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INCLUDING INDIGENOUS AND LOCAL KNOWLEDGE IN  
THE WORK OF THE INTERGOVERNMENTAL  
SCIENCE-POLICY PLATFORM ON BIODIVERSITY AND  
ECOSYSTEM SERVICES (IPBES) GLOBAL ASSESSMENT :  
Outcomes and lessons for the future

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11 Including Indigenous and Local Knowledge in the work of the  
12 Intergovernmental Science-Policy Platform on Biodiversity and  
13 Ecosystem Services (IPBES) Global Assessment

14 Outcomes and lessons for the future

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18 **Abstract**

19 This chapter makes a strong case for greater inclusion of Indigenous and Local  
20 Knowledge (ILK) in global environmental policy fora and in science-policy  
21 interfaces. The chapter specifically looks at the IPBES Global Assessment, which has  
22 developed one of the first global-scale mechanisms for operationalizing ILK in  
23 assessments leading to informed decision-making processes. We outline the

1 conceptual framework, ILK approach, and specific steps taken to ensure ILK was  
2 represented and included in the assessment. The findings of the assessment show the  
3 importance of ILK in several ways: (1) to assess ecosystem change and associated  
4 human vulnerability; (2) to inform the achievement of global goals like the  
5 Sustainable Development Goals and Aichi Targets; and (3) to inform policy-relevant  
6 options for decision-makers. It is argued that other global initiatives seeking to engage  
7 ILK in their endeavours can learn from the ILK approach of the IPBES Global  
8 Assessment.

## 9 Introduction

10 This chapter examines how the Intergovernmental Science-Policy Platform on  
11 Biodiversity and Ecosystem Services (IPBES) has approached the inclusion of  
12 Indigenous and Local Knowledge in its work. Other science assessments have used  
13 terms like Indigenous Ecological Knowledge (IEK), traditional knowledge (TK),  
14 Indigenous Knowledge (IK), or traditional ecological knowledge (TEK) (Mauro and  
15 Hardison, 2000<sup>BIB-028</sup>; Ford et al., 2016<sup>BIB-016</sup>); however, IPBES uses the concept of  
16 Indigenous and Local Knowledge (ILK), defined as “knowledge and know-how  
17 accumulated across generations, which guide human societies in their innumerable  
18 interactions with their surrounding environment” (IPBES, 2014<sup>BIB-022</sup>), and we use  
19 this terminology in this chapter. IPBES has strongly promoted the idea that  
20 Indigenous Peoples and Local Communities (IPLCs) should be key stakeholders in

1 global assessments, as they are both holders of knowledge about the natural world, as  
2 well as impacted by decisions made to manage nature by other stakeholders, such as  
3 governments and the business sector, for which they can both contribute with their  
4 knowledge and have the right to inform policies that might directly affect their  
5 livelihoods.

6 Attention to both IPLCs and ILK in the work of IPBES has been made  
7 possible through a series of deliberate steps and decisions to promote the recognition  
8 of ILK in knowledge production and decision-making by IPLCs regarding  
9 sustainability, and we evaluate the successes and challenges of this approach. In this  
10 chapter we discuss what IPBES is; how it has been mandated to address ILK and  
11 other concerns of IPLCs; what the processes of inclusion have been in the work of the  
12 Global Assessment (GA) in particular; how ILK has informed the GA outcomes; and  
13 what lessons can be learned from the IPBES approach for other intergovernmental  
14 and/or scientific assessments.

## 15 **What is IPBES?**

16 At the global scale, an inclusive, legitimate and effective science-policy interface to  
17 provide assessments and advice is critical for decision-makers (Görg et al., 2014<sup>BIB-</sup>  
18 <sup>019</sup>). Formally established in 2012 as an independent intergovernmental body with  
19 (presently) 137 countries as members, the Intergovernmental Science-Policy Platform  
20 on Biodiversity and Ecosystem Services (IPBES) is an “IPCC-like mechanism for

1 biodiversity” (Larigauderie and Mooney, 2010<sup>BIB-025</sup>) providing decision-makers with  
2 policy-relevant information from scientific assessments and strengthening knowledge  
3 foundations for the maintenance of biodiversity and ecosystem services. IPBES  
4 assessments, which are to be conducted regularly, focus on the status, trends and  
5 future of biodiversity and ecosystems, and the contributions of nature to people’s  
6 lives, including through both regional and global trend reports as well as specific  
7 problem areas, such as pollination or land degradation. IPBES mandate and work  
8 programme deliverables (such as assessments) were developed from requests  
9 submitted by governments, Multilateral Environmental Agreements (MEAs), UN  
10 bodies, and a range of stakeholders/decision-makers, which were reviewed and  
11 prioritized for the first work programme starting in 2014 to 2018. In addition to the  
12 assessment function, IPBES has three other functions: (1) capacity-building; (2)  
13 policy support and implementation; and (3) knowledge generation and  
14 communication. These functions are interconnected through various IPBES  
15 deliverables and tools.

16 One of the early and most fundamental guiding elements of IPBES is its  
17 “Conceptual Framework”, which was developed over the course of two years by  
18 many scientists and stakeholders in an iterative and consultative process and was  
19 approved by member countries in 2013 (Díaz et al., 2015a<sup>BIB-011</sup>; Díaz et al., 2015b<sup>BIB-</sup>  
20 <sup>012</sup>). The framework supports the analytical work of IPBES by recognizing that  
21 biodiversity and ecosystems’ contributions to people underpin every aspect of human

1 development and sustainability. While it is a highly simplified schema depicting  
2 complex relationships between people and nature through major social and ecological  
3 components (boxes) and their interactions (arrows), it has been a useful heuristic  
4 framework not only for explaining, but also for operationalizing, the work of IPBES.  
5 The Conceptual Framework encompasses a diversity of scientific disciplines,  
6 stakeholders, and knowledge systems, fundamentally recognizing that knowledge is  
7 established and validated in many ways across multiple scales (Díaz et al., 2015a<sup>BIB-</sup>  
8 <sup>011</sup>; Díaz et al., 2015b<sup>BIB-012</sup>; Hulme et al., 2011<sup>BIB-020</sup>). The evolution of the  
9 framework has introduced new concepts, such as Nature's Contributions to People  
10 (NCP) (Díaz et al., 2018<sup>BIB-013</sup>), as an alternative way to understand some of the  
11 concepts associated with the term "ecosystem services", which some IPLCs and  
12 country members of IPBES objected to as a "manifestation of nature's  
13 commodification" (Borie and Hulme, 2015<sup>BIB-009</sup>: 493). Embracing a concept like  
14 NCP that can reflect both ecosystem services understandings and a more intrinsic  
15 worldview in which nature provides gifts to those who are appreciative (as is  
16 associated with many IPLCs' beliefs and practices) allows for a framing that is  
17 diverse and reflects these multiple ontologies (Díaz et al., 2018<sup>BIB-013</sup>). While some  
18 concepts associated with scientific approaches are in different places in the  
19 framework, which might lead to continued divisions between science and ILK (Borie  
20 and Hulme, 2015<sup>BIB-009</sup>), the framework was not meant to symbolize mutual

1 exclusivity, but rather acknowledging different worldviews, to unite both knowledge  
2 systems under common conceptual umbrellas.

### 3 Examples of and challenges in incorporating ILK into global 4 science assessments

5 To date, many ILK issues have been under-represented in various intergovernmental  
6 processes and assessments (Ford et al., 2016<sup>BIB-016</sup>). The inclusion or integration of  
7 ILK is challenging because often place-specific and oral-based forms of knowledge  
8 can be difficult to transpose into the written form more common in science (Berkes,  
9 2008<sup>BIB-007</sup>; Reid et al., 2006<sup>BIB-032</sup>), and can lead to decontextualized information  
10 devoid of the cultural environment that establishes their meaning, and thus cannot  
11 represent the full “content or context of that knowledge” (Stevenson, 1996<sup>BIB-035</sup>).  
12 Further, most conceptual frameworks and ontologies do not or cannot jointly  
13 recognize Western science approaches together with ILK understandings (Agrawal,  
14 1995<sup>BIB-002</sup>; Atran et al., 2001; Cruikshank, 2005<sup>BIB-010</sup>; Huntington, 2000<sup>BIB-021</sup>;  
15 Verran, 2001<sup>BIB-042</sup>). Concepts in other knowledge systems include “living in harmony  
16 with nature” and “Mother Earth” and “nature’s gifts”, which are not easily reduced to  
17 transferable or generalizable content. The IPBES Conceptual Framework has made  
18 progress in trying to generalize these concepts by attempting to recognize a diverse  
19 array of worldviews and knowledge systems into one framework which guides all  
20 IPBES assessments (Bohensky and Maru, 2011<sup>BIB-008</sup>).

1           Reviewing the history of ILK in other global science assessments is  
2 challenging due to the inconsistent use of terms and their varying definitions (Usher,  
3 2000<sup>BIB-041</sup>). A notable development that may have been the impetus for the  
4 recognition of ILK in international processes and assessments was the establishment  
5 of the Convention on Biological Diversity (CBD) in 1993. Within the text of the  
6 Convention and its articles, namely, Article 8(j) and Decision IV/9,<sup>1</sup> the importance of  
7 connections between biological diversity and IPLCs was stressed and highlighted.  
8 ILK and associated practices are considered important and relevant for achieving  
9 conservation goals and are treated with the same importance and relevance as any  
10 other form of knowledge in the implementation of the CBD.

11           Following this example in the CBD, ILK has since been included in several  
12 regional and international assessments. For example, the intergovernmental Arctic  
13 Climate Impact Assessment (ACIA), published in 2004, drew explicit attention to  
14 Arctic Indigenous Peoples and their knowledge systems. The assessment summary  
15 showed many visuals depicting the impact of climate change on Arctic Indigenous  
16 Peoples and used strategies of representation throughout the summary report  
17 (including in text, perspectives, quotes, and case studies, among others) (ACIA,  
18 2004<sup>BIB-001</sup>; Martello, 2008<sup>BIB-027</sup>). In 2005, the Millennium Ecosystem Assessment  
19 (MA) was touted as one of “the first global assessments to attempt to incorporate  
20 multiple scales and multiple knowledge systems” (Gómez-Baggethun et al., 2013<sup>BIB-</sup>  
21 <sup>018</sup>; Reid et al., 2006<sup>BIB-032</sup>). However, in some views, the incorporation of multiple



1 knowledge systems in the MA did not achieve its full potential (Sutherland et al.,  
2 2014<sup>BIB-036</sup>), and was primarily limited to regional sub-assessments and not the full  
3 MA (Ericksen and Woodley, 2005<sup>BIB-014</sup>). Further, the MA work was difficult because  
4 the methods to assess the key findings were based on a “standardized consensus view  
5 on biodiversity and on biodiversity knowledge” (Filer, 2009<sup>BIB-017</sup>) and its conceptual  
6 framework was already deeply rooted primarily in Western science (Turnhout et al.,  
7 2016<sup>BIB-040</sup>).

8         The Intergovernmental Panel on Climate Change (IPCC) has also recognized  
9 the value of including different knowledge systems into their assessments but has run  
10 into challenges. ILK often appears in grey literature or in non-written forms, which  
11 may exclude these contributions from the evidence base on which IPCC draws under  
12 their procedures (Raygorodetsky, 2011<sup>BIB-031</sup>), as authors are given guidance to “avoid  
13 the use of non-published and non-peer reviewed (“grey”) literature as much as  
14 possible” (IPCC, 2010).<sup>2</sup> There has also been a lack of balance in ILK expertise and  
15 focus among IPCC authors, as only a small percentage of the authors had published  
16 any material on climate change and Indigenous Populations (Ford et al., 2012<sup>BIB-015</sup>).  
17 Nonetheless, having authors with previous experience in ILK issues is not equivalent  
18 to having ILK incorporated into the assessment. To achieve that goal, procedures for  
19 inclusion should be explicit and emphasized (Turnhout et al., 2016<sup>BIB-040</sup>). Similarly,  
20 although there is evidence that ILK has become more prominent over time in the  
21 IPCC Assessment Reports, coverage of ILK continues to be general in scope and

1 limited in length, with its historical and contextual complexities being largely  
2 overlooked (Ford et al., 2016<sup>BIB-016</sup>).

3         There are strong arguments in favor of incorporating multiple knowledge  
4 bases within a single assessment. The benefits of having recognition of ILK in global  
5 science processes include “a normative function that increases the legitimacy of the  
6 process; a substantive function that strengthens the knowledge base toward more  
7 appropriate solutions; and/or an instrumental function that supports more  
8 collaborative relationships and joint ownership of the knowledge produced”  
9 (Montana, 2017<sup>BIB-029</sup>: 24). To some degree, IPBES continuing work in this area is  
10 aimed at showcasing the important roles ILK can play and highlighting how these  
11 benefits can be shared in other global assessments and in biodiversity governance and  
12 sustainability decision-making.

### 13 **Operationalization of ILK in the IPBES work programme**

14 IPBES’s innovative approach to the inclusion of ILK in assessments has been explicit  
15 from the beginning. Thus, the first work programme for IPBES agreed upon by  
16 member states included Deliverable 1(c) on “Procedures, approaches and  
17 participatory processes for working with indigenous and local knowledge systems”.

18 Even prior to the formal establishment of IPBES, there were several ad hoc and multi-  
19 stakeholder meetings and consultations to discuss the role of ILK, among other issues.

20 At the first ad hoc intergovernmental and multi-stakeholder meeting in 2008, a

1 concept note called for improved dialogue between different knowledge systems  
2 regarding biodiversity and ecosystem services. At the third ad hoc intergovernmental  
3 and multi-stakeholder meeting in 2010, members adopted the Busan Outcome, which  
4 states that all the work of IPBES should recognize and respect the contribution of ILK  
5 to the conservation and sustainable use of biodiversity and ecosystems. In 2017, the  
6 member states of IPBES additionally approved an *Approach to recognizing and*  
7 *working with indigenous and local knowledge* (Annex II to decision IPBES-5/1),  
8 stating that the approach will be undertaken in line with the approved rules and  
9 procedures of IPBES and in accordance with internationally recognized rights of  
10 Indigenous Peoples and relevant commitments related to local communities.

11 As the first work programme has evolved over the past five years, IPBES has  
12 worked to incorporate ILK across all IPBES deliverables and functions. Several steps  
13 and procedures have helped consolidate the role ILK should play within IPBES. A  
14 2013 international expert workshop on “The Contribution of Indigenous and Local  
15 Knowledge Systems to IPBES: Building Synergies with Science”, held in Tokyo,  
16 aimed at examining the procedures and approaches for working with ILK within  
17 IPBES and the review and assessment of possible conceptual frameworks (Thaman et  
18 al., 2013<sup>BIB-039</sup>). One recommendation was that an ILK Task Force on Indigenous and  
19 Local Knowledge Systems be set up within IPBES to “oversee the development of  
20 procedures and approaches for working with indigenous and local knowledge  
21 systems, including convening global dialogue workshops and developing case

1 studies”. The Task Force in the first work programme comprised of 26 members from  
2 all regions, and currently includes 14 members, whose focus is to work on the  
3 implementation of objective 3 (b) "Enhanced recognition of and work with indigenous  
4 and local knowledge systems” of the rolling work programme of IPBES up to 2030.”  
5 Additionally, a Technical Support Unit (TSU) for ILK has been hosted at UNESCO in  
6 Paris since 2015, which helps to coordinate work and assist the Task Force with  
7 events and other activities.

8 ILK has been addressed specifically within the assessments conducted by  
9 IPBES through use of the Multiple Evidence Base (MEB) approach, which puts ILK  
10 on an equal footing with globally generated “science” (Hill et al. 2020). The MEB  
11 approach notes that there are “parallels where indigenous, local, and scientific  
12 knowledge systems are viewed to generate different manifestations of valid and useful  
13 knowledge” (Tengö et al., 2014<sup>BIB-037</sup>). For example, there may be differences in  
14 spatial scale or temporal dimensions between different knowledge systems that can be  
15 combined in a process of triangulation and synergy (ibid.).

16 IPBES assessments address ILK on the basis of several key principles, as  
17 identified in Hill et. al (2020): respecting rights of IPLCs; supporting care and  
18 mutuality; strengthening IPLCs and their knowledge systems; and supporting  
19 knowledge exchange. The overall IPBES approach has four phases to recognize and  
20 work with ILK within assessments. Each of them addresses a specific set of  
21 conceptual, procedural and institutional challenges:

- 1           1. The first phase is the stage of developing the scoping document for any  
2           given assessment; this includes thinking through the broad policy-  
3           relevant questions that the assessment could answer involving issues of  
4           concern to IPLCs, and which can be addressed through working with  
5           ILK.
- 6           2. The second phase refers to gathering a wide array of evidence and  
7           information, which can take on various forms outside of the formal  
8           peer-reviewed scientific literature.
- 9           3. The third phase consists of appropriately engaging IPLCs in the review  
10          of the various drafts of a specific assessment to make sure the  
11          assessment represents their views and knowledge systems.
- 12          4. Finally, the fourth phase involves knowledge sharing with appropriate  
13          IPLCs, so they can make use of the outcomes generated by  
14          assessments.

15   The rest of this chapter will detail some of the activities that the IPBES GA author  
16   team engaged in to recognize and work with ILK systems.

## 17   **Processes for the inclusion of ILK in the Global Assessment**

18   The Global Assessment (GA), which was designed to “assess the status and trends  
19   with regard to biodiversity and ecosystem services, the impact of biodiversity and  
20   ecosystem services on human well-being and the effectiveness of responses” (Annex I

1 to decision IPBES-4/1), was accepted by member countries in May 2019 (Decision  
2 IPBES-7/1, Section II). The GA included a goal of engaging different knowledge  
3 systems in a transparent, equitable and legitimate manner through a multi-pronged  
4 strategy to ensure that ILK was brought into the work on an equal footing as other  
5 knowledge systems. The process of operationalizing ILK within the GA included  
6 forming an ILK liaison group within the assessment; ensuring grey literatures and  
7 other forms of knowledge were assessed and included together with scientific  
8 literature; issuance of a global call for citations of ILK; and holding dialogues with  
9 ILK groups and other stakeholders (McElwee et al. 2020).

#### 10 **The ILK liaison group**

11 The Global Assessment was prepared by 145 expert authors from 50 countries; most  
12 were natural scientists but, compared to previous assessments, the number of social  
13 scientists was considerable. To bring ILK into the assessment, special attempts were  
14 made during the selection of the coordinating and lead authors who wrote the report to  
15 include those with specializations in IPLC issues or working in areas that overlap with  
16 IPLC. In IPBES, three “knowledge holder” categories were distinguished: (1) ILK  
17 holders are members of IPLC who possess and practise ILK; (2) ILK experts are  
18 scientists, NGO representatives, or practitioners who are members of IPLC but at the  
19 same time have experience in science and /or policy (they may also be ILK holders);  
20 and (3) experts on ILK who are not IPLC members but have experience in working

1 with IPLC and studying ILK. Among the GA authors were several ILK experts and  
2 around 20 experts on ILK.

3         These authors formed an ‘ILK liaison group’ to help discussions on ILK and  
4 IPLC-related topics throughout the working meetings of the GA, and the group  
5 developed a guidance document to facilitate the consistent inclusion of ILK and topics  
6 highly relevant to IPLC throughout the GA. Furthermore, cross-chapter story lines  
7 were developed for topics, including, for example, IPLCs and protected areas, how  
8 changes in NCP impact IPLCs, the impacts of global telecouplings on IPLC  
9 livelihoods, and the contributions of IPLC to urban populations. Another important  
10 role of the liaison group was to scale-up experiences learnt from local case studies, so  
11 they might be used throughout the assessment.

## 12 **ILK grey literatures and other forms of written texts**

13 IPBES has made a concerted effort to consider forms of literature beyond peer-  
14 reviewed scientific literature. As such, authors were strongly encouraged to explore  
15 the importance of grey literature (e.g., technical reports, policy briefs, or case study  
16 compilations) as a vital complement to the peer-reviewed scientific references.

17 Although often not considered a scholarly form of publication, grey literature offers  
18 an opportunity to uncover important information on ILK and thus minimize bias in  
19 using comprehensive and balanced evidence (Thaman et al., 2013<sup>BIB-039</sup>). For  
20 instance, reference documents compiled by Indigenous Peoples’ Organizations (IPOs)

1 can provide a more inclusive and representative picture of ILK in different parts of the  
2 world than the scientific literature published on IPLC. Moreover, recent research  
3 suggests that over one third of new scientific conservation science documents are  
4 published in languages other than English, despite the assumption of English as the  
5 scientific “lingua franca” (Amano et al., 2016<sup>BIB-003</sup>). These figures are arguably  
6 higher in the case of ILK literature, which is often unavailable in English, and rather  
7 published in local languages relevant to the IPLCs themselves. IPBES has placed a  
8 strong emphasis on overcoming language barriers through strategically creating multi-  
9 lingual author teams to avoid the problem of some ILK literature being potentially  
10 overlooked, as ignoring such non-English literature can contribute to biases in global  
11 understanding of ILK.

## 12 Solicited inputs through online calls

13 As part of the consultation strategy and to fuel the synthesis on ILK trends in the GA,  
14 an online call for contributions was launched in Spring 2017. The request sought to  
15 gather information on different types of inputs, including: (1) publications, data and  
16 knowledge (including scientific literature on ILK, reports, grey literature, or datasets),  
17 (2) IPLC networks and organizations, and (3) individual experts on ILK and ILK  
18 experts and holders. Submissions were called for within different broad and cross-  
19 cutting topics. The request was launched in English, Spanish, and French in an  
20 attempt to reach a wider audience. A publications database created from this call



1 consists of nearly 1200 academic articles, reports, websites, and videos in about 16  
2 languages, some of which are Indigenous, and was made available in a searchable  
3 repository to the GA experts to facilitate inclusion in assessment chapters. The  
4 information received on organizations and experts was used to identify new aspects  
5 not yet covered in the assessment; it was also used to identify contributing authors  
6 (who write additional material on specific issues related to ILK for the different  
7 chapters).

## 8 Dialogues with ILK-holders and IPLCs

9 The GA launched eight Dialogue Workshops and consultations reaching over 250  
10 people and allowing for constructive engagement with established networks of ILK  
11 holders, following similar dialogues for other IPBES reports. IPBES has used both  
12 existing meetings where IPLC representatives are important interlocutors to hold side  
13 dialogues, as well as setting up task-designated dialogues to review ongoing  
14 assessments. ILK Dialogue Workshops were also held for the four regional  
15 assessments that were prepared in 2015–2018 and serve as a tangible resource for  
16 future assessments (Baptiste et al., 2017<sup>BIB-005</sup>; Karki et al., 2017<sup>BIB-024</sup>; Roué and  
17 Molnár, 2017<sup>BIB-034</sup>; Roué et al., 2017<sup>BIB-033</sup>). These dialogues have included many  
18 activities, such as presenting the aims and goals of IPBES; soliciting additional ILK  
19 reports to be included in the assessment; discussing and dialoguing with IPLC  
20 representatives for first-hand information on topics ranging from ILK to policies to

1 support IPLCs; and requesting feedback on what aspects of IPBES reports might be  
2 particularly useful for IPLCs (see McElwee et al. 2020 for details). A total of eight  
3 ILK Dialogues were held for the GA, although funding to secure these meetings and  
4 ensure representation was a considerable challenge.

5 One such dialogue was held on the sidelines of a “Dialogue on Human Rights  
6 and Biodiversity Conservation” meeting, organized by the Forest Peoples’  
7 Programme, Swedbio, and other local partners, held in Kenya in November 2017. The  
8 objective of the Dialogue was to identify and “suggest improvements to existing  
9 approaches, tools, and practices for ensuring that respect for human rights strengthens  
10 the ability to achieve conservation targets, and that securing conservation targets  
11 improves communities’ ability to secure their human rights” (Malmer et al., 2018<sup>BIB-</sup>  
12 <sup>026</sup>). Participants included representatives of several communities in Central and East  
13 Africa facing conservation conflicts with government authorities (including the Ogiek  
14 and Sengwer in Kenya, Batwa communities in Uganda and the Democratic Republic  
15 of Congo, and Maasai in Tanzania). It also included representatives of Hmong and  
16 Karen communities in Thailand and Aboriginal communities in Australia. Key issues  
17 discussed at the Kenya dialogue were:

- 18 • the interface and relation between scientific knowledge and ILK;
- 19 • how denigration of ILK contributes to the potential for displacement  
20 and conflict;

- 1           • opportunities and tensions surrounding the balance of human rights  
2           and biodiversity conservation;
- 3           • IPBES's accountability and how the assessment work can be used by  
4           IPLC communities to assist their efforts in recognition and rights.

5 Another dialogue was held at the Tenth meeting of the Ad Hoc Open-ended Working  
6 Group on Article 8(j) and Related Provisions of the Convention on Biological  
7 Diversity in December 2017, in Montreal, Canada. This Dialogue was organized in  
8 close collaboration with the Secretariat of the Convention on Biological Diversity and  
9 the International Indigenous Forum on Biodiversity (IIFB). The main objective was to  
10 engage leading experts and representatives from IPLC in the IPBES process by  
11 introducing IPBES and the GA and providing a space for IPLC representatives to  
12 discuss issues that challenge their communities and how these issues were or were not  
13 being addressed within the GA. Through this Dialogue, lead authors participating  
14 were able to improve current drafts of the GA. The Dialogue participants were split  
15 into four different groups discussing, broadly, four different themes: (1) biodiversity  
16 changes and drivers; (2) IPLC main concerns and priority areas; (3) potential policy  
17 pathways for IPLCs to conserve biodiversity; and (4) what options and opportunities  
18 identified could be important for IPLCs. Participants included 24 representatives from  
19 IPLCs from all global regions, 6 IPBES authors, 3 IPBES secretariat members, 3  
20 CBD secretariat members, and 4 observers.

1           A dedicated ILK Dialogue Meeting in Helsinki, Finland, in June 2018, funded  
2 by the Government of Finland, was also held with Indigenous Peoples’  
3 representatives from across the Arctic to discuss their specific concerns surrounding  
4 issues addressed in the GA, including climate change impacts on IPLCs and the  
5 biodiversity they depend on. This meeting was organized in close collaboration with  
6 the Secretariat of the Arctic Council and the Indigenous Forum on Biodiversity  
7 (IIFB), as well as with the representative bodies of the six Indigenous Communities  
8 that hold a status of Permanent Participants at the Arctic Council. The Dialogue  
9 included a public seminar at the University of Helsinki with the aim of fostering  
10 critical, interdisciplinary and evidence-based discussion on the importance of bridging  
11 diverse knowledge systems for Arctic sustainability.

12           Additional dialogues were held at the Annual Meeting of the UN Permanent  
13 Forum on Indigenous Issues in New York City in Spring 2017 and 2018, where the  
14 Permanent Forum formally endorsed the ILK strategy of IPBES; and side events at  
15 academic and practitioner conferences that focused on ILK and IPLCs, including at  
16 the Society for Ethnobiology in May 2017 in Montreal, the Community Conservation  
17 and Livelihoods conference in May 2018 in Halifax, and in the International Society  
18 of Ethnobiology meeting in Belém, Brazil in 2019.

19   **How ILK has been incorporated into the Global Assessment**

1 The IPBES GA writing team organization included lead authors working by chapters  
2 (six in total), each focused on a different theme laid out in an initial scoping  
3 document. Accordingly, ILK has been incorporated into the different chapters in  
4 different ways (IPBES, 2019<sup>BIB-023</sup>). The first chapter defines the scope of the  
5 assessment and presents the IPBES Conceptual Framework. In addition to explaining  
6 other components of the assessment, Chapter 1 provides a global overview of who  
7 IPLCs are, their populations and distribution, why they are important, and the lands  
8 and ecosystems that they manage, which include global estimation of lands held  
9 and/or managed by IPLCs and their ‘counter-mapping’ efforts, as well as a summary  
10 table with dimensions around “Recognizing the Global Diversity of Indigenous  
11 Peoples and Local Communities.” Thus, Chapter 1 sets the scene of the importance of  
12 IPLCs in relation to biodiversity and ecosystem services.

13 Chapter 2 is a large and complex chapter with a mandate to assess how direct  
14 and indirect drivers of biodiversity and ecosystem services cause change, what are the  
15 major trends in nature, how these changes in nature affect NCP, and finally how all  
16 these changes affect human well-being. ILK is brought into this chapter in diverse  
17 ways. Some sections prepared systematic reviews of peer-reviewed literature using  
18 search term-based reviews in Web of Science, Scopus, and Google Scholar. A  
19 limiting factor of these searches was the lack of proper key words to capture the  
20 complexity of the issues being analysed. For example, a section on the contributions  
21 of IPLC to biodiversity, its management and protection used the terms *nature*

1 *conserv\**, *biodiversity*, *cultural landscape*, *biocultural diversity* and others to cover  
2 the ecological aspects of these contributions, but additional searches had to be run and  
3 a careful examination of the reference lists of the reviewed publications had to be  
4 made to find the most relevant local cases. These local cases often delivered important  
5 messages to the GA, but in some cases, the lack of knowledge up-scaling mechanisms  
6 hindered the assessment of local perceptions of status and trends of drivers, nature and  
7 NCP considerably. Grey literature (including films and other visuals) and discussions  
8 during the different Dialogue meetings proved highly relevant for understanding  
9 recent advances that had not yet reached the peer-reviewed literature. Key information  
10 conveyed in Chapter 2 includes data on amounts of biodiversity within landscapes  
11 managed by IPLC; the trends in ecosystems whose biodiversity has co-evolved with  
12 and have been managed by IPLCs; identification of the main drivers of change in  
13 IPLC areas; and documentation of how these changes are influencing local  
14 livelihoods, NCP, and the ability of IPLC to manage and conserve nature.

15 Chapter 3 assesses progress towards meeting major international objectives  
16 related to biodiversity and ecosystem services, and specifically the Aichi Biodiversity  
17 Targets (ABTs) and the Sustainable Development Goals (SDGs). Key information  
18 conveyed by this chapter includes discussion of how IPLC contribute to specific goals  
19 and targets; what factors help or hinder this contribution; and the type of recognition  
20 or benefits they receive from their contribution to these goals. The main strategy to  
21 address these issues was a peer-reviewed literature review. A group of 30 invited

1 experts acting as “Contributing Authors” were asked to conduct a systematic literature  
2 review focusing on the role of IPLC in each of the ABTs and SDGs. To ensure  
3 homogeneity, the chapter leadership team provided specific guidelines on how the  
4 literature review should be conducted and how to organize the information:  
5 Contributing Authors were asked to conduct a search in Web of Science with a first  
6 line capturing topics related to IPLC and ILK (e.g., “*indigenous communit\**” OR  
7 “*indigenous people\$*” OR “*local communit\**” OR *aborigin\** OR “*traditional*  
8 *ecological knowledge*” OR “*TEK*” OR “*indigenous knowledge*” OR “*traditional*  
9 *management*” OR “*indigenous management*” OR *ILK*, and a second line with key  
10 words related to the ABT or SDG they were addressing. Then, the authors organized  
11 information from the literature review addressing the following topics: (1) what have  
12 been IPLC contributions to achieve the ABT/SDG?; (2) how does progress (or lack of  
13 progress) in achieving the target affect IPLC?; and (3) to what extent are IPLC  
14 recognized, valued, and benefit from contributing to the target? Authors were asked to  
15 complement the text and the list of references with references and ideas from their  
16 own work, and to provide a case study to illustrate any of the three questions above.  
17 The text produced by the Contributing Authors (about 1,300 words each) was then  
18 sent to three or four experts on the topic for external review. Experts were encouraged  
19 to highlight any gaps in the topics or references covered, and the text was reviewed  
20 accordingly. Chapter 3 includes a condensed version of each text produced by this  
21 process, with the full text and the complete list of references appearing as an annex.

1 One caveat of this type of analysis that, while comprehensive within existing  
2 literature, it does not capture well the views of IPLCs themselves.

3         Chapters 4 and 5 deal with scenarios, and therefore had a major challenge in  
4 incorporating lessons from ILK in scenario development. The primarily use of ILK in  
5 these chapters has been to understand the potential impact of future pathways of  
6 change for IPLCs. Chapter 4, for example, notes that future development scenarios  
7 are likely to have significant impact on lands inhabited by IPLC and their  
8 biodiversity. Key information in these chapters has included assessment of the ways  
9 future development scenarios are likely to impact lands inhabited by IPLC and their  
10 biodiversity; how social and environmental changes such as population growth or  
11 consumption impact IPLCs; and challenges in reconciling the rights and needs of  
12 IPLCs with projected expansion in food, energy, water, and resource extraction to  
13 2050.

14         Chapter 6 of the IPBES Global Assessment aims to identify options available  
15 to decision-makers in order to achieve the transformative change envisioned by the  
16 2030 UN Agenda for Sustainable Development. The chapter specifically identifies  
17 policy options, including those that can be taken by IPLC, and those options taken by  
18 others that might impact on IPLC, in the context of sustainability decision-making. As  
19 part of these efforts, chapter experts conducted a comprehensive literature review  
20 addressing the effectiveness of several biodiversity-related policy instruments from  
21 the perspective of IPLC, including protected areas, land tenure recognition, payments



1 for ecosystem services, Reduced Emissions from Deforestation and Degradation  
2 (REDD), and sustainable wildlife management. The chapter explores the factors and  
3 conditions maximizing or undermining IPLC contributions to biodiversity  
4 conservation, as well as how policy approaches might be reframed towards more  
5 inclusive environmental governance, including rights-based approaches, inclusive and  
6 adaptive governance, and reconfiguration of global economic processes. In particular,  
7 experts in this chapter focused on how to articulate knowledge co-production in  
8 sustainability decision-making and to promote recognition of ILK, thereby enhancing  
9 the legitimacy and effectiveness of environmental policies.

## 10 Conclusion: lessons learned for other science assessments

11 Even though IPBES is a relatively young global institution, its knowledge products  
12 and assessments have been favourably compared with other assessments like the  
13 IPCC and MA for its inclusivity and interdisciplinarity (Beck, 2014<sup>BIB-006</sup>;  
14 Obermeister, 2017<sup>BIB-030</sup>). Part of this engagement has included the attention to ILK  
15 and IPLC outlined here. To achieve this inclusivity, it has clearly been fundamentally  
16 important that IPBES has recognized the usefulness and importance of ILK within its  
17 conceptual framework, a decision which has influenced all subsequent work products  
18 (Díaz-Reviriego et al. 2019).

19 Tengö et al. (2017<sup>BIB-038</sup>) note that there are potentially five different steps  
20 through which bridging of knowledge systems can happen in assessments:

- 1           1. mobilization (the development of knowledge products through  
2           engagement);
- 3           2. translation (the adaption of knowledge products across different  
4           systems and actors);
- 5           3. negotiation (interacting among knowledge systems to develop joint  
6           representations);
- 7           4. synthesis (shaping common knowledge towards a purpose);
- 8           5. application (using knowledge bases to make decisions).

9   Each of these approaches has been a part of the GA thus far, although the last step,  
10 application, remains particularly challenging, as there has not been adequate funding  
11 for planning post-GA follow-up activities, although this aspect is anticipated to  
12 change within the next work programme of IPBES and post-assessment follow- up  
13 activities are expected to be conducted.

14           In terms of mobilization, it has been a challenge to balance large-scale  
15 synthesis of ILK with the need for attention to contextualized knowledge, often  
16 represented through specific local case studies. The systematic literature reviews have  
17 been open to multiple sources of evidence beyond science, and the online calls for  
18 citations and case studies have been useful for opening up the process beyond initial  
19 experts' knowledge. Translation has also been a successful part of IPBES processes  
20 thus far, as the multiple dialogues have been designed to ensure exchanges between  
21 scientists and ILK-holders with translation processes moving both ways. However, by

1 necessity, these dialogues have primarily involved ILK holders and ILK experts  
2 already engaged in global fora (such as the CBD or academic conferences) and thus  
3 reaching ILK holders still practising ILK and not already partnering with global  
4 institutions remains a challenge. Finding sufficient and sustained funding support is a  
5 critical limiting factor to ensure IPLC participation.

6 Negotiation can be seen in the development of the Conceptual Framework and  
7 the marriage of multiple ontologies within that schematic (Borie and Hulme, 2015<sup>BIB-</sup>  
8 <sup>009</sup>). Part of negotiation also involves agreeing on the appropriate validation  
9 mechanisms between knowledge systems (Lofmarck and Lidskog, 2017), which  
10 remains an ongoing process for IPBES. Synthesis has been achieved in the GA and  
11 other assessments in that final work products reflect a common purpose to drive more  
12 careful management of biodiversity by multiple stakeholders. However, these  
13 syntheses have faced challenges as well: the diversity of ILK knowledge can become  
14 “flattened” and decontextualized through synthesis if not careful (ibid.) or be missing  
15 components when disassociated from institutions used to manage ILK on the ground  
16 (Tengö et al., 2017<sup>BIB-038</sup>).

17 In the long term, it is hoped that the GA’s emphasis on the inclusion of ILK  
18 and IPLC will serve as a model for other assessments seeking to contribute to more  
19 respect and recognition of ILK, and for people as holders of this knowledge, as well  
20 as to more robust decision-making processes among a range of stakeholders.

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12 Helsinki, Helmholtz Centre for Environmental Research, and the Forest People's  
13 Programme.

## 14 Notes

15 1 Article 8(j) states the need to do the following:

16       Subject to its national legislation, respect, preserve and maintain knowledge,  
17       innovations and practices of indigenous and local communities embodying traditional  
18       lifestyles relevant for the conservation and sustainable use of biological diversity and  
19       promote their wider application with the approval and involvement of the holders of  
20       such knowledge, innovations and practices and encourage the equitable sharing of the  
21       benefits arising from the utilization of such knowledge, innovations and practices.

1 2 The General Guidance Note on the Use of Literature in IPCC Reports and Appendix  
2 A to the Principles Governing IPCC Work states that “Contributions should be  
3 supported as far as possible with references from the peer reviewed and  
4 internationally available literature, and with copies of any unpublished  
5 material cited.”

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