaps.

5. Final review: Once information from the workshop had been integrated, feedback from NEA Initiative partners was welcomed on the final drafts of Volumes I and II of this report, Capturing Lessons Learned from National Ecosystem Assessments.

STAGES OF THE ASSESSMENT

A national ecosystem assessment is comprised of four stages: the scoping stage, evaluation stage, approval stage, and use of assessment findings stage. At the time that the research for this report was conducted, Cameroon, Colombia, Ethiopia, and Viet Nam had reached the approval stage of their national ecosystem assessments, and Azerbaijan, Bosnia and Herzegovina, Cambodia, and Grenada were undertaking the evaluation stage of theirs. This volume distils individual and collective lessons learned by these countries at each stage of the assessment process that they have undertaken so far. The recurrence of similar lessons learned by country teams at these different stages highlights their significance to the assessment process as a whole.

Figure 1: The national ecosystem assessment timeline.

SCOPING STAGE

The scoping stage enables the development of priorities and the approach that will guide the national ecosystem assessment. In collaboration with stakeholders, the rationale for undertaking the process, the key policy questions that will be addressed, and the potential uses of the assessment are defined. This informs the need for the evaluation and its relevance to decision-makers. The information gathered is recorded in the scoping report, which is the main output of this stage of the process and the roadmap for authors conducting the assessment.

As part of the scoping stage, assessment teams are encouraged to create a conceptual framework. Such frameworks visually showcase the complex interactions between ecosystems and socio-economic

factors. They can be used to better understand and demonstrate the interactions between biodiversity, drivers of change, and human well-being. Conceptual frameworks also allow stakeholders to agree on what is being assessed and to promote and facilitate ownership of the assessment and its outputs.

The IPBES conceptual framework can be used as a tool to build a common understanding of the aims of the national ecosystem assessment. In order to adapt the IPBES framework to national circumstances, Azerbaijan held consultations with national agencies, ministries, and academics. Cambodia looked at the frameworks of other countries to find ideas for how it could be adapted to its own national context and ultimately chose to follow the IPBES framework with the support of an IPBES consultant. Its country team also held consultation meetings with the National Biodiversity Technical Working Group, which has representatives from over 20 ministries, to design its conceptual framework. These discussions helped to achieve common consensus around the conceptual framework. Since the establishment of its conceptual framework, Cambodia's chair and co-chair have held regular meetings with the IPBES consultant to ensure that the assessment report is aligned with it. Cameroon meanwhile found that the conceptual framework gave the country team clear direction, and authors revisited it continually to help them to conceptualize the national ecosystem assessment as a whole (Box 1). Viet Nam had never produced a national conceptual framework of this kind before, and stakeholders had different views about how it should look. However, after five meetings and much consultation with members of the interdisciplinary assessment team, the country produced its own tailored conceptual framework. Another challenge faced by Viet Nam was a lack of data for certain components of the conceptual framework, such as anthropogenic drivers. This highlighted the need for future research to better understand these components of the conceptual framework.

Other countries faced challenges in using and adapting the IPBES conceptual framework. Bosnia and Herzegovina highlighted the need to simplify the language of the framework to ensure that it was accessible to different stakeholders. Grenada found that the conceptual framework was too complicated and not well-tailored for gathering data from its stakeholders; instead, the assessment team chose to gather information from stakeholders by different means, such as through meetings and consultations. This facilitated shared learning between stakeholders about regional and national concerns and priorities for biodiversity and ecosystem services.

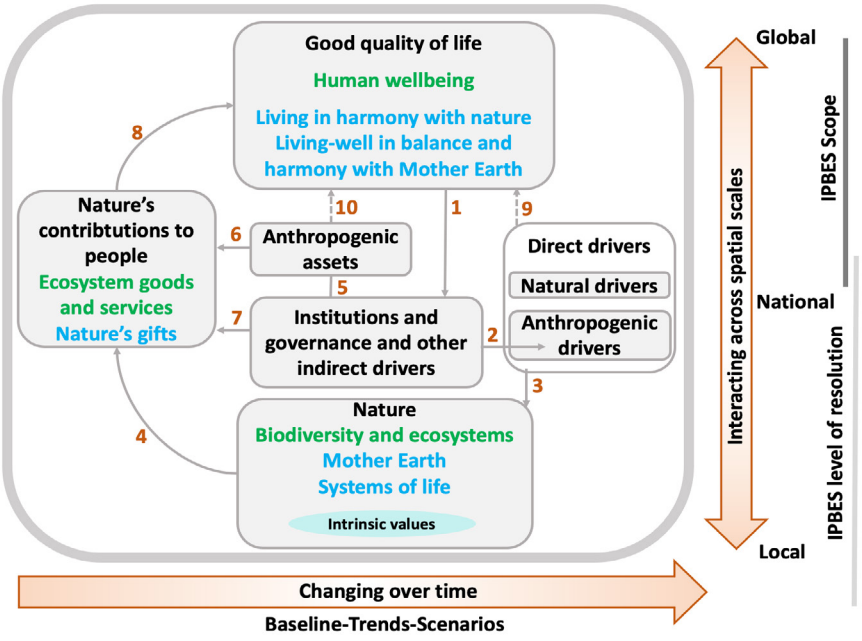


Figure 2: The national ecosystem assessment timeline. Source: Diaz et al., 2015.[8]

Box 1: Conceptual frameworks

Cameroon initially found the process of adapting the IPBES conceptual framework to its own national context challenging because many members of the assessment team were unfamiliar with this kind of exercise. Thus, the co-chairs and authors working on one chapter of the assessment adapted its terminology, creating a conceptual framework that was well tailored to the national context. This conceptual framework then guided the structure of work for the authors of each chapter, helping them to visualize the complex interactions between ecosystems and socio-economic factors, which was an important topic across all chapters of the assessment.

The process of drafting the key policy questions is crucial for promoting stakeholder engagement, building ownership, guiding the assessment, and establishing the assessment's relevance to national priorities. In Ethiopia, following the preliminary drafting of seven policy questions, the Technical Support Unit organized a workshop with government officials from different sectors, non-governmental organizations (NGOs), and a diverse range of researchers to gather feedback and refine this initial set of questions. As a result, five key policy questions were prioritized as the focus of the assessment, and the scope of the work was expanded to include the high elevation mountainous regions of the country to fill existing information gaps. Azerbaijan and Cambodia both started this process with a review of existing national legislation, regulations, and targets. After this, stakeholder discussions were held around key national priorities and policy questions during the inception workshop. Viet Nam's team began discussions around key policy questions with decision-makers by focusing on information gaps in policies related to ecosystem services. By highlighting the need to fill these gaps, the assessment team leveraged greater government buy-in to the process.

Grenada and Colombia both approached civil society organizations and key members of local communities to identify priority ecosystems and draft key policy questions. Bosnia and Herzegovina drafted its key policy questions from input gathered through a stakeholder engagement exercise (Box 2). These examples all echo guidance provided in the IPBES guide to assessment, which stresses the importance of setting clear and achievable policy questions, chosen in close consultation with relevant national stakeholders.[1,9] The experience of country partners also emphasizes the time that it takes to define these questions, with most countries reporting that this part of the process took six months or more and involved multiple stakeholder consultations.

Box 2: Bosnia and Herzegovina—defining key policy questions

Following a stakeholder mapping exercise, Bosnia and Herzegovina invited stakeholders to discuss key challenges and priorities concerning biodiversity and ecosystem services. The Technical Support Unit found this meeting very productive in terms of gathering input to draft the key policy questions. The questions were then reviewed by the assessment team, who developed a strategy for addressing them. Following the publication of a draft scoping report, stakeholders were again invited to provide feedback, and a final version of the report was produced in response.

This process allowed the country assessment team to identify key policy questions that were relevant to national circumstances, stakeholder needs, and national policy priorities. It also fostered a strong relationship between the assessment team and stakeholders. The team reported that academics benefited from the process as a shared learning experience through the negotiation of priorities for the key policy questions, resulting in increased collaboration between those involved.

The assessment team also reported that the key policy questions became a useful reference point to return to for a clear sense of direction at different points in the assessment process.

The assessment team chose to structure the platform with three distinct bodies, each of which performs a particular role in the national ecosystem assessment and offers specific benefits to the process:

Bosnia and Herzegovina—key policy questions:[9]

a) "To what extent and in what way does the nature and the use of natural resources contribute to: i. securing livelihoods, ii. quality of life, and iii. sustainable development in Bosnia and Herzegovina?

b) What are the status, trends, and future scenarios of the state of nature and the use of natural resources in Bosnia and Herzegovina?

c) What kind of development (production and consumption of goods, energy needs, tourism, etc.) and social drivers (demographic trends, socio-political processes, etc.) and how (directly and indirectly) affect the state and trends of nature and natural resources in Bosnia and Herzegovina?

d) What are the existing and potential options for improving the various sectoral policies, interventions, investments, and management-institutional arrangements for greater contribution of nature and natural resources to the sustainable development of Bosnia and Herzegovina?

e) What gaps in practice and knowledge should be eliminated in order to improve the decision-making process to improve the state of nature and the management of natural resources in Bosnia and Herzegovina?"

Recruiting, engaging, and retaining authors and reviewers

Selecting appropriate authors who will contribute towards specific chapters of the assessment is important to ensure the validity and credibility of its findings. If assessment authors are chosen strategically to improve links between themselves and stakeholders, key messages can gain traction and legitimacy. The assessment generally requires different types of contribution, which are reflected in the different roles played by the selected authors: co-chairs, coordinating lead authors, lead authors, contributing authors, review editors, and fellows. Co-chairs are generally selected at the beginning of the assessment process to oversee the technical aspects of the assessment and the process of author selection, as well as the scoping stage. The selection of authors is generally managed by the Technical Support Unit, with oversight from the management/steering committee.

Author recruitment should draw upon a country's strengths and networks. Viet Nam's assessment team recruited authors from a number of ministries and other agencies. Many of the assessment authors were also involved in other national-level projects or had expertise in areas such as developing policies to respond to commitments under the CBD (e.g., National Biodiversity Strategies and Action Plans (NBSAPs)). This increased the team's capacity to understand policy processes. Cameroon identified suitable authors for each chapter of the assessment during discussions held as part of the inception workshop. Ethiopia followed a "snowball" process to recruit authors, whereby authors who were hired for the assessment suggested other suitable authors from within their own networks. This facilitated the development of a strong network within the assessment team and improved access to data and research between institutions. Due to its small population size, Grenada held an open call for authors at the regional level, first sending out a call for contributing lead authors with relevant knowledge of the country and regional in situ experience. Then it widened the call to fill gaps, and it now has authors participating from as far afield as Japan.

Author teams can benefit from a diverse range of knowledge types and experience. Ethiopia selected its authors with the aim of establishing a team with diverse types of knowledge (science, policy, and indigenous and local knowledge), and reported that knowledge exchange within the author team helped to build the capacity of authors and increased interdisciplinary collaboration. Similarly, Colombia reported that, by inviting indigenous people and local communities to be contributing authors for the assessment, the capacity of researchers and decision-makers to work with indigenous and local knowledge was improved.

Engagement from authors throughout the assessment process can be encouraged by highlighting the range of opportunities that the process offers for professional development, networking, and fulfilling personal goals. Survey respondents and interviewees highlighted that opportunities to expand their research focus, work across different disciplines, bridge the science-policy-practitioner gap, and contribute to the conservation of national biodiversity were all important motivators for authors to engage in a national ecosystem assessment. Access to a global expert team and a wider scientific community, as well as monetary compensation, were also noted as important factors for involvement. Grenada found it helpful to frame involvement in the process as a knowledge-sharing exercise, encouraging mentorship by pairing experienced authors with early-career professionals. Equally, reviewers need motivation to work towards the deadlines of the assessment process. Cameroon recruited 40–50 external reviewers from a pool of stakeholders and, to ensure their timely contribution, reviewers were offered formal recognition in the assessment report.

"I am motivated because I am part of an indigenous people and I believe that it is important to bring the voice of indigenous women to the evaluation."
– Survey quote, anonymous author survey respondent

EVALUATION STAGE

The evaluation stage begins by selecting and nominating authors to bring together, analyze, and synthesize data, knowledge, and information on biodiversity and ecosystem services to address the key policy questions identified in the scoping stage. A technical report and a summary for policymakers will be produced during this stage through an iterative process involving the preparation and review of several successive drafts. The national ecosystem assessment technical report brings together and analyzes data and knowledge relevant to the key policy questions, investigating and setting out the evidence needed to address these. The technical report also highlights gaps in data, information, and knowledge, which can be useful for informing future research agendas and monitoring requirements. The summary for policymakers is a short and concise document which pulls together key findings across the chapters of the technical report into policy-relevant key messages.

Coordinating inputs from authors and ensuring cohesion across chapters

Establishing coherence across chapters requires concerted effort, and dedicating time and effort to achieving this is particularly important throughout the evaluation process. Faced with the task of coordinating the work of 106 authors focused on delivering specific sections of the report, Colombia's Technical Support Unit faced challenges of differences in writing styles and formats, despite producing a guidance document on these topics for authors, reviewers, and co-chairs. With hindsight, the Technical Support Unit would have dedicated more effort to facilitating dialogue with authors, including setting clear expectations at the beginning of the process. To produce the summary for policymakers, the country team appointed a taskforce of 13 participants and drew on the key findings of the final report, which were distilled into four key messages. Viet Nam tackled the challenge of cohesion by organizing weekly technical meetings between authors to discuss developments in their chapters, share information, and avoid overlap. Cambodia, realizing the need for cross-chapter collaboration, encouraged authors to provide feedback on each other's chapters and organized specific meetings to discuss content and ensure coherence across the assessment report. In Cameroon, the co-chairs played an active role in ensuring coherence by reviewing chapters before sending them to the steering committee for consideration. Bosnia and Herzegovina addressed cohesion and gaps in knowledge in the assessment by encouraging authors to work across multiple chapters and coordinated this by means of virtual meetings and email communication. Ethiopia carried out an internal review of the zero order draft prior to the external review, during which authors were able to make comments and suggestions across the whole of the document.

Investing time and effort in communicating with authors is very important. Colombia started by organizing three workshops with authors to plan the chapters of the assessment, but on reflection realized that more time was needed to ensure coherence between them, and as a result held monthly author meetings for the development of the second order draft. Cameroon, with an author team dispersed across the country, resorted to organizing one-week workshops that brought together authors to work on the assessment plan and on chapter cohesion. At these meetings, authors and the Technical Support Unit shared ideas, worked in sub-groups, held plenary meetings, and updated one another on the content and progress of each chapter. To further facilitate communication between authors, working sessions lasting 3–4 days each were organized for coordinating lead authors and the author teams for each chapter.

Colombia and Cameroon both highlighted that these collaborative sessions were especially important for achieving a coherent assessment report and for working more efficiently and effectively on the tasks at hand. Cameroon also stressed the need for patience in building relationships with authors and the need to highlight possible benefits for authors, beyond monetary gain, to leverage their engagement. Cambodia worked to support communication between author teams and to ensure the cohesion of the report through process of raising queries from authors through their coordinating lead authors to be shared among the wider author team. This approach allowed the team to address capacity gaps and ensure a cohesive approach to the use of data in the report.

Finally, in their responses to the survey, several authors stressed the importance of having a Technical Support Unit that is able to facilitate good communication and coordination between authors and set a clear work structure for them to follow. One author also discussed the importance of communicating with all authors working on the assessment, so that each author feels sufficiently involved in the process and does not lose motivation if communication is sometimes lacking.

Data sharing and use

Identifying the temporal scale, the geographic boundary, and the key ecosystems and biodiversity focus areas helps to narrow the scope of data search and identify the resource base to draw on. Data can be extracted from publicly available literature and from grey literature, databases, project reports, and national plans and policies. Data and information can also be sourced from stakeholders and knowledge-holders, and the assessment can be enhanced by including biodiversity understanding from various knowledge systems. The data and knowledge used should aim to help address the key policy questions and accurately demonstrate the status and trends of biodiversity. This process also encourages the identification of data and knowledge gaps, providing the opportunity to structure the assessment so as to effectively make use of available data.

A system for handling data in a logical and secure way should be developed at the beginning of the assessment process and should ensure the accessibility of data to all authors. Grenada nominated a member of the team to be responsible for managing the literature database facilitating the work of the assessment authors. Cameroon found it useful to bring together scientists and decision-makers for training on how to use data. As part of this process, the team also organized intellectual property agreements and contracts around data handling to encourage private stakeholders and ministries to share information. Authors were also requested to sign confidentiality agreements to avoid data being shared externally by individuals without approval from the Technical Support Unit. This measure was introduced to ensure that authors did not publish findings before the launch of the technical report.

In Bosnia and Herzegovina, data were often scattered across individual sources or were outdated or incomplete. To overcome this challenge, in parallel with the development of the zero order draft, the assessment team strove to collect all sources of information, and it used Mendeley Reference Manager software to create the main research repository. Assessment authors were trained on inputting data sources, creating a single database for each chapter of the assessment. As a contribution from the national ecosystem assessment, the team is now working with university libraries across the country to develop a unified database..

Before formally starting data collection, it is important to consider what data will be needed, as well as requirements for storing, curating, and accessing data. In the survey, several authors identified the logistical challenges of not having legal or institutional access to certain types of data or important scientific databases, such as Web of Science and ScienceDirect, among others. One author stated that, to overcome this challenge, it is important to recruit individuals onto the assessment team who have institutional access to scientific databases, while another suggested obtaining permission from the relevant data-holders (e.g., universities, libraries, private archives, etc.) in advance of data collection. The Caribbean Natural Resources Institute (CANARI), Grenada's implementing agency based in Trinidad and Tobago, hired consultants to gather data from ministries in Grenada to overcome the difficulty of working remotely.

Identifying which institutions might hold data relevant to the assessment was another significant challenge highlighted by authors. Cameroon took a proactive approach by identifying gaps in its knowledge base and approaching potentially relevant sources (e.g., academia, research institutions, NGOs) who could potentially provide the information needed to fill those gaps. The assessment team in Cambodia carried out an information stock-take first, relying on individual and national networks, including academic research institutions, ministries, and other contacts, to request that all data relating to biodiversity and ecosystem services be shared with the assessment team. Once received, data were compiled into a centralized database to facilitate knowledge-sharing between authors, which enabled them to identify gaps in national data.

Bringing together a range of knowledge types

A key objective of a national ecosystem assessment is to bring together information on biodiversity and ecosystem services from diverse sources. This process draws upon different knowledge types associated with a range of knowledge-holders. Taking the time to carefully plan and facilitate this exchange is vital to ensure the credibility, legitimacy, and relevance of the assessment.

When including and consulting Indigenous and local knowledge-holders, it is important to draw upon the expertise of authors who have previous experience of working with indigenous and local knowledge. Cameroon brought in authors who understood the multidimensional values that indigenous peoples and local communities hold for biodiversity and ecosystem services. They also invited representatives of these communities to participate as partners in the assessment, stressing the importance of their knowledge. This connection to the assessment motivated community members to contribute directly to chapters, in collaboration with coordinating lead authors. Colombia took a similarly proactive approach, inviting representatives of indigenous peoples and local communities to participate in its assessment alongside coordinating lead authors. This resulted in a dedicated chapter on Indigenous and local knowledge. Cambodia is relying on the expertise and guidance of an existing network of indigenous and non-governmental organisations for its assessment. Grenada nominated an administrative "champion" whose role is to oversee the inclusion of indigenous and local knowledge in the assessment. The team in Ethiopia relied on academics working in the fields of ethnobiology and indigenous and local knowledge.

Organizing an appropriate setting in which to convene stakeholders is conducive to knowledge-sharing. To facilitate knowledge exchange, Cameroon organized a full-day meeting with representatives of indigenous peoples and local communities to discuss topics related to biodiversity and ecosystem services. Information was captured during this meeting and integrated into the chapters in the form of case studies. Colombia arranged a series of workshops with local stakeholders, NGOs, and coordinating lead authors, which were very productive for building a dialogue around indigenous and local knowledge. Local authors who were willing to share knowledge were also identified. Grenada ensured that all knowledge gathered was accessible to stakeholders by developing an online platform on which data, photos, and accounts of biodiversity and ecosystems services could be shared easily with stakeholders. Members of Bosnia and Herzegovina's taskforce on indigenous and local knowledge travelled to communities to hold dialogues around the value of biodiversity and ecosystem services, as well as the influence that the national ecosystem assessment might have on policies that could potentially impact their communities.

Adapting to the needs of knowledge-holders can empower them and enhance their collaboration. Coordinating lead authors in Colombia endeavoured to transcribe and weave contributions from indigenous and local knowledge-holders into the assessment; ordinarily, most of their knowledge is passed on through oral accounts. When this was done, knowledge-holders were given the opportunity to review and validate the information. In Cambodia, authors are also weaving local knowledge on sustainable resource management into their assessment. The team is also trying to make communications between authors and local communities more effective by involving translators during knowledge exchange. Bosnia and Herzegovina found that engaging local communities and people dependent on biodiversity and ecosystem services had the most impact outside of periods of intense agricultural work. Grenada reported that engaging knowledge-holders from all stakeholder groups can be facilitated by emphasizing to them that their contributions will be acknowledged and will be used only for the national ecosystem assessment.

APPROVAL STAGE

The approval stage is significant in ensuring that the national ecosystem assessment is both relevant to policy and legitimate. At this point in the process stakeholders, in particular the government, accept the technical report and approve the summary for policymakers. This step aims to increase their buy-in to the final outputs and the likelihood of the key messages being used to inform decision-making processes.

Securing approval and identifying policy entry points

Obtaining approval of the technical report and the summary for policymakers follows different processes in each country. In Viet Nam, the technical report will be shared with a Scientific Advisory Council, formed of nine members, which has been created for the purpose of approving it. The members of this Council are all leading experts on biodiversity and ecosystem services and have been selected because they have experience of reviewing and approving national-level reports. In Colombia, the final review and approval of the technical report and the summary for policymakers were conducted in three meetings with the Advisory Group and two with the IPBES National Committee. The official launch of the assessment was accompanied by a communications campaign involving social media and press releases. The launch took place virtually due to the restrictions imposed by the COVID-19 pandemic, but the outputs were accepted in good faith by the Ministry of Environment and Sustainable Development.

Identifying a variety of entry points can support policy changes and decision-making processes beyond the completion of the assessment. Colombia highlighted the importance of using politically neutral language to encourage use of the assessment findings in decision-making. The country team also communicated with influential individuals outside of the policy sector to indirectly leverage policy change, including private sector representatives involved with economic, international, academic, and/or agricultural communities. Since its launch, Colombia's approach and strategic identification of entry points are reported to have encouraged use of the assessment findings by decision-makers and have led to government stakeholders engaging with knowledge-holders. In Viet Nam, methodologies for economic valuations of ecosystems are being developed to inform market approaches. In Ethiopia, the National Development Commission is being engaged to support use of the assessment findings across all sectors, as a revision of the National Development Plan is upcoming.

Bosnia and Herzegovina noted that the potential impact of the assessment on the process of reporting to the CBD could be to leverage continued engagement by the government with ecosystem assessments and with national science-policy platforms. Cameroon targeted its sixth national reporting process to the CBD as an important entry point, contributing findings from the national ecosystem assessment and clearly showcasing its value to these processes. All country partners noted that the COVID-19 pandemic had brought the importance of biodiversity for human health to the fore.

Ensuring policy relevance amid change

Understanding how the national ecosystem assessment can support national priorities, including development goals, can help to ensure its relevance. Cameroon identified this as one of the biggest challenges in the whole process. Key policy questions prioritized at the start of the assessment process were superseded when the national political vision changed. The Technical Support Unit therefore targeted strategic sectors, policies, and plans, such as the national development agenda, to maximize the assessment's relevance in light of newly unfolding national priorities. The Cameroon team stressed that strategic and continuous communication and visibility of the assessment contributed to ensuring its relevance to key decision-makers and supported their engagement throughout the process. In Colombia, a change in government also led to a change in policy priorities, and the questions that had been identified initially were no longer seen as relevant. As a result, the assessment team adjusted the assessment to include new government priorities and treated the change in government as an opportunity to emphasize the purpose of the assessment via national media. In doing this, the team took care to avoid any language or comments that could be construed as politically loaded or critical. Neutrality in the assessment process is key to its adaptability and its accessibility to governments amid pre-existing priorities and changes in policy.

In Viet Nam, new social and economic development plans, as well as other nationally relevant policies, emerged during the assessment process. The country team therefore endeavoured to find common ground between national policy goals and the aims of the assessment. Having government representatives as part of the assessment team ensured that it was well aligned with policy priorities.

CONCLUSION

Capturing Lessons Learned from National Ecosystem Assessments draws upon, and contributes to, worldwide expertise around ecosystem assessments. It builds on efforts such as the Global Environment Outlook, the Global Biodiversity Outlook, the Millennium Ecosystem Assessment, the Sub-Global Assessment Network, and the assessments carried out by IPBES, among others. The key messages and lessons included in each volume have been distilled from the experiences of eight countries supported by the NEA Initiative at UNEP-WCMC. They highlight commonalities in countries' experiences, as well as differences in approaches taken by national assessment teams on topics of relevance throughout the assessment process.

This analysis paves the way for improved support and more tailored capacity-building efforts targeted towards country partners embarking on national ecosystem assessments. Currently, there are still gaps in our understanding of country experiences and approaches to the assessment process. Assessing these gaps will help to identify areas for further research in future iterations of this lesson-learning process, and analysis will be undertaken periodically to gather information about lessons learned under the umbrella of the NEA Initiative. The next iteration of the learning process will be focused on the use of assessment findings stage, once country partners are in a position to offer information on how the assessment findings are being used, and how this contributes towards the main purpose of conducting a national ecosystem assessment: consideration of the full value of nature in decision-making.

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NATIONAL ECOSYSTEM ASSESSMENT INITIATIVE

UN environment programme WCMC

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. 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 scope or conduct 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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