

Report

**Second Indigenous and local knowledge
dialogue workshop**

for the

**IPBES assessment of the nexus of
biodiversity, water, food and health**

Reviewing the first drafts of the chapters

17 – 19 January 2023, Chiang Mai, Thailand



Suggested citation:

IPBES (2023). Joji Cariño, Udom Charenniyomphrai, Florence Daguitan, Guadalupe Yesenia Hernández Márquez, Somphop Jiraphapairot, Edna Kaptoyo, Chupinit Kesmanee, Praewa Narrarakphraiwong, Jorni Odochao, Kamal Kumar Rai, Suwichan Phattanaphraiwan, Chaiprasert Phokha, Sherry Pictou, Loupa Pius Songphonsak Rattanawilailak, Prasit Siri, Lakpa Nuri Sherpa, Polina Shulbaeva, Prayad Suachuchip, Daepho Srivanalapsiri, Yanika Thamoon, Naw Aeri Thungmuangthong, Prasert Trakansuphakon, Dilok Trakulrungamphai, Nai Phakaesaw Wiangchomthong. Report of the second Indigenous and local knowledge dialogue workshop for the IPBES assessment of the nexus of biodiversity, food, water and health: reviewing the first order draft. 17 – 19 January 2023, Chiang Mai, Thailand.

Disclaimer: The text in section 3, represents an attempt to reflect solely the views and contributions of the participants in the dialogue. As such, it does not represent the views of IPBES or UNESCO or reflect upon their official positions.

Acknowledgements

We are very grateful to the Pgakenyaw Association for Sustainable Development (PASD) for their support in organizing and carrying out the workshop, including for connecting the workshop with Indigenous leaders from across northern Thailand and for organizing community visits, which greatly added to the learning and experience of the workshop. We are also very grateful to the communities of Hin Lad Nai and Bann Huay E Kha for hosting the community visits and for sharing their time and knowledge with participants. We are also grateful to Asia Indigenous Peoples Pact for their support.



Participants in the forest near Hin Lad Nai

Contents

1	Introduction	5
2	Background	6
2.1	IPBES and ILK.....	6
2.2	The IPBES nexus assessment.....	7
2.3	Context for the dialogue workshop	8
2.4	Objectives of the dialogue workshop	9
2.5	Dialogue workshop methods	9
2.6	Free, prior, and informed consent.....	9
2.7	Benefits to IPLCs of participating in the assessments.....	10
3	Key recommendations and learning from the dialogue workshop	11
	Overarching comments.....	11
	Chapter 1: Introducing and conceptualizing the nexus	12
	Chapter 1: Examples	13
	Chapter 1: Reflections on IPLC representations of the nexus	16
	Chapter 1: Creating an IPLC representation of the nexus	17
	Chapter 2: Status and trends in the nexus.....	18
	Chapter 2: Examples	21
	Chapter 3: Future interactions across the nexus.....	24
	Chapter 4: Policy, social and political actions for good futures.....	25
	Chapter 4: Customary governance	25
	Chapter 4: Examples around customary governance	27
	Chapter 4: Evaluation and monitoring.....	31
	Chapter 4: Gender.....	32
	Chapter 4: Research and education.....	32
	Chapter 5: How to deliver sustainable approaches in different sectors	34
	Chapter 5.1: Water	34
	Chapter 5.1: Examples	35
	Chapter 5.2: Food systems.....	38
	Chapter 5.3: Health	41
	Chapter 5.3: Examples	42
	Chapter 5.4: Biodiversity conservation.....	45

Chapter 5.5: Climate change adaptation & mitigation	47
Chapter 6: Ways forward for public and private finance	48
Chapter 6: Examples	50
4 Next steps	52
Annexes.....	53
Annex 1: Draft Agenda	53
Annex 2: FPIC document.....	54
Annex 3: Participants of the dialogue workshop.....	56
Annex 4: Images for conceptualizing the nexus	58

1 Introduction

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is developing an assessment of the [nexus of biodiversity, water, food and health \(the nexus assessment\)](#). The second Indigenous and local knowledge dialogue for the assessment was held from 17 to 19 January 2023, in Chiang Mai, Thailand.

The workshop was organised within the first external review period of the nexus assessment (9 January to 19 February 2023), and aimed to provide a platform for Indigenous Peoples and local communities (IPLCs) to discuss the draft chapters with assessment authors.

This report aims to provide a written record of the dialogue workshop, which can be used by assessment authors to inform their work on the assessment, and by all dialogue participants who may wish to review and contribute to the work of the assessment moving forward.

The report is not intended to be comprehensive or give final resolution to the many interesting discussions and debates that took place during the workshop. Instead, it is intended as a written record of the discussions, and this conversation will continue to evolve over the coming months and years. For this reason, clear points of agreement and diverging views among participants are presented.

The text in section 3 represents an attempt to reflect solely the views and contributions of the participants in the dialogue. As such, it does not represent the views of IPBES or UNESCO or reflect upon their official positions.

The agenda and participants' list for the dialogue are provided in annexes 1 and 3.

2 Background

2.1 IPBES and ILK

IPBES is an independent intergovernmental body established to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development.

Since its inception in 2012, IPBES has recognized that IPLCs possess detailed knowledge on biodiversity and ecosystem trends. In its first work programme (2014-2018), IPBES built on this recognition through deliverable 1 (c), *Procedures, approaches, and participatory processes for working with Indigenous and local knowledge systems*. The IPBES rolling work programme up to 2030 includes objective 3 (b), *Enhanced recognition of and work with Indigenous and local knowledge systems*, which aims to further this work.

Recognizing the importance of ILK to the conservation and sustainable use of ecosystems as a cross-cutting issue relevant to all of its activities, the IPBES Plenary established a [task force on Indigenous and local knowledge systems](#) and agreed on [terms of reference](#) guiding its operations towards implementing this deliverable. IPBES' work with IPLCs and on ILK is supported by a technical support unit on ILK, hosted by UNESCO.

Key activities and deliverables to date include:

- Progress in the development of approaches and methodologies for working with ILK during previous IPBES assessments (Pollination, Pollinators and Food Production, Land Degradation and Restoration, four Regional Assessments and a Global Assessment of Biodiversity and Ecosystem Services, Sustainable Use of Wild Species, Diverse Values and Valuation of Nature);
- The development and implementation of the “[approach to recognizing and working with ILK in IPBES](#)”, which was formally approved by the Plenary at its fifth session in 2017 in decision IPBES-5/1, which sets out basic principles for IPBES's work with ILK;
- Development and implementation of methodological guidance for recognizing and working with ILK in IPBES, which aims to provide further detail and guidelines on how to work with ILK within the IPBES context;
- Development and implementation of a “[participatory mechanism](#)”, a series of activities and pathways to facilitate the participation of IPLCs in IPBES assessments and other activities; and
- Organizing [ILK dialogue workshops](#) for the IPBES assessments.

2.2 The IPBES nexus assessment

The nexus assessment runs from 2021 to 2024 and has roughly 165 authors from around the world. The nexus assessment will address the multi-scale interlinkages among biodiversity, food, water, and health, including climate change and relevant aspects of the energy system, and will consider holistic approaches based on different knowledge systems. It will consist of seven chapters and a summary for policymakers (SPM). The chapters are as follows:

- Chapter 1: Introducing the nexus
- Chapter 2: Status and past trends of interactions in the nexus
- Chapter 3: Future interactions across the nexus
- Chapter 4: Policy and sociopolitical options across the nexus that could facilitate and accelerate the transition to a range of sustainable futures
- Chapter 5: Options for delivering sustainable approaches (with subchapters on water; food systems; health; biodiversity conservation, restoration and sustainable use; and climate change, adaptation and mitigation, including relevant aspects of the energy system)
- Chapter 6: Options for delivering sustainable approaches to public and private finance for biodiversity-related elements of the nexus
- Chapter 7: Summary and synthesis of options, knowledge and technology gaps and capacity development

The nexus assessment will assess the state of knowledge, including ILK, on past, present, and possible future trends in these multi-scale interlinkages to inform the development of policies and actions.

The assessment will also consider the synergies and trade-offs in terms of broadly defined social, economic, and environmental impacts. Emphasis will be placed on response options that consider the nexus elements and their diverse dimensions, including the limits and safeguards needed to implement those options.

The assessment will also evaluate the role of the most important drivers of change, including societal values, production and consumption patterns, demography, technology, culture, governance, land- and sea-use change, direct exploitation of nature, climate change, pollution, and invasive species.

More information on the nexus assessment, including its scoping report, is available here: <https://ipbes.net/nexus>.

2.3 Context for the dialogue workshop

IPBES recognizes that IPLCs hold important knowledge, practices, innovations, worldviews, values, and management and governance systems related to the nexus of biodiversity, water, food and health. IPLCs also stand to be directly impacted by changes in the nexus, and by science, policy and action related to the nexus. Participation of IPLCs is therefore crucial to the nexus assessment.

Following the IPBES approach to ILK, dialogue workshops will provide a platform for discussions between IPLCs and assessment authors during the assessment cycle, as follows:

- Reviewing the scoping report (online, 16 July 2020);
- Discussing key ILK themes and framing of the assessment (29 June to 1 July 2022, Bonn, Germany);
- Reviewing the first drafts of the chapters (17 to 19 January 2023, Chiang Mai, Thailand); and
- Reviewing the first draft of the summary for policy makers (SPM) and the second drafts of the chapters (TBC – December 2023 – January 2024).

The dialogue workshops are part of a series of complementary activities for working with IPLCs and ILK throughout the assessment process, in the context of the implementation of the approach to ILK. Other activities of the approach include a call for contributions, the engagement of contributing authors, and review of peer-reviewed literature and other diverse materials (see Figure 1).

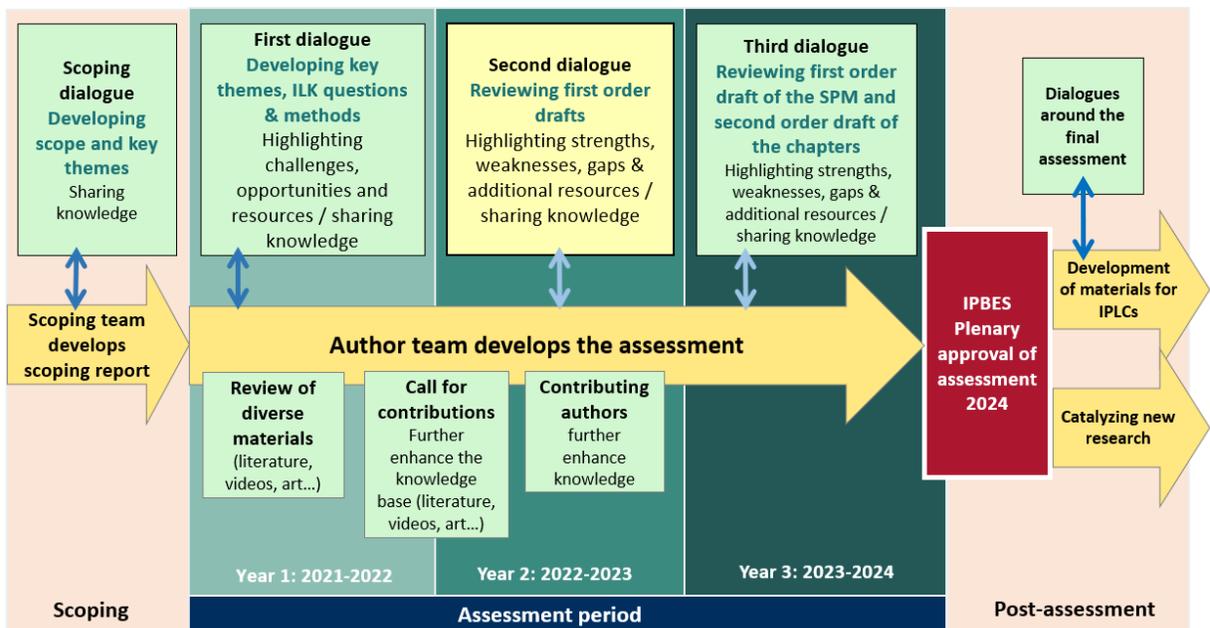


Figure 1: Timeline of work with ILK in IPBES assessments, following the IPBES approach to ILK.

2.4 Objectives of the dialogue workshop

The objectives of the ILK dialogue workshop in Chiang Mai were as follows:

- Review the first drafts of the nexus assessment for strengths, weaknesses and gaps related to ILK and IPLC visions, issues and concerns;
- Broadly discuss the themes of the assessment to explore how IPLCs conceptualize, understand, experience, manage and govern the nexus of biodiversity, food, water and health;
- Discuss recommendations for ways forward for the assessment from IPLC participants, including how the final assessment can be useful for IPLCs;
- From these discussions, prepare a series of comments for each chapter of the assessment, to be submitted into the assessment's formal first external review process for the attention of author teams; and
- Produce a publicly available report (this report) that can be a resource providing more information related to these comments.

2.5 Dialogue workshop methods

Methods for the dialogue workshop included:

- An opening ceremony by shamans from the Karen communities of northern Thailand;
- Presentations on IPBES, the draft chapters of the assessment, and Free Prior and Informed Consent (FPIC);
- Discussions with all participants around nexus themes;
- Community visits to the Karen villages of Hin Lad Nai and Bann Huay E Kha for discussions and forest walks with community leaders; and
- Working with participants, development of a series of comments for the assessment review process and development of a publicly available report, following principles of FPIC.

2.6 Free, prior, and informed consent

FPIC principles are central to IPBES work with IPLCs, and a series of ethical principles and have been developed to ensure that FPIC is followed in IPBES activities. These principles were agreed upon by the participants of the dialogue workshop, and will be followed by IPLC participants, assessment authors and the IPBES secretariat. The full agreed-upon text and the names of those agreeing to these principles are provided in annexes 2 and 3 to this report.

2.7 Benefits to IPLCs of participating in the assessments

During previous dialogue workshops, IPLC participants noted that there need to be clear benefits to IPLCs if they are to participate in an assessment process. Key benefits of participating in dialogue workshops, and the assessment as a whole, discussed by IPLCs include:

- The opportunity for IPLCs to share experiences with other IPLCs around the world;
- The opportunity for IPLCs to share and exchange experience and knowledge with IPBES assessment authors;
- The opportunity for IPLCs to learn about IPBES and how its products and processes might be of benefit to them;
- The opportunity to bring ILK and IPLC concerns and priorities to the attention of policymakers and decision-makers through the assessments; and
- Use of the final assessments as a tool when IPLCs are working with policymakers, decision-makers and scientists, noting that part of the planning for the final assessments includes the development of an accessible summary for IPLCs and other products.



Local shamans at the opening ceremony for the dialogue © PASD

3 Key recommendations and learning from the dialogue workshop¹

Over the course of the workshop, IPLC participants made a series of comments and recommendations for the nexus assessment, for the consideration of assessment authors. A synthesized version of these comments was submitted into the review process for the assessment, following participant approval. This section provides enhanced detail and background to these comments. As much as possible, the text reflects what was said during the workshop by participants, with only minimal editing.

Overarching comments

Participants noted that the assessment could be an important tool for communicating to the world about the holistic and systematic ways that IPLCs understand and manage the nexus. This could support a better understanding and respect for IPLCs and their knowledge, practices and innovations, whilst also supporting broader society to return to a more holistic, respectful relationship with Mother Nature.

Participants noted that IPBES is a good platform for communication between IPLCs, governments and broader society, and that IPBES messages can also be communicated to IPLCs living in communities, to increase internal awareness and pride of the knowledge and management systems within communities themselves.

However, participants noted that more support and attention is needed around implementation. Participants expressed concern that governments will not act on the findings of the nexus assessment and noted that there is a gap between work at the international level and implementation at the national level. They noted the importance of a clear evaluation of government implementation and activities, and assessment of ways forward based on this. They also noted that important progress is happening on-the-ground and at local levels, and that more work and strategies are needed to connect across the three levels of local-national-international.

Participants also expressed a desire to participate more closely in the process of the nexus assessment, so that they feel ownership of the process and of the assessment itself. This could

¹ Disclaimer: The text in section 3 represents an attempt to reflect solely the views and contributions of the participants in the dialogue workshop. As such, it does not represent the views of IPBES or UNESCO or reflect upon their official positions.

include IPLC oversight of case studies and chapters, and methods for doing collective reviews of chapters. They noted that this can be an important form of capacity-building for IPLCs. The process itself can also help to demonstrate to governments and others the different ways in which IPLCs can participate in different processes. Moreover, they noted that it is important to always highlight and acknowledge in the document that the ILK used in the assessment belongs to IPLCs, rather than the authors or IPBES.

Participants noted that IPLC organizations can work together to document, protect, strengthen and revitalize ILK and coordinate participation in the assessment processes.

Overall, participants noted the importance of ensuring benefits to IPLCs from the nexus assessment, including through products designed for IPLCs from the finalized assessment, for example a summary for IPLCs and activities and engagement after the assessment is completed.

Chapter 1: Introducing and conceptualizing the nexus

Participants reflected that work is still needed on how the assessment conceptualizes the nexus, to better reflect IPLC worldviews. One participant noted that people themselves can seem to be absent from the current conception. This attention to conceptualization applies not only to the concept of the nexus itself, which for IPLCs should be viewed as a holistic whole (see below) but also the nexus elements such as “health” and “biodiversity” which may be conceptualized very differently by IPLCs. They noted that other related concepts, such as “sustainability” may also need to be explored through IPLC worldviews.

Overall, participants noted that to reflect IPLC perspectives, conceptualizations of the nexus should be holistic. The nexus should thus be an integrated whole, rather than focusing on individual elements. The conceptualization of the “nexus” may also need to be much broader, to include spiritual aspects, and connections and harmony between territory, ancestors, and present and future generations, which may be best explored through symbols, language and rituals.

They further explained that within this integrated whole, key “interconnections” that could be discussed, or represented in a figure, include flows of energy, spirituality, ritual, ceremony, and ties of reciprocity, respect and caring for the lands, recognizing that for many IPLCs nature is experienced as a spiritual being or as a Mother. Customary governance, land and water management, sustainable use of wild species, and health systems are also key interconnections. Knowledge and practices are further important interconnections, including knowledge transfer from elders to youth, for example around water, food systems and health. Moreover, for IPLCs, “health” includes ritual, spiritual, mental, and physical wellbeing of people and all nexus elements. All of these aspects may best be conceptualized in a circular flow according to Indigenous principles and philosophies, as was shown in many of the diagrams designed by

workshop participants (see Annex 4). Maintaining a dynamic balance between elements, and between people and nature and flows of energy, is a key to IPLC conceptualizations of how the nexus should be managed.

Participants highlighted that the assessment should explore and highlight not only nature's contributions to people but also people's contributions to nature. In the case of IPLCs, this could mean following the IPBES Global Assessment of Biodiversity and Ecosystem Services to draw attention to good practices of IPLCs, e.g., management of biodiversity on their lands and culturally and environmentally appropriate sustainable food systems, as well as exploring reciprocity and maintenance of balance within the nexus. Chapter 1 and the entire assessment could thus deliver messages regarding the important contributions of IPLCs to the nexus. The assessment could also aim to help IPLCs value and document their own knowledge by showing how this could benefit their communities.

Participants noted that the assessment could also highlight that IPLCs are highly vulnerable to problems or imbalances within the nexus. For instance, loss of biodiversity affects the diversity of wild plants and animals used for food or medicines by communities, with impacts on all aspects of health.

Issues of scale will be important to address in chapter 1 and throughout the assessment, with attention to local and regional scales as this is often the level at which action is needed.

Chapter 1: Examples

An elder from Thailand explained that there are seven spiritual layers of earth and skies, which are all connected, which could be seen as a "nexus" for the Karen people. The balance in the nexus is therefore maintained through ritual and ceremony. For example, every part of the rice cycle, including planting and harvesting, has ritual attached to it.

During the community visit to Hin Lad Nai, community members explained the spiritual process that is tied to rotational farming, including offerings to the spirits to apologize for the burning of fields and to ensure plant regrowth, offerings to spirits to protect the crops from diseases, and offerings to ask for good food, including rice and eggs from hens. In this way, the community does not need to use chemical fertilizers or pesticides, as they have faith in the spirits, and they have always been successful in this way. Figure 2 provides a map of the rotational farming system.

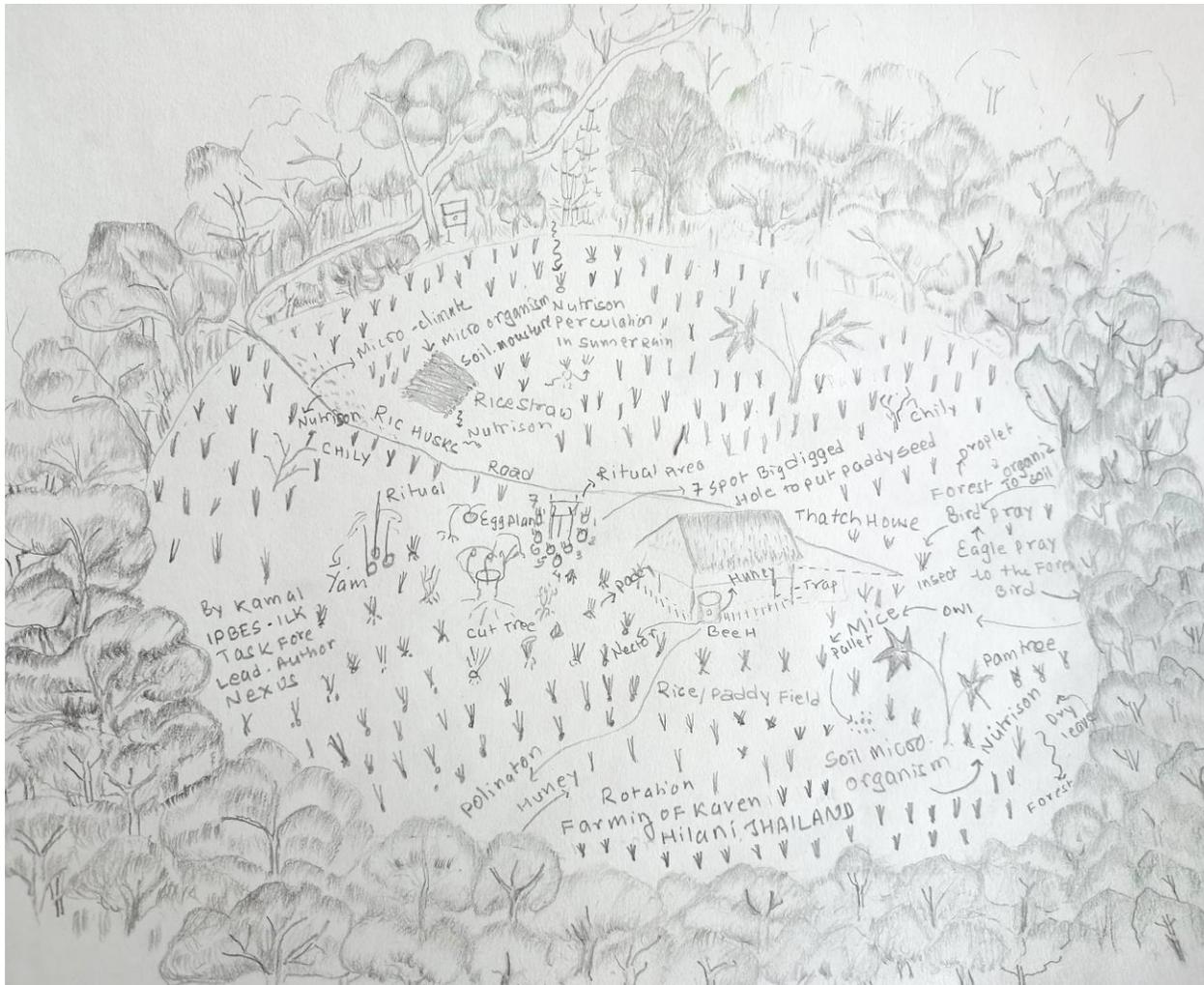


Figure 2. A map of the Hin Lad Nai farm system, sketched by Indigenous nexus assessment author Kamal Kumar Rai. ©Kamal Kumar Rai

A participant from Russia noted that in Siberia it is impossible to translate “nexus” into local Indigenous languages because it is impossible to separate biodiversity, health, water, and food. Instead, there is the “motherland”, where everything is interdependent. There are three areas, swamp, river and forest, where food is dependent on water and people and nature are one. The concept of sectors can therefore be used to communicate with governments, but for Indigenous Peoples it does not translate well.

A youth leader from Thailand noted that the concept of the nexus seems to separate water and land, and water and people, whereas in Indigenous conceptions people can be related to water, land, and forest. Food is also considered medicine, and as such is part of health, not separate from it.

Participants from the Philippines noted that there would not be a literal translation of “nexus”, but the concept of *ili* might be somewhat close. However, within *ili*, land and people cannot be

separated.² “Relationships” may also be in some ways similar to the idea of the “nexus”, and would include the ancestors and spirits (the “unseen”), as well as nature, territory, land, history, struggle, and common experiences. Within all of this, maintaining balance is key.

Another participant from Thailand noted that key concepts for thinking around the “nexus” could be “sacred” and “spirit” as these bind water, food, and health together, as well as people, for without the sacredness of water people lose their humanity. Another key concept is “flowing”, as everything that connects to nature is flowing – water is flowing in nature, blood is flowing in a body, air is flowing. He also highlighted that the nexus is the source of life, and a translation of nexus for his people could also be “the source of rice”. Within the nexus all should be equal, and humans are not living as separate from nature. He also noted that nature, water and food all have capacity to support life, and that IPLCs need to have rights to access that capacity.

A participant from Mexico reflected that there may not be a direct concept of the “nexus” in many communities, but they do have knowledge and understanding of the nexus, as they are always aware of the interlinkages between all the nature beings and Mother Earth. This conception of the nexus would include spirits and ancestors as part of the living world, unseen but protecting people and nature.

Another participant from Thailand reflected that within communities an understanding of the nexus is demonstrated through Indigenous knowledge, traditional technologies and livelihoods that are different from those of other groups. When community members work in the paddy fields, they are also working with ancestors who have passed away. They must also pay respect to the guardians of water and of fire. When gathering forest products, they understand the importance of gathering only what is needed and leaving some behind. To pass on and learn this knowledge, experience within livelihoods is needed.

A participant from Kenya noted that there is not one word that would translate “nexus” in her community. Instead, there is a natural order to the universe, and interlinkages are part of this cosmivision. There is a sacredness to the way they see the relationship between food, water, biodiversity, and health. Water is sacred and is life. Their food system is rooted in biodiversity. They do not talk about “health”, but instead about “wellbeing”, which goes beyond health. The conceptualisation also goes beyond these elements to include issues such as energy and equity. If people care for the land, it cares back for them. Stewardship is thus what sustains them as a people. This determines their governance and how they relate to each other.

² A diagram of this vision of the nexus from the Philippines can be found by authors and participants in annex 4, which is not appended to the publicly available version of this report.

A participant from Nepal explained that within his philosophy, his heartbeat, knowledge, and belief systems are a circle, elements are interlinked, and they communicate with each other. Mother Nature and ecosystems functions in this way also, and this all forms the ILK system. This needs to be reflected in policy, legal, scientific, and moral systems.

Chapter 1: Reflections on IPLC representations of the nexus

Participants reflected on the diagrams and figures that were created in the first dialogue workshop for the nexus assessment in Bonn in 2022,³ noting that there were many common themes between them, including circles, cycles and landscapes. Other images were also created by participants of the Chiang Mai workshop during these discussions.⁴

Participants from the Philippines also highlighted that agroecosystems, such as rice paddy terraces, provide good examples of the nexus, where biodiverse upper watershed forests protect headwaters which flow down into rice fields which in turn support high biodiversity and human health by providing nutritious, culturally appropriate foods. For example, in the paddy dykes there is significant agrobiodiversity, with different types of legumes. Moreover, the rice land is not just a production land but also a habitat where wild animals and plants can live. Within this, spirituality, ritual and respect among people, biodiversity, waters and lands are key. This is all linked by good knowledge and governance, as well as the flow of the river, similarly to other IPLC conceptions of the nexus discussed at the workshop where flows were emphasized. This, among many other examples, could help to “teach” the rest of the world how to think within or return to a holistic and dynamic way of being.

A participant from Russia reflected on the image she drew at the first ILK dialogue workshop in Bonn in 2022, showing that Indigenous Peoples in the middle of the system and that water, health, and all other elements are together and inseparable – if one is removed it will break the whole. These are all situated within the spiritual system.

A participant from Mexico reflected on complexity, cycles, elements, systems, and the flow of the universe, noting the importance of knowledge and cosmology. Within this, two important concepts are balance and reciprocity. A socio-ecosystem that could be an example is the agroecosystem, where social and natural elements are in balance.

A participant from Uganda explained that livelihoods would be a way of representing the nexus, as in Uganda their life stories begin with their livelihoods. For example, pastoralists are defined by their livestock, so they use a cow to represent their livelihood. Similarly, forest people identify

³ Authors and participants can see these images in annex 4 of this report, which is not appended to the publicly available version of this report.

⁴ Also available in annex 4.

with the trees, and fish represent fishing communities, and so on. The land is what supports the cattle, people, fish, and crops. He also drew a conceptualization of the nexus that aimed to reflect pastoralist worldviews and livelihoods.⁵

An elder from Thailand also drew a conceptualization of the nexus, explaining that the teachings of his ancestors are like the roots of a tree, participation in the meeting is like a tree trunk, while solutions are the branches and fruits.⁶

Chapter 1: Creating an IPLC representation of the nexus

Assessment authors asked participants if a single overarching figure could be developed for the assessment to illustrate the nexus, including both scientific and IPLC views, or if a single separate figure could represent IPLC conceptualizations of the nexus.

Participants emphasized that it is probably not appropriate to try to incorporate IPLC conceptualizations into a single figure with scientific worldviews, as it would be difficult to do justice to both.

Moreover, while noting the similarities between the images and conceptualizations created by the different participants, participants emphasized that it is probably not appropriate to attempt to create a single figure representing IPLC conceptualizations of the nexus, as much diversity would be lost. It was also noted that a formal process would be needed for IPLCs to jointly reach agreement on such a figure. It was instead proposed that a series of figures could be used to show the nexus from different IPLC worldviews, recognizing that these would not be reflective of all IPLCs, but would instead provide illustrative examples. Common threads, as well as differences, could then be drawn out and highlighted.

⁵ Also provided in annex 4.

⁶ Also provided in annex 4.



A rotational farming field in Hin Lad Nai, where food systems and biodiversity are supported by spiritual connections and ceremony

Chapter 2: Status and trends in the nexus

Participants noted that key trends within the nexus are mostly negative, and include:

- Declines in the abundance and health of culturally important wild species, including food animals and plants, medicinal plants, and microbiomes, with impacts on IPLC spirituality, wellbeing, and livelihoods.
- Declines in IPLC food systems, including moves away from diverse Indigenous and local traditional organic agricultural systems towards use of genetically modified seeds, monocropping, industrial chemicals and gene drives and consequent reductions in the diversity, taste and quality of foods available to IPLCs and reductions in the spiritual, ritual, language and cultural connections between lands, waters, foods and people.

- Declines in water systems, including droughts and water shortages and chemical contamination of water systems. Many IPLCs are now unable to rely on traditional water systems and are forced to buy water instead. Spiritual and cultural connections to waters decline as trust in the purity of water sources diminish.
- Declines in human wellbeing and health due to declines in quality and diversity of foods and quality of water, as well as declines in health and wellbeing due to the moves away from traditional livelihoods and spirituality connected to traditional land, food and water systems. Declines in traditional medicinal plants and loss of traditional medicine systems are also directly linked to poor health.
- Bioprospecting and bio-piracy of IPLCs' cultural medicinal plants and animals for developing modern pharmaceuticals with no Free, Prior, and Informed Consent or benefits to communities. Traditional medicines may then be sold back to communities.
- Changes in perceptions and relationships within the nexus – from seeing water, land, and biodiversity as sacred and spiritual to seeing them as resources.
- Indigenous and local language loss as part of loss of connections with nature, along with declines in ILK that allows conservation of biodiversity.

Key drivers of these negative trends that were highlighted by IPLC participants include:

- Broader society, and particularly education systems, teaching new values, aspirations and worldviews to youth and diminishing the perceived relevance of ILK and related practices and management of the nexus.
- Younger generations are increasingly encouraged by outside influences to disregard ILK and to rely on schools and outside experts to teach them how to protect their natural resources, and new knowledge, new food systems and alien species are introduced in this way.
- Lack of documentation of ILK and the passing of elders leading to loss of ILK.
- Economic pressures on IPLCs from governments and corporations towards capitalist-oriented ventures, and the difficulty of leaving these systems once a cycle of debt, payments and expenditures is established (e.g., moves from traditional organic farming to monocropping).
- Ease of acquiring less healthy and diverse foods.
- Discrimination and misunderstandings around traditional medical systems by doctors, scientists and governments, and active suppression of these systems, including competition between modern medicine and traditional medicines.

- New religions competing with or demonizing traditional spirituality and traditional relationships and management of nature, for example rituals around water sources.
- Government policies that deter or criminalize traditional food systems and practices, including bans on rotational farming or access to national parks.
- National governments that do not implement international agreements at the national level.
- Increased pressure and competition for waters and lands, particularly from societies with unsustainable resource consumption.
- Reduction in space for mobility of herders attributed to land privatization and fragmentation of commonly-owned lands.
- Immigration of new people into IPLC lands.
- Environmental destruction and degradation by industrial development, including deforestation, contamination and pollution, and other changes in land use e.g., conversion of forests lands to commercial /corporate farms.
- Environmental and ecological changes, including from climate change and invasive alien species.

Participants were asked by an author for their views on population pressure as a driver of negative trends in the nexus. Overall, they noted that populations of IPLCs are low, and that in many cases communities are decreasing in size as people migrate to cities, leading to reduced capacities in communities to support livelihoods and decision-making. They also noted that their lifestyles are in general sustainable, so the population numbers of IPLCs are not an environmental issue. They noted, however, as a greater issue, that individuals in the developed world consume unsustainable quantities of many different resources, which is putting too much pressure on the global environment.

Participants also noted positive trends, including:

- Increasing efforts by IPLCs towards revitalizing customary use and governance of natural resources, traditional food systems and waters, including through revitalizing home gardens and Indigenous agroforestry.
- Increased efforts to revitalize ILK and languages, including by bringing ILK into schools and enhancing opportunities to learn on the land as part of formal curricula.
- Revitalization of IPLC health systems, including through formal recognition of Indigenous medical practices by governments and formal medical networks.

They also noted the potential for further positive trends:

- Within the new Kunming-Montreal Global Biodiversity Framework there is the potential for greater recognition and support for ILK.
- Consideration of the nexus can also provide potential for greater recognition and support for IPLCs' cultural practices and livelihoods that protect the nexus.
- IPLCs and ILK remain highly dynamic and adaptable in many situations and are still proving to be effective at managing social and environmental issues. There is therefore great potential for positive change in the nexus if IPLCs and ILK can be well supported.

Chapter 2: Examples

A participant from Uganda explained that biodiversity, especially wildlife and animals, has changed in his region. Foods in the mountains, including animals, have disappeared. Pastoralists are also losing animals to drought, and the mobility of pastoralists has been interrupted – they cannot access their traditional movement corridors due to fencing and mining, which reduces their ability to adapt to climate change. Moreover, land around shrines, which are often composed of trees and rocks, is being lost. Elders still gather annually to remember the stories about the shrines, but they are disappearing, and younger generations are abandoning the knowledge of their elders and moving to urban centres to search for jobs and new lifestyles.

A participant from Russia explained that the practice of sending children to boarding schools had a great impact on the traditional occupation and management system of wetlands in Indigenous territories, which led to wetland systems being lost, particularly due to wildfires, as wood was left in the forest rather than being removed. In some areas waterlogging also became an issue. There is now a recognition of the need to revitalise knowledge about seasons and cycles, especially the water cycle, as these have great impacts on biodiversity, food, water and health. The governance of Indigenous territories has also changed, which also impacted the environment and people.

A participant from the Philippines explained that until the 1980s biodiversity was actively enhanced by local practices, including by exchanging seeds with neighbours. However, in the 1990s the implementation of the Green Revolution promoted the use of chemicals and pesticides, coupled with a market that promoted high-values crops. As a result, the 30-50 varieties of crops grown previously were reduced to seven varieties. This combination of reduced food diversity and chemicals impacted health, including increasing incidences of cancer. Pressure also increased on the landscape, and in some communities the watershed forests were destroyed to make more space for crops.

Another participant from the Philippines also reflected on significant changes in the food system, noting that as children they would eat fruits, which were plentiful in the area. Now children eat

snacks from the industrial food system. This is one of the signs of the decline in traditional food systems which has happened quite rapidly in two generations, with many impacts on health and the environment. She noted that such changes in the nexus, and how this impacts connections between the city and rural areas, are important to consider. However, there has also been recent revitalization in food systems, including revitalizing home gardens, which has received some government support, and initiatives on organic or agroecological systems, including at the municipal level. Such initiatives are important also because the ways IPLCs live their lives and their traditional occupations are important for their identities.

A participant from Thailand reflected on a series of changes:

- The values connected to nature are changing. For IPLCs nature is sacred, but increasingly this perspective has changed from sacredness to resource, material, or capital, with spiritual aspects removed. In this new conception, nature can be used without caring for it. In the past, in rotational farming, old trees were used once they had fallen, in a cycle of old and new. Now this relationship has changed.
- Much knowledge and practice are also being lost. In the past, a small knife was used to take weeds out of the rice fields. Now in many cases chemicals are used, with impacts on food and health. This also changes the knowledge associated with managing the fields.
- In the past, knowledgeable people were those who were able to produce food and live well. Now people from outside communities come to teach the community what to do, even though community members know the trees and every curve and stone in the river. Wise people are also being lost to old age.
- In the past almost everyone depended on nature, perhaps 90% were rotational farmers, but currently, in many communities, people have various careers, and they use and think about nature in a different way, without necessarily thinking about the long-term.
- There are however still many villages in Thailand living in and using their ILK to manage forest areas, which can be seen as tangible areas of knowledge and practice, with opportunities for learning between communities.

A participant from Mexico reflected on numerous changes in Oaxaca state. Declines in biodiversity and ecosystems have led to reductions in wild foods and traditional medicines. There is also a decline in knowledge about medicinal plants, with impacts on health as modern science does not recognize some diseases. Water is also an issue, with longer dry seasons and cities using too much water. This leads to further ecosystem changes, including reductions in culturally important trees used to make traditional beverages, with consequent impacts on communities. Agrobiodiversity is also decreasing, as varieties of seeds and crops, for example corn, are lost. Home gardens are decreasing, as are cultural practices around agriculture, such as planting and

harvesting rituals. New religions arrived in the area, which forbade rituals around medicines and watersheds. Land use further changes as people sell lands so that houses can be built. These changes are partly caused by social change, while also themselves further increasing changes to society. Many people migrate to the United States of America and return with new food preferences and values. With increasing economic activity people also have money to spend on “fast food”. There are however also positive initiatives, including projects around knowledge of food, water and traditional medicines, and agrobiodiversity festivities and seed exchanges.

A participant from Kenya explained that there have been significant declines in biodiversity, with many plants no longer present in the environment, including food plants and medicine plants, and increases in invasive alien species. This has various impacts, including malnutrition and impacts on the practices of healers. Seasonal variation of water is also changing, with significant impacts on pastoralists as transhumance depends on water, and when this is affected, it impacts the livelihood practice system itself and traditional food production.

A participant from Thailand also noted that there are still many people in communities with great knowledge and skill connected to rotational farming and the diversity of plants in the fields, as well as fisheries, beekeeping and pollinator protection. A question is how to gather and mobilize this information to protect ecosystems.

An elder from Thailand also reflected on changes that he has seen, including that river water is reducing and animals in the water are disappearing. He noted that new technologies, including shotguns, have significant impacts that are causing animals to disappear. Manual weed removal in fields has also been replaced by chemicals, and insecticides have caused insects to disappear. The traditional belief system is also under threat in many places. This system promoted hunting of certain animals and prohibited the hunting of others, and its disappearance has consequently affected biodiversity management.

A participant from Canada reflected on the damage to ILK and Indigenous culture and wellbeing from the residential school system, where Indigenous children were removed from their communities and placed in residential schools, where they were isolated from their family members and elders and punished for speaking their languages or performing traditional rituals. This has ongoing impacts today.

A participant from Nepal reflected on the causes of many changes, noting that there is a gap in science and policy that makes IPLC systems disappear, including important food and medicinal systems. There are some policies that connect traditional and modern medicinal systems, but in general, modern doctors do not prescribe traditional medicines. It is therefore challenging to revitalize these systems in a holistic manner.

During the community visit to Hin Lad Nai, a community leader reflected that for their community, changes in rotational farming have been the biggest challenge. Before, they passed

on knowledge to the next generation by practicing rotational farming with the youth. However, since this type of livelihood has been stigmatized due to misunderstandings about the damage it causes to watersheds, the younger generations are not interested in learning ILK about rotational farming, which leads to big changes in community pride, lifestyles, aspirations and values. He also explained that industrial logging removed trees from the valley around the community, which prevented rotational farming, impacted the water cycle and destroyed many culturally significant trees. However, he also explained the more recent successes of the community; they were able to successfully regain control of their lands, and replant the forest and reinstate the rotational farming practices that protect the watershed.

During the community visit to Hin Lad Nai, community members also explained that they have found new ways to divide up their plots of land, so each plot can have a longer fallow period, without increasing the amount of land needed. They note that there are often concerns from outside that with population increases they will use more land, but they are proving that this is not the case. Moreover, they have other ways of producing food and products, including tea plantations, beehives, gardens and paddy fields, which also reduce the pressure on the rotational farming system.

Chapter 3: Future interactions across the nexus

While chapter 3 was not discussed in detail at the workshop, participants agreed that the assessment could explore the past and present traditional ways that IPLCs governed, managed, understood, and integrated the nexus of biodiversity, food systems, water and health, as well as the ways that this could contribute to achieving sustainable futures. This should be done with respect for FPIC and fair and equitable benefit sharing when ILK or IPLC innovations or genetic resources are used.

They also highlighted the importance of considering different IPLC conceptions of “sustainability” and other key concepts, to help to ensure that moves towards one conception of sustainability do not become an imposition of outside values and livelihood systems onto IPLCs.

Participants noted the importance of the new Kunming-Montreal Global Biodiversity Framework, as it includes recognition of the important contributions of IPLCs, and is therefore potentially an important framework for effecting change. However, they also noted that past experiences show that implementation can be weak, or can negatively impact IPLCs, for example through governments evicting IPLCs from protected areas. The new framework, however, specifies that actions should not violate Indigenous rights, which is a positive development. Overall, they noted the need for IPLCs to be included in discussions at all levels, and the importance of indicators and monitoring of progress with IPLCs.

Participants also noted the [six transitions in the Local Biodiversity Outlooks](#).⁷ These were developed by groups of IPLCs to outline the transitions and changes they wish to see in future, including in food systems and economic systems. These can therefore be a good resource when considering future interactions and ways forward across the nexus.



Discussing community governance and connections between the forest, food and wellbeing in Hin Lad Nai

Chapter 4: Policy, social and political actions for good futures

Chapter 4: Customary governance

Participants at the workshop noted that customary governance systems provided – and in many cases continue to provide – a strong framework for IPLCs to successfully manage their lands, waters, food systems and health, with many examples showing the success of these systems over long time periods.

⁷ <https://lbo2.localbiodiversityoutlooks.net/transitions-towards-living-in-harmony-with-nature/>

Participants explained that customary governance can center around elders' councils, shamans, or other community leaders. These governance systems are not static and can adapt to reflect social changes. For example, a participant shared that in Kenya women are joining elders' councils which previously only included men. IPLC governance systems can include detailed rules, including taboos, species which cannot be hunted, or areas set aside for different groups or for animals, with punishments for transgressors.

However, participants also noted the diversity between such systems, and highlighted that within many customary governance systems there is also a lot of space for personal autonomy, or there may be no clearly defined authority. Actions and choices of individuals may thus be guided more by community norms and values, rather than fixed rules or leaders. Such norms and values can include sharing and living in harmony with Mother Nature.

Participants also explained that relationships with the natural world (e.g., between people and animals) are often used to inform governance choices. Concepts of "stewardship" may be more appropriate than "management" for discussing IPLC governance systems and practices.

Spirituality is also central to many customary governance systems, and consulting spirits through rituals and ceremony can be key to finding guidance. In some cases, the spirits are the ultimate leaders, with community leaders following their wishes. Dialogue workshop participants encourage assessment authors to explore spirituality within the nexus assessment to increase awareness of these practices and their importance for maintaining balance within the nexus.

Participants highlighted that elders and women play a key role in governance systems, by passing on knowledge, practices, and values to younger generations, often through learning on the land during traditional activities. Indigenous and local languages can also be key to understanding values and norms, and to communication within customary systems.

Overall, participants noted that it will be important for the assessment to explore the diversity of customary governance systems rather than treating them as homogenous.

Participants explained that customary governance systems are now often in decline due to multiple pressures. In particular, formal government (civil) laws and regulations often seem to be at odds or in conflict with customary governance. Many laws support large-scale extraction of resources rather than small-scale livelihoods, and thus pressure IPLCs to join these more destructive systems.

However, despite this, efforts are being made by many IPLCs to preserve and revitalize their customary governance systems. In some places, national and regional governments are starting to recognize the strengths of customary governance systems and adapt their laws and regulations to them, so that they are mutually supportive (e.g., in Thailand the area around the community of Hin Lad Nai has been recognized as a Special Cultural Zone by the Ministry of Culture, which recognizes and protects its rotational farming system). The IPBES Global Assessment of

Biodiversity and Ecosystem Services, as well as the Sustainable Use of Wild Species and the Values and Valuation of Nature assessments, also highlighted the importance of customary governance.

Participants highlighted that biocultural community protocols, implementation of FPIC and rights-based approaches are avenues that IPLCs are exploring to build connections between their customary laws and formal governance systems. They noted that formalized mechanisms may be needed to ensure full and effective participation of IPLCs in local and national governance.

Participants recommended that the chapter should discuss the synergies and challenges of connecting statutory and customary laws, including the challenges of selectively codifying / systematizing customary laws, as customary laws risk becoming static or distorted during this process.

Participants highlighted that the chapter should also explore the importance of the recognition of rights to the land, territories, waters and resources for IPLCS. This recognition would support customary governance, as well as food security, good management of lands and waters, and health and wellbeing.

Participants also highlighted that national, regional and local governments could do much more to recognize and support customary governance, seeing it as an added strength that contributes to overall good governance, rather than seeing it as insignificant or as a challenge. They noted that there are many government processes and commitments on paper, but in reality, IPLCs are often disadvantaged in practice. The chapter could discuss the role of power relations in governance, and how this affects IPLCs.

Chapter 4: Examples around customary governance

An elder from Thailand explained about the law and rules in his community. People have respect for the religious leaders – these leaders can give direction, and the people follow this guidance. For example, for rotational farming, the whole community must wait for the leader to identify the day of cultivation and perform rituals that can only be performed by these leaders. The community is trying to revive these practices and connect them with the government rules, but there is an often a lack of compatibility. He noted that the community rules seem to function better than the government's rules. For example, there is an official prohibition on land that cannot be cultivated, which limits the flexibility of the traditional system. To try to connect to these new rules, the community attempted to make a community map to identify the cultivated rice areas, residential areas, prohibited areas, the spiritual forest, etc. Nonetheless, this limits the amount of space available for each family.

A youth leader from Thailand explained that community rules follow the seasons. Youth from one community can also learn from another, for example about rotational farming. Youth often look to community rules to guide them, including in identifying areas for farming and areas for

forest conservation and understanding crops, medicines, and fishing. In many ways this is more effective than formal national laws.

A participant from Thailand explained that there are currently different layers of governance in some communities:

1. Original/traditional law and original regulations, which are related to water, food, animals, plants, fire and others. Often, these are monitored by spirits rather than humans, as humans do not have the power to do this. There are limitations on which lands people can use and there are some animals (e.g., horned beetle) and plants that it is forbidden to eat. These prohibitions can change with the seasons in some cases. There are also rules around houses, fields and fires. For example, it is forbidden to urinate into a fire. If someone breaks these laws, they may suffer health impacts, or an accident may happen to themselves or their animals.
2. Community regulations, which can support the original/traditional law described above. These can also include regulations for external people, or connections with national or local official government laws.
3. Official regulations created by the district, which are often imposed onto community regulations.

Within this, key actors include:

- Individual community members, who must follow the original laws and community regulations within their families.
- The community and its cultural structure which serves to monitor regulations.
- Organizations and networks for tribes or ethnic groups, which aim to encourage or empower the communities.
- Other new actors, including monks, pastors or priests, who seek to impose religious views onto communities, and educators working in schools. There is now, however, a pilot programme in the schools to try to transmit knowledge of original/traditional law to future generations, recognizing that children spend much of their time in school, so the hope is that if this knowledge is in the curriculum, the knowledge will be retained in the community into the future.

Another participant from Thailand highlighted that customary law is linked to practice. For example, in northern Thailand, Indigenous Peoples classify their forest into various types, which means that, in terms of management, certain practices cannot be carried out in different areas. It is however difficult to encourage the government to recognize these customary laws or land titles.

A participant from Kenya explained about the traditional governance of Pokot agro-pastoralists. In her region, there are 64 clans and three levels of governance in the form of elders' councils. The first, lower level, is called *Kokwo*, the second level is called *Kokwo Poy*, and the third level is the highest and is called *Kokwo Echot-Akiko*. Anything concerning Pokot territory and nation is decided at *Kokwo Echot-Akiko*. In the past, the elders' councils were predominantly constituted of men, but in recent years elderly women have also been included. At the village level, space is also made for younger generations to participate in decision-making. Because pastoralists are always moving, they have sharing arrangements within and between communities for food and water access as well as transboundary agreements. Furthermore, they have regulations governing the use of biodiversity and wild species. These laws and regulations are dynamic, changing and adapting to different situations and challenges. Beyond the laws there are also value and spiritual systems, observed through celebrations and rituals.

A participant from Uganda explained the ways that his community manages biodiversity and people. A family without a herd has no bank and no livelihood, so wealth is distributed through payment of dowries. Giving and sharing water is also important, as well as sharing food, grains and seeds. They have maps for grazing and water depending on the seasons. Moreover, they have rules for wildlife and hunting different animals; for example, the elders advise young hunters not to hunt female wild animals as this can cause a curse and the disappearance of wildlife. Ways of naming people are also important, and these are not chosen freely but come from the place where a child was born to ensure the continuity and connection between people and place for each generation. Names of places and villages are also often derived from wild animals, furthering these connections.

A participant from Nepal explained that Indigenous community rules are based on values and can include prohibitions, such as prohibitions on going to culturally important areas of land, including around water sources, at certain times for honey collection, as well as rules for the collection and preparation of other foods, fodder and firewood. People who break the rules, norms and values are often admonished by community members and may be banned from social events. There are also important spiritual connections with the forest, water sources and animals such as Red Pandas (*Pungose* in the Kirant Sampang Indigenous Language). These systems all work together in customary governance.

A participant from the Philippines noted that the title of chapter 4 implies formal governance, rather than understanding the nuances of culture that guide many Indigenous Peoples and their relationships with the nexus, including cultural norms and customary practices. There is also an important distinction between "law" and "lore". Lore is the value systems that really underpin both laws and the agency that exists in individuals for action. There are different actors and structures within the community that reinforce or enforce these guiding rules. For social and cultural norms, these are quite widespread across the community. While some are stricter (e.g.,

taboos), many more are values that influence personal autonomy. As a result, when customary law, which is mostly oral, gets codified there are changes that take place, because often only certain parts of it are selected and written down. There is also a complex relationship between customary law and formal statutory law. Formal statutory law can support Indigenous practices, or it can be neutral – but often formal statutory law exploits or restricts customary law or even criminalize practices. It is important to emphasize that formal statutory law can become very rigid over time and thus out of sync with reality, while customary law can be more dynamic and responsive to change.

A participant from the Philippines reflected on values that guide community practices, and how these become like “laws of the land”. These include doing no harm to living and non-living things, having complete wellness with body and mind and the spirits and ancestors, sharing food and other products, and understanding that one cannot own what one has not created, so it is not possible to own the land and water.

A participant from Russia noted that stories and oral tradition are the source of Indigenous rules and laws. She also explained that knowledge transmission is a crucial aspect of governance. There are zones set aside for transmission of knowledge, in which grandmothers show medicine plants, e.g., chaga, to children, and also teach them about water and biodiversity. As the community relies on moose, they understand and protect the animals’ pathways through the swamps, which are also very rich in biodiversity. Fisheries and the timings of the seasonal water cycle are also well understood, as is ice and how to fish on the frozen lakes and rivers.

A participant from Thailand reflected on the importance of ceremony for good management of soil, water and forest.

A participant from Canada also emphasized that ceremony is fundamental, including for example during moose hunts. She highlighted the importance of language, as this is where Indigenous laws are encoded, including fundamental laws against harming the environment. However, these customary laws frequently come into conflict with formal law.

A participant from Mexico explained that in parts of Mexico, Indigenous Peoples have some recognized rights over their lands and territories and some self-determination, which allows them to protect ecosystems, forest and water. They also have communal governments in their municipalities as well as rules and laws to protect nature, agreed by the community assembly. Reciprocity is key to maintaining community life, including with the spirits. For example, there is a guardian of the forest, to whom they do rituals and offerings, including apologizing to him for gathering or hunting in the forest. There are also rituals to the rain, as well as to Christian saints, like St. Peter. She recalled that the IPBES Global Assessment of Biodiversity and Ecosystem Services found that at times Indigenous governance is even more effective for protecting habitats than some official natural protected areas. She recommended that the nexus assessment could

build on this message. The nexus assessment could also highlight that governments could include Indigenous and local knowledge, practices and governance around biodiversity and food within the framework of the Kunming-Montreal Global Biodiversity Framework, as this could support IPLC knowledge and practice and protection of nature and wellbeing.

Another participant from Thailand highlighted the importance of recognizing Indigenous Peoples' rights. Communities are asking for communal rights so that they can rely on customary laws without external influences. IPLC organizations and networks can be important actors which empower communities to push for the changes they wish to see.

Chapter 4: Evaluation and monitoring

Participants recommended that the assessment should also evaluate global goals like the Sustainable Development Goals (SDGs) and targets of the Kunming-Montreal Global Biodiversity Framework, examining how they impact IPLCs. This could include by looking at tradeoffs and contradictions between goals, for example displacement of IPLCs from protected areas to meet the Aichi Targets. Participants noted that many governments do not implement international agreements and commitments once they have ratified them; the assessment could analyze this and reflect on how to improve implementation.

Participants also noted that their experiences with the Aichi Targets were often negative, including evictions of IPLCs from protected areas. They noted that Indigenous rights should be fundamental to actions to meet the Kunming-Montreal Global Biodiversity Framework, including rights to lands, foods, water and health, and that the nexus assessment could help to support this.

Participants also noted the importance of monitoring progress through IPLC indicators, noting that work has been done at the international level around this, including the [Indigenous Navigator](https://indigenousnavigator.org/)⁸ and IPLC indicators work attached to the Convention on Biological Diversity and the Kunming-Montreal Global Biodiversity Framework. They also noted the [six transitions in the Local Biodiversity Outlooks](https://lbo2.localbiodiversityoutlooks.net/transitions-towards-living-in-harmony-with-nature/),⁹ which were developed by groups of IPLCs, as an important resource when considering future interactions and ways forward across the nexus. Indicator work has also taken place at the local level, for example in Thailand, where indicators include ideas of dignity, respect, integrity, and capacity to practice their beliefs.

⁸ <https://indigenousnavigator.org/>

⁹ <https://lbo2.localbiodiversityoutlooks.net/transitions-towards-living-in-harmony-with-nature/>

Chapter 4: Gender

Many of the comments made by dialogue participants reflected on issues of gender and the key roles of women in different aspects of knowledge, values, management and governance.

A woman leader from Thailand explained that Indigenous women understand that to drink from water they must preserve the rivers and to eat they must preserve the land. She noted that maintaining healthy rice seeds is the role of Indigenous women, as is making whiskey from the seeds. Women also play a key role as midwives, because in the past communities did not have hospitals. Here also, ceremony is important, as proper rituals will allow children to lead a good life. In terms of policy, there is, however, a gap, as policies do not support midwives or herbalists.

A participant from Canada noted that the revival of women's roles and gender equality should be central to all nexus discussions. She highlighted that SDG 5 (achieve gender equality and empower all women and girls) should be mainstreamed throughout all the SDGs and throughout the nexus assessment. In Canada, there is a serious issue with missing and murdered Indigenous women, and thus attention to gender issues is essential. Community leaders have called on governments, particularly Indigenous governments, to restore the rights of Indigenous women, recognizing that much of the patriarchy seen today was introduced by colonialism. Communities are now asking themselves what the role of women and children should be within Indigenous law.

Chapter 4: Research and education

Participants noted that research in general can have an important role to prove the efficacy of IPLC practices and to support the recognition of IPLCs and their land rights, and other important issues. There are also important roles for networks of IPLC actors to learn from one another.

They also noted however that research can be a threat to IPLCs, when it is done badly and without consultation or consideration of impacts on IPLCs, for example research that incorrectly delineates land use, or research that, through its methods, enforces "western" ways of thinking onto communities. Research can also lead to biopiracy, or to appropriation of ILK with no benefits to communities. Participants highlighted that IPLC methodologies and FPIC should be key to all research with or about IPLCs.

In terms of education, participants noted that education has been – and continues to be – one of the biggest threats to ILK and IPLC values and Indigenous languages. For example, in residential schools in Canada, children were punished for speaking their own languages. This also occurred in Mexico in the past decades. Participants highlighted that significant changes are needed in education systems to support IPLC knowledge and values. Recognizing that many children now learn in the classroom from textbooks, participants noted the need to document ILK and bring it into the classroom in written form, videos or other media. Other participants noted the

importance of also continuing learning on the land with elders and family members, as much ILK can only be learnt in this way.

A participant from Thailand also shared that they have a school that has successfully brought ILK and practices such as basket weaving and collection of traditional seeds into the classroom, and that this has been well evaluated by the formal authorities. This school also allows the communities to transmit their own values to youth, including caring for nature through rotational farming.



An elder from Hin Lad Nai explains how the community nurtures and benefits from bees

Chapter 5: How to deliver sustainable approaches in different sectors

As with the other chapters of the assessment, participants noted that the assessment must recognize that the concept of the nexus (and other importance concepts such as “sustainability”, “nature” and “health”) would be understood and expressed differently by IPLCs, and this difference in conceptualisation should be a thread of analysis throughout the chapters. IPLC ideas and visions around the nexus should thus be a foundation for analysing ways forward in Chapter 5 and its sub-chapters.

Participants also highlighted that case studies could be essential for exploring IPLC systems in Chapter 5 and its sub-chapters.

Participants highlighted that the nexus assessment overall does not seem to make use of Indigenous indicators, and these could be added, especially to the five subchapters of chapter 5 (see above in Chapter 4 for a discussion of IPLC indicators).

Chapter 5.1: Water

Participants highlighted that spiritual aspects of water must be central. Springs and river confluences may be particularly sacred.

Participants recommended that water-related Indigenous knowledge, cultural practices, principles, belief systems, symbols, rituals, ceremonies, practices, innovations, oral traditions, respect, norms and values, and customary governance systems should all be explored holistically by the assessment.

Customary governance systems around water are key, especially in areas where water is limited (see chapter 4 comments above on governance). Knowledge around water (its seasons, the sources of water and how to use it respectfully and to share it fairly) is also important and is in many cases declining.

Protecting and managing watersheds, particularly forests in watershed valleys, is often key to managing and sustaining water sources. Many IPLC governance systems and practices do this. Participants noted that integrated management across biodiversity and water is common for many IPLCs. Many IPLCs have different knowledge and management systems regarding many different types of water (a participant noted that *Ngati Hine* in New Zealand is a very strong case study of this).

Participants explained that IPLCs have many innovative ways to conserve and generate water, such as ‘water trees’ and other plant seeds that can generate water, as well as small impoundments and rainwater collection.

Participants reported that conflicts over water are growing, as monocropping and industry need increasing amounts of water and government regulations put limits on traditional uses of water.

Climate change is also disrupting water cycles and sources, further adding pressure to these systems. Invasive alien species also cause water issues for IPLCs. Cross border conflicts over water are an issue for IPLCs.

Participants highlighted that commodification of water is a great challenge – in many cases this once free resource is now contaminated by industry and agriculture, water sources are damaged by modern developments, or water is being used for commercial uses, leading to water scarcity in IPLC communities. Some IPLC communities must then buy clean water produced by industries.

Participants highlighted that industrial development (including mines and hydropower dams) is a great threat to water sources, including through pollution and impacts to the natural flow of waters which disrupt the seasonal migration and breeding of fish. IPLCs are sometimes also displaced by large hydropower projects, which has impacts, including loss of identity due to a loss of connection with place. Often FPIC is not practiced, so IPLCs cannot control projects that will greatly affect their water security. Lands and territorial rights of IPLCs are often ignored or face legal uncertainty.

Participants highlighted that a review of water governance and structures is needed, including a list of actors. Indigenous Peoples have specific issues around their rights, and they will therefore require their own actor group (rather than being grouped under civil society groups, for example). Spatial planning, as is encouraged by the new Kunming-Montreal Global Biodiversity Framework, will play a big role in allocating who has watershed rights, and IPLCs will need to participate in those processes.

Participants also noted that broader society will need to develop new values associated with water, from viewing water as a resource to water as a right, or a spiritual entity, or a being with its own rights.

Chapter 5.1: Examples

An elder from Thailand explained that considering the “water guardian” is the most important factor in terms of managing and using water. If he or she grows angry the results are very serious, for the community cannot survive without water. When people go hunting in the forest, they may be unsuccessful, but the water guardian is very generous, thus when fishing the community always catch something to eat. He reflected that when he was a boy he could drink directly from the streams and people were confident it was safe and clean. Today though they must be more careful because they do not know if a farmer used chemicals at the headwater of the stream. Also, increasingly, certain communities may not have enough water for the whole year, partly because some groups are using the water from the headwaters for commercial purposes, or because the forests have disappeared from headwater areas. In some cases, Indigenous

communities are falsely blamed for deforestation. In terms of water governance, the community needs to push more forcefully for regulations against contaminating the water.

A participant from Thailand explained that the elders teach the community about the importance of caring for water, and how, in so doing, they protect their whole territory. Water sources are particularly important, especially spring water, which has a powerful water spirit, as well as river confluences. People must give an offering to the spirit of water before using water for irrigation. However, now the situation is changing. Farming has now often moved to cultivating cash crops and sometimes farmers have conflicts around how much water to use. The communities are therefore trying to create new regulations to manage water. Mining is also causing pollution and other challenges in relation to water.

A participant from Uganda shared that, for pastoralists, water is key, and there is much knowledge and many stories around water from the rangelands. Spirituality attached to water is also central to the survival of the community and livestock. There is also a great potential for conflict around water, due to cross-border movements of different groups. Good governance around this shared resource is therefore key for cross-border and transhumance pastoralists, especially in water catchment areas, as this supports the rotation of grazing patterns around the rangelands ecosystem and enhances peaceful coexistence among pastoralists sharing the same resources.

A participant from Thailand reflected on the importance of understanding the water system, and how it relates to the diversity of trees and crops, including banana and ferns. There are also many animals known to the community, which can be eaten if they are in the mid-stream or downstream areas, but they cannot be removed from the upstream watershed. This kind of knowledge can be more important than following formal water regulations and plans. For example, in some cases the forestry department was planting trees, but it seemed they were not planting species that were adapted to the watershed areas.

An elder from Thailand shared that there are more than 20 different types of water that community members can refer to. They recognize that to have drinking water they must preserve it. They also plant banyan trees and make use of groundwater. In the rainy season, which only lasts three months, households must store rainwater, depending on the size of their household. People must also understand the forests and how they are connected to the water cycle. He reflected that in the future, water will require different types of management, for the seasons are changing – sometimes there are floods, other times there is drought. The younger generations will need to understand those changes. People will need to learn from one another, and each family will need to discuss with other community members to understand how to manage water properly.

A participant from Thailand also reflected that many communities are now facing water issues during the dry season. However, they have the traditional knowledge needed to manage the situation, serving nature, and taking care of both upstream and downstream areas. Good water collection and storage during the rainy season and careful use during the dry season can also help communities to manage water scarcity.

A participant from Thailand shared that in his community there is one stream, which comes from the headwater in the mountains. They use it for drinking and for irrigating paddy fields. However, another community needed water, and there were plans to put in a pipeline that would remove water from the stream, which caused conflict. A national park was also declared in the stream's headwaters, which the community viewed as a punishment.

A participant from the Philippines explained that her region is a watershed cradle due to its forests, and community members are encouraged to sustain the forest as the source of water. Communities also have a complex Indigenous governance of water – if one community has water in their territory and it flows to another territory, there is a right of use and communities are obliged to protect the watershed. However, the Indigenous collective right to water is not yet recognized. Mines can use water directly from the source and often cause the introduction of chemical pollution into water sources. She noted that better systems are needed for overall governance of water as well as recognizing the strong connection between life and water.

Another participant from Thailand emphasized the importance of water governance and noted that communities often do not have access to the formal system that governs water use and access. Waters can then be polluted by industry, and communities are not aware of the threat until it has occurred. Consultation and FPIC are therefore needed around projects that will impact water, keeping in mind that the communities themselves do not have the resources to do assessments of large projects.

A participant from Kenya noted that water governance is important, especially as water flows beyond boundaries. The traditional water management system is broader, and it also includes technologies that the community used to manage water and map water systems. The ways that this knowledge is cascaded to younger generations is also key. Pastoralist communities in Kenya are currently facing many threats to their water systems, including invasive alien species and water pollution, as toxic chemicals have been dumped in the water systems. These broader problems are policy issues. Communities also need capacity-building, and research is needed on how communities are implementing water governance.

A participant from Canada noted that water access is a serious issue in many communities in Canada. Many people do not have access to safe drinking water.

A participant from Mexico reflected that values relating to water are a key challenge, and that recognizing the rights of rivers and of water, for example as was recognized in the Colombian

legal system, could change the ways that governments and broader society use and think about water. The nexus assessment could explore this key issue. International water forums might provide spaces for revaluing water and providing international guidance.



A fishpond near Hin Lad Nai

Chapter 5.2: Food systems

Participants noted that food systems are central to IPLC identities, cultures, and livelihoods. For example, Indigenous seed management is a crucial way to pass on knowledge and identity, often through the efforts of women. Food is also considered medicine by many IPLCs (see section below on Chapter 5.3: Health). Moreover, seasonal shifts in food systems give an important rhythm to the livelihoods and lives of many IPLCs. Participants highlighted that ILK, practices and innovations around rotational farming, wild bee keeping, growing tea and coffee, wild mushroom

collection and uses of wild species could be considered in this chapter, as should the significant contributions that IPLCs have made to global food systems, including agrobiodiversity and domestication of wild species.

Participants highlighted that traditional food systems were moderated by knowledge, values and governance (see the section above on Chapter 4). Some IPLC food practices are aimed specifically at reducing food waste and could also be discussed.

Participants explained that traditionally, the food systems of many IPLCs combined different species of wild foods, crops and livestock, giving great diversity to IPLC diets. These were produced with rituals and ceremonies, and through systems that were in balance with nature. Examples include the rotational farming, fishing, and hunting systems in northern Thailand, and home gardens in the Philippines. These systems show the connections between biodiversity, food, water and health, and could be used as case studies in the assessment.

These systems are now often under threat. Cheap fast foods made in unsustainable ways by strangers are replacing culturally sustainable, healthy foods nurtured by the community and spirits. A diversity of traditional foods is being replaced by a few products. Participants reflected that these changes are often caused by pressures to be part of economic systems that prioritize a small number of high value crops or products, which in turn leads to changes in values, tastes and practices. This also often entails putting great pressure on the environment and using chemicals to maintain growth or reduce pests. This undermines the entire food system and the cultures, knowledge systems, values and spiritual systems that they support, as well as community health. Environmental degradation and laws that forbid gathering of foods or access to some areas also impact IPLC food systems, such as restrictions associated with formally protected areas.

For example, an elder from Thailand reflected that his ancestors taught traditional knowledge on food through proverbs and songs, but that presently there are significant changes. It is more convenient for young people to access non-traditional foods from stores, now they do not want to eat local food. As a result, communities are seeing new problems like diabetes. He noted that food needs to come from a reliable source, like rotational farming, that does not use chemicals and is low technology, so that it provides only healthy products for people.

Another participant from Thailand noted growing challenges in relation to food. In the past they ate what they planted and what they knew. Now however, people eat unfamiliar food, whose growers are unknown to them. Moreover, now people plant for commercial reasons rather than for personal consumption. In order to make money, people have to plant more, surpassing the energy available in the community and nature, thus taking energy from the environment and creating a need for chemicals that then contaminate people's blood. In the past, nature belonged

to spirits, but now it belongs to the forest department. Community members can now be fined for collecting mushrooms to eat, and if they cannot pay the fine, they are jailed.

A participant from Mexico also noted new threats to IPLC food systems, especially customary sustainable use of wildlife. After the outbreak of the COVID 19 pandemic, and its suspected source among harvested wild animals, the use of wild meat was further misunderstood and stigmatized. This has led to increasing criminalization of IPLCs who use wild meats. She noted that the nexus assessment could highlight that food that comes from wildlife is culturally and nutritionally important for many IPLCs in the world, and that customary sustainable use should be respected.

Participants also highlighted that despite all the threats and pressures, revitalization of traditional food systems is occurring in many places around the world with positive benefits. Examples include home gardens in the Philippines, and the recognition of IPLCs' biocultural landscapes and agroecological approaches, as well as revitalizations of Indigenous agroforestry.



Peppers grown in a rotational farming field of Hin Lad Nai, part of the rich diversity of foods that are derived from this system

Chapter 5.3: Health

Participants noted that for many IPLCs, “health” is connection to nature. The entire holistic systems of people, food, water, nature, air and spirits needs to be healthy. This should be the focus rather than only limiting attention to human health. Many IPLCs also prefer the term “wellbeing”, as this is more holistic and includes mental, spiritual and community health, rather than physical health of an individual.

Protecting the entire system is key to ensuring health and wellbeing, and this is more effective than trying to cure illnesses when they occur. The concept of “One Health” may not be known by many IPLCs as it comes from “western” science, yet the general approach to holistic health that “One Health” seems to embody is not new to IPLCs, and it may be useful for engaging with the broad range of issues that are important for IPLCs around health and wellbeing.

There are many traditional land, food and water management systems, including rituals and ceremonies, that ensure health of the entire system. Many are now in decline, and need recognition, support and revitalization.

Participants highlighted that changes in diet, from healthy nutritious foods grown with proper ritual and ceremony to store-bought foods grown with synthetic fertilizers and pesticides, are causing health impacts for many IPLCs. They noted that in terms of health, prevention is better than medicine, so eating good, healthy food is a significant investment in health.

Participants noted that many communities use traditional medicines and these have been shown to be very effective. Spiritual and ritual aspects of traditional medicines can be key. A case study could explore how communities responded to the COVID-19 pandemic through ritual and traditional medicine, with positive results, as described in the following section on examples. Participants also noted that some non-IPLCs also turned to traditional medicines during the pandemic, as a recognition of their efficacy.

Participants explained that in some cases, traditional medicines are being commodified and sold back to communities or sold at a profit with no benefits to communities. Biopiracy has impacted many communities. Protection of intellectual property, benefit sharing and FPIC are needed. In other cases, some rituals and practices have become popular for recreational use by outsiders, e.g., consuming some types of plants or fungi, and this angers the spirits. In many cases, it is harder to find medicinal plants due to environmental destruction. Knowledge associated with traditional medicines is also declining.

Participants discussed how modern medicine is often in direct conflict with traditional medicine, with people feeling they must choose between them. Both systems could instead support each other, allowing access to the best of both in an intercultural medicine model. This can be particularly important where communities are far from hospitals, and where costs of modern healthcare are high or rising, so treatment by traditional medicines in the community can be an

important first option which can heal many illnesses. Many community members also find hospitals intimidating and unsafe due to language barriers and medical procedures, so finding ways to combine the best of both systems could alleviate this stress, for example by working with traditional midwives around childbirth. Dialogue is needed between the health systems, and support is needed for traditional systems at the policy level. In some places traditional medicine is now being taught in universities, this could be further encouraged.

Participants noted that health-related regulations can sometimes indicate that modern health doctors can prescribe traditional medicine such as Ayurveda, and that traditional doctors can prescribe modern medicine. However, it is often difficult in practice. Certification of ILK-based health services can therefore be important to make progress in this area. Science and policy dialogues are needed to prevent ILK medicine systems from disappearing.

Chapter 5.3: Examples

A participant from Russia explained that her community does not have a word for “health” because health is connection to nature. In her community traditional medicine is very important because there are no roads in the swamps, and it can be three days by boat to reach the next community. For very serious injuries, a helicopter can be called, but for other ailments and injuries they make use of traditional medicine. Also, in some cases when people are sick, they are told to go to the forest to become connected to nature, as this is seen as a form of healing. When babies are delivered, they are also washed in special water to bestow them with good health. Loss of territory and access is increasing, and this is therefore also a health issue. There are many issues with biopiracy, and scientists came to learn about the plants used by the community. This is of serious concern because Indigenous Peoples do not receive any benefits from this process of commercialization.

An elder from Thailand explained how his grandfather used herbal medicines for high blood pressure, how his son used herbal medicine to heal a broken leg, and how people use herbal medicines for joint pain.

A participant from Uganda explained the pastoralist perspective of health, which has four different facets – animals, crops, people and environment. For animals, this includes considerations of how to graze animals, how to provide them with water, as well as how to consume the animal. For crops, the elders encourage the women, girls and boys to plant diverse crops to control weevils as well as to crush cactus leaves to protect animals’ wounds from flies, instead of using chemicals. In terms of the environment, communities have systems to dispose of animal waste, so that it does not contaminate water sources, recognizing that other people are also using the water. “Health” is therefore in the whole system of the community, working to protect people, animals, crops and environment together. Furthermore, there are healers who treat animals, others who treat plants, and others who treat humans. All forms of healers have

important knowledge about their area of expertise. The traditional healers instruct people on how to use materials from plants and animals, as well as which parts of plants and animals to use and when. Their benefits and contributions were shown during the COVID-19 pandemic, and in locust invasions and foot and mouth disease control, as during these challenges it was not easy to access modern health services for people and livestock, but healers remained accessible. Nonetheless, these healers do not have access to formal certification and so operate in isolation from national rules and regulations. They are, however, protected and valued by society.

A participant from Mexico also reflected that the COVID-19 pandemic provided interesting examples of community health. Many communities closed their borders and focused on having nutritious food, recognizing biodiversity as a source of quality food and good health, along with the importance of healthy rivers. In her community, health is a balance within the human body and with nature, plants, animals, clean air and the climate. Most communities use the government healthcare system, but there are issues in formal health services. Her community, however, has an intercultural medicine system and they are advocating for the recognition of their practices. There is, however, pressure to use the formal system, for example, until last year, doctors could deny registration of babies who were born at home. Last year, the Oaxacan civil law changed and now only a simple document signed by a midwife is needed for the baby to have an official birth certificate. However, this is still a problem in another regions. Other challenges include declines in medicine plants due to habitat destruction. Tourism can also exploit some traditional practices and rituals, and the spirits are unhappy with this exploitation and could punish the communities for not properly protecting the spirits. Biopiracy is also a significant risk. Actions to improve community health could include protecting biodiversity, respecting IPLC knowledge and practices, dialogues with modern practitioners so the two systems can learn from each other, as well as respecting the rights of Indigenous Peoples, especially those related to health and intellectual property.

A participant from Thailand explained that his community considers health holistically, and that prevention is better than healing. Prevention occurs by living in a healthy environment and eating good food. For example, food eaten by a mother impacts her child. Access to formal health services is also expensive, as is the transport and other costs related to using health services (e.g., buying food while staying in a town to use its health services). Many Indigenous People do not have employers or a legally recognized work status, so they do not have health insurance. They try to avoid going to hospitals, and often they will ask a traditional healer to accompany them but this often requires permission from the hospital. There is conflict between Indigenous doctors and modern doctors, and as a result Indigenous Peoples will not admit to modern doctors that they are using herbal medicine. There is currently a triple health system – modern, traditional (Thai or Chinese) and Indigenous – and people should have the right to use any system, or all of them.

A participant from Kenya explained that in her community they understand health holistically – they look at the livestock and recognize that if people are not healthy then nature is not in a good state. They also consider spiritual health alongside physical health. Traditional medicine and healers are available and accessible for the whole community. Meanwhile, in most cases, formal health systems do not have an intercultural approach. Within top-down policies, there is fragmented recognition of traditional healers, with a lack of legislation to support traditional health practices. A traditional medicine council was proposed but was not implemented. Other obstacles include the lack of protection of intellectual property, as traditional medical knowledge cannot go through this process.

Another elder from Thailand explained that many doctors discourage people from using herbal medicines. As a result, people become habituated to modern medicines, and lose their understanding of the traditional variety. They will travel a long way to go to the health station or hospital, sometimes even for minor illnesses. This is one reason why traditional healers are not supported at the policy level.

A woman leader from Thailand reflected on interactions between traditional medicine and modern medicine, explaining that in remote areas it is very difficult to travel to the hospital, so sometimes midwives need to help women to deliver babies during the journey. Midwives go with women to the hospital, because often women have confidence in the midwives. Meanwhile, the hospital is not always seen as a friendly place for Indigenous Peoples, and language barriers can deter them from going. Because of this, many people first go to traditional healers when they are sick. If licenses could be provided to traditional healers, this could facilitate the connections between modern and traditional medicine.

An elder from Thailand also reflected on connections between modern and traditional medicine. He explained that there are now colleges teaching traditional medicine, and some universities in the north have courses on Chinese medicine and Thai medicine, so these are giving new dimensions for people to access modern medicine and herbal medicine. There are also some modern doctors who respect traditional medicine, and who will suggest to patients to return to their communities and use traditional medicine. Midwives are a good example, as many babies have been delivered by midwives using traditional medicine, which is increasingly recognized. He himself once had a disease that could not be cured in the hospital but could be healed by herbal medicine.



Exploring the system of fields and forests around Hin lad Nai

Chapter 5.4: Biodiversity conservation

Participants emphasized that protecting biodiversity, and sustainable use of biodiversity, is key to protecting the food, water, health, and spiritual systems of IPLCs, as well as knowledge, language and values. In turn, these IPLC systems protect and enhance biodiversity. There are many examples of how the knowledge, practice, management and governance systems of IPLCs protect and enhance biodiversity, for example through rotational farming.

An elder from Thailand explained that in the past he would follow his parents to the fields as they practiced rotational farming, and that today he continues to practice rotational farming. He wants to pass this knowledge to the next generation. However, often at the policy level the communities are stigmatized and told that they are destroying the forest, and the younger generations listen to this and begin to blame the older generations for destroying the forest. He

noted that the government, agencies and community organizations should work together to learn from community knowledge about rotational farming so that it can be promoted. He has seen that rotational farming systems support biodiversity, and is concerned that if this agricultural tradition disappears due to outside pressures, Indigenous knowledge and practices will also disappear.

Another participant from Thailand agreed that the forest cover in Indigenous areas in Thailand shows the success of IPLC systems. Much research has already proven that the traditional system is holistic, supporting forest cover and climate change mitigation. Meanwhile there is pressure to develop cash crops, which makes people move away from traditional farming, which decreases forest cover and thus increases climate change.

Participants highlighted that land rights and access rights are key for IPLCs. These can often be threatened by protected areas, including through evictions and displacement of IPLCs from national parks. Other lesser restrictions on access and use also damage IPLC health, wellbeing, and food systems. These restrictions can occur through many different regulations, including those related to national parks, wildlife conservation, buffer zones, national forests, land and community forest acts and water regulations. Cumulatively these can result in human rights violations such as violence, harassment and discrimination, or to loss of use, which leads to loss of knowledge, practices, identity and values.

For example, a participant from Uganda explained that some peoples have been evicted from forests so that biodiversity targets can be met. Also, there can be a lack of understanding about the coexistence between pastoralists and the landscapes, leading to restrictions being placed on herders and their livestock over access and control of vital resources. For this reason, biodiversity frameworks often become problematic for Indigenous Peoples.

A youth leader from Thailand also noted that when more space is declared for national parks, this puts more pressure on communities, with foreign donors also contributing to this. Another participant from Thailand noted that FPIC is crucial if new national parks are planned. Unfortunately, this is currently not implemented. The assessment could evaluate how well FPIC is practiced in rural areas.

A participant from Canada reflected that after a long struggle, there is now co-management or co-governance of Kejimikujik National Park, which holds ancestral burial grounds and petroglyphs that are hundreds of years old. Indigenous Peoples are now able to access medicines in the park, and they have hunting rights for moose. This could be an interesting example, although she noted that for many Indigenous Peoples there are many issues with the concept of “co-management”.

Participants recommended that areas managed by IPLCs should also be recognized as protected areas through the OECM (Other Effective area-based Conservation Measures) system, and

proper accounting may be needed of how these should be included in payments for ecosystems services, REDD+ (Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries) and other mechanisms so that IPLCs are compensated for their contributions to protecting biodiversity and mitigating climate change. However, these payments would need to be done in culturally appropriate ways (see section on below on Chapter 6: finance).

Participants also noted that the new Kunming-Montreal Global Biodiversity Framework provides many opportunities for IPLCs, partly because IPLCs were successful in convincing governments to include key issues. Governments will soon be updating their NBSAPs (National Biodiversity Strategies and Action Plans) in response to this. This will be an opportunity to call for the recognition of land rights and tenure of IPLCs, to emphasize the importance of FPIC, to highlight IPLC contributions to restoration, and to highlight the need for spatial planning and OECMs, recognizing that IPLCs can be important actors for transformative change. The nexus assessment could identify priority actions to help governments with their NBSAP processes.

Participants recommended that rights of nature could be a key focus that offers new avenues for changing values and connection with nature globally.

Chapter 5.5: Climate change adaptation & mitigation

Participants highlighted that climate change represents a significant threat to IPLCs, including through drought and other disruptions to water and food systems. Displacement due to climate change will be especially challenging for IPLCs due to their connections to place. Participants also noted that mining is a key threat to IPLCs in many areas and may be driven by needs for minerals and materials for energy systems.

In many cases, restrictions placed on IPLC practices reduce their capacity to adapt. For example, the mobility of pastoralists in Africa is increasingly limited by land use change and access restrictions, which represents a loss of a climate adaptation strategy. Participants highlighted that ILK, practices and innovations of IPLCs around adaptation must be reflected in science and socio-economic policy, with full and effective participation of IPLCs, women, youth, girls and elders, with FPIC.

Participants noted that IPLCs make significant contributions to combatting climate change, for example in the maintenance of forests which sequester carbon. Nonetheless, these contributions are often overlooked. Thai participants reported that research on the carbon sequestration potential of rotational farming was used effectively by some Karen communities as a way to argue for their land rights. Moreover, Indigenous methods of “feeding the soil” with healthy organic material also positively impacts carbon sequestration.

A participant from Canada noted, however, that narratives that focus on personal responsibility for combatting climate change often hide the big industrial actors causing most of the problems. This can give IPLCs the sense that they are responsible for solving an issue that they did not create. Moreover, the comparatively sustainable systems of IPLCs, for example rotational farming, are sometimes then criminalized, partly as they are wrongly perceived to contribute to climate change, while the bigger more damaging systems are actively supported by governments. Moreover, many IPLCs are encouraged or pressured to join bigger, more destructive systems.

Participants noted that customary governance systems of IPLCs are adaptable and can change to manage issues such as climate change. However, support and recognition may be needed to effectively address this issue. A participant from Mexico also explained that this new, rapidly advancing phenomenon is bringing significant challenges, and may require changes in traditional practices and ways of life. To do this effectively, partnerships may in some cases be needed with outside actors, and these should be guided by biocultural community protocols which lay out the rules and terms for such engagement to make sure they enhance community aspirations, values, knowledge and governance systems.

Chapter 6: Ways forward for public and private finance

Participants noted that business and financial mechanisms impact nature and IPLCs, often severely, including through destruction of habitats, food and water contamination and genetically modified organisms. Participants noted that perverse subsidies, e.g., for agriculture, also represent a great threat to environments and to IPLC food and water systems, as they often encourage unsustainable chemical-based production rather than small-scale organic farming.

Participants noted that in general, the rights of IPLCs to lands, territories and resources are often not respected by business and financial systems. Participants highlighted that a rights-based approach and Mother Nature-centric regulatory mechanism is needed, ensuring FPIC, full and effective participation and respect and recognition of IPLCs' traditional occupations. Participants noted that Target 15 of the Kunming-Montreal Global Biodiversity Framework discusses financial disclosure, but there is not yet attention to how disclosures could be used to help IPLCs interacting with businesses.

Participants also highlighted that for many IPLCs, commodification of nature and being drawn into capitalist economic systems represents one of the biggest threats to their cultures and livelihoods. Once inside such systems, it can be very difficult to find a way out, due to debts and the growing need for more money. They also noted, however, that many IPLCs were already within economic systems, including those they developed themselves over millennia, but it is recent pressures to join capitalist systems, which cause negative impacts.

Participants emphasized that different ways of measuring and discussing wealth and wellbeing may be needed, beyond GDP, to properly engage with finance and development issues from the perspective of IPLCs. Communities may be “poor” in terms of money, but they may have houses, foods, healthy environments, culture and wellbeing, which for IPLCs is their wealth. For many IPLCs, their food systems and nature are their bank – this is what the Indigenous economy is based on – while there were traditional systems for reducing inequality and sharing wealth and resources.

Participants also noted that some IPLCs may wish to be properly compensated for their contributions towards biodiversity conservation and carbon sequestration, through schemes such as payments for ecosystems services. They may also wish for their contributions to national economies to be properly recognized, e.g., their contributions through provision of foods, and they may desire insurance and compensation if their food systems are disrupted, e.g., due to drought. Other IPLCs may be concerned that such payments undermine IPLC value systems, or risk drawing IPLCs into capitalist economic systems that eventually undermine their livelihoods and cultures. Overall, payments may be important and needed by communities, but may need to be managed in culturally appropriate ways in consultation with the communities concerned.

Participants also explained the difficulties IPLCs can face in securing funding or loans from large financial funds like the World Bank or other donors. Furthermore, many communities do not have legal structures to have bank accounts or fill in other requirements to apply for or receive funds. Moreover, participants noted that corruption and unfair distribution of funds mean that many communities do not receive funds even if this is directed towards them at the international level. (There is research from Forest Stewardship Council showing how little IPLCs often receive once management and admin fees are removed by other bodies.) Participants noted that having control over funding and a voice in discussions over funding strategies and processes is essential, and that on a smaller scale, community banking and financial systems can be important.

Participants also reflected that many IPLCs are running small enterprises, but these often face many obstacles, including trade restrictions, certifications, intellectual property concerns, economies of scale, and competition from businesses falsely claiming to sell IPLC cultural products. Perverse incentives can also work against IPLCs, as such incentives often support large-scale producers over small scale livelihoods, for example in the agricultural sector. Moreover, the private and financial sector often does not seem interested in partnering with or supporting small-scale enterprises of IPLCs. Bioeconomy approaches could be a way to begin to reconcile financial pressures and environmental protection, but they would need to be examined from IPLC perspectives.

Chapter 6: Examples

A participant from Russia noted that financial systems need to consider market and non-market economies. In many ways, many IPLC systems can already be seen as sustainable financial systems, mixing market and non-market sharing and trading and sustainable production. Financial systems and mechanisms such as the Taskforce on Nature-related Financial Disclosures (TNFD) should also recognize IPLC territories that are providing services to the world, such as swamps in northern Russia which sequester carbon, or IPLC food systems that support biodiversity. There is currently also increasing external value placed on IPLC ways of life and products, as can be seen, for example, with traditionally made foods that are becoming popular in cities, with people willing to pay extra for these types of foods and products. It should however also be noted that often IPLCs – and external financial systems – cannot put a price on IPLC lands and culture, as these have value beyond mere monetary terms. FPIC is therefore essential when talking about financial mechanisms or business in IPLC lands and territories.

A participant from Thailand noted that new farming systems, with cash crops, are a great threat to natural resources. Farmers often need to borrow money to participate in these systems, and then they fall into debt, and then they are locked into producing cash crops as they need to pay back the loans. This destroys land and forests, and livelihoods.

A participant from Uganda explained that for pastoralists, their animals are a food bank. However, they may also want to explore payments for ecosystem services, from carbon credits and recognition of their contributions to protecting biodiversity. Currently much of the funds exchanged within these frameworks seem to take place between governments and the private sector. Often these processes force pastoralists and others from their lands, as do extractive industries and other activities tied to national economies. He noted that for many economies in Africa, GDP is connected to livestock business, some of which is done by IPLCs, but this contribution is often unrecognized. Financial institutions could also consider offering insurance to pastoralists for their cattle, especially when considering new threats like diseases and drought linked to climate change, which cause losses of animals. Overall, this lack of recognition of land rights and the contributions of pastoralism serves to push pastoralists from their lands. Many pastoralists instead want to benefit from more inclusive financial services.

A participant from Canada noted that it is important to find an alternative to measuring wellbeing in terms of GDP, and to find ways to better include Indigenous or alternative economies, noting that neoliberal and capitalist economies continue to displace IPLC economies. She noted that in Canada when communities win recognition of their rights, they are then often forced to participate in the capitalist economy in order to maintain those rights. For example, Indigenous fishers can be pressured to join commercial fishing systems that are owned by a few companies. She noted that sustainable forestry by the Mi'kmaq in eastern Canada could also be a potential case study of Indigenous livelihoods and economy.

A participant from Thailand noted that Indigenous communities can be seen as poor by outsiders, but within the community each person has somewhere to live, animals and food, so they are not poor in the way that some people are in cities, where there is homelessness and other social problems. He also noted that when funding is provided to communities, often there are external people managing the funds and the community itself cannot access them. However, he also explained that some communities have created their own funds, which they contribute to, and which can be used for capacity-building for women or youth. This can be more effective than trying to access international funds.

A woman leader from Thailand explained the difficulties many IPLCs face in starting their own enterprises. For example, they need certificates to sell their herbal medicines, and these are difficult to obtain as the authorities may not be open to understanding IPLC expertise. Furthermore, they are not allowed to sell products collected inside the nearby national park. Capacity-building is needed for communities so they can understand how to participate in the economy, and so they can make their own decisions in how to do this. A greater recognition of human rights and more decision-making power for communities is also needed. In this way there could be more forest areas, alongside improved wellbeing.



Learning with community members in Hin Lad Nai

4 Next steps

The following steps and activities took place or will take place after the dialogue:

- A series of comments for the assessment's review period were developed from the dialogue. These were sent to participants for edits and approval, and following this they were submitted into the formal external review process;
- A report (this report) was developed from the dialogue workshop. The draft report was sent to all participants for their edits, additions and/or approval before being finalized;
- Using the comments and report as resources, the authors will continue to develop the draft chapters of the assessment;
- A call for contributions on ILK will be released in the first half of 2023 to encourage the submission of materials that could inform the assessment;
- Author teams may reach out to IPLC participants to invite them to become contributing authors;
- Another dialogue will be organized in late 2023 around the second external review period for the first draft of the SPM and the second draft of the assessment chapters; and
- The assessment will be presented to the IPBES Plenary for approval in 2024.

Annexes

Annex 1: Draft Agenda

Acronyms:

IPLCs = Indigenous Peoples and local communities

ILK = Indigenous and local knowledge

Tuesday 17 January	
8h30-09h00	Registration
9h00-9h45	Opening, introductions
9h45- 10h00	Introduction to IPBES and its work on ILK Aims, methods and agenda of the dialogue Free, Prior and Informed Consent
10h00- 10h30	Introduction to the nexus assessment: aims, methods, timelines, chapters, final product, ILK in the assessment, progress so far, brief questions
10h30-11h00	Refreshment break
11h00-11h45	IPLC caucus
11h45-12h30	Discussion: How can the assessment and this workshop be most useful for all participants?
12h30- 14h00	Lunch
14h00- 15h30	Conceptualizing the nexus – brief presentation followed by discussion
15h30- 16h00	Refreshment break
16h00-17h45	Current challenges and trends, futures, and ways forward across the nexus – brief presentations by Chs 2 and 3 and then discussion
17h45-18h00	Closing of day

Wednesday 18 January	
9h00-9h15	Updates, review of day 1, plan for day 2
9h15-10h30	Policy options
10h30-11h00	Refreshment break
11h00-11h45	Recommendations from IPLCs to different sectors – health
11h45-12h30	Recommendations from IPLCs to different sectors – climate, water and food
12h30-14h00	Lunch
14h00-14h30	Recommendations from IPLCs to different sectors – finance
14h30-15h00	Recommendations from IPLCs to different sectors – biodiversity
15h00-16h00	IPLC caucus
16h00-16h15	Refreshment break
16h15-17h15	Report back from the IPLC caucus and discussion: could include overarching messages and themes, key approaches, and participants, how can the nexus assessment be useful for IPLCs?
17h15-17h30	Next steps for the nexus assessment and participation in the assessment: Timelines for collaboration, communication, and dialogue throughout the assessment processes, identifying key experts, resources
17h30-18h00	Next steps and closing

Thursday 19 January	
7h00	Meet in hotel
7h30-18h00	Community visits
18h00	Return to hotel

Annex 2: FPIC document

Free, Prior and Informed Consent: Indigenous and local knowledge dialogue workshop for the IPBES assessment on the nexus of biodiversity, food, water, and health

17 – 19 January 2023, Chiang Mai, Thailand

The individuals whose names are listed in Annex 3 of this report agreed during the dialogue workshop to follow the principles and steps laid out in this document.

Background

Within the framework of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), principles of Free Prior Informed Consent (FPIC) apply to research or knowledge-related interactions between Indigenous Peoples and outsiders (including researchers, scientists, journalists, etc.). Given that the dialogue process includes discussion of Indigenous and local knowledge of biodiversity and ecosystems, there may be information which the knowledge holders or their organizations or respective communities consider sensitive, private, or holding value for themselves which they do not want to share in the public domain through publications or other media without formal consent.

Objectives of the workshop

For IPBES, the objective of the workshop is to discuss the assessment's first order draft with participants, to explore strengths, weakness, and ways forward, as well as sharing knowledge around the assessment's theme. If participants agree, a report may be developed to serve as a record of the discussions. Other results may include case studies that illustrate assessment themes.

It is hoped that the workshop will provide an opportunity for all participants to learn more about IPBES and the assessment, and to reflect and learn from one another about how Indigenous and local knowledge can inform and influence environmental decision-making.

Principles

The dialogue will be built on equal sharing and joint learning across knowledge systems and cultures. The aim is to create an environment where people feel comfortable and able to speak on equal terms, which is an important precondition for true dialogue.

To achieve these aims, the following goals are emphasized:

- Equality of all participants and absence of coercive influence
- Listening with empathy and seeking to understand each other's viewpoints
- Accurate and empathetic communication
- Bringing assumptions into the open

If participants feel that the above goals are not being achieved at any point during IPBES activities, participants are asked to bring this to the attention of the organizers of the activity, or the IPBES technical support unit on ILK, at: ilk.tsu.ipbes@unesco.org.

Sharing knowledge and respecting FPIC

To ensure that knowledge is shared in appropriate ways during dialogue workshops and other IPBES activities, and that information and materials produced after these activities are used in ways that respect FPIC, we propose the following:

1. Guardianship – participants who represent organizations and communities

- Principles of guardianship will be discussed with IPLC participants at the beginning of IPBES activities.

- Participants who represent organizations or communities will act as the guardians of the use of the knowledge and materials from their respective organizations or communities that is shared before, during or after the workshop. Any use of their organizations' or communities' knowledge will be discussed and approved by the guardians, as legitimate representatives of their organizations or communities. Guardians are expected to contact their respective organizations and communities when they need advice. Guardians are also expected to seek consent from their organizations or communities when they consider that this is required, keeping in mind that sharing details of their community's knowledge can potentially have negative consequences, for example sharing the locations and uses of medicinal plants.

2. FPIC rights during dialogue workshops and other activities

- The FPIC rights of the Indigenous Peoples participating in dialogue workshops or other activities will be discussed prior to the beginning of the activity, until participants feel comfortable and well informed about their rights and the process, including the eventual planned use and distribution of information. This discussion may be revisited during the activity and will be revisited at the end of dialogue workshops once participants have engaged in the dialogue process.
- Participants do not have to answer any questions that they do not want to answer, and do not need to participate in any part of an activity in which they do not wish to participate;
- At any point, any participant can decide that they do not want particular information to be documented or shared outside of the activity. Participants will inform organizers and other participants of this. Organizers and participants will ensure that the information is not recorded. Participants can also request that the information is only recorded as a general statement attributed to a region or country, rather than to a specific community.
- Permission for photographs must be agreed prior to photos being taken and participants have the right not to be photographed. Organizers will take note of this.

3. After the activity

- Permission will be obtained before any photograph of a participant is used or distributed in any form.
- Permission will be obtained before any list of participants is used or distributed in any form.
- Participants maintain intellectual property rights over all information collected from them about themselves or their communities, including photographs. Their intellectual property rights should be protected, pursuant to applicable laws.
- Copies of all information collected will be provided to the participants for approval.
- Any materials developed for IPBES assessments or other products using information provided by participants will be shared with the participants for prior approval and consent.
- The information collected during the activity will not be used for any purposes other than those for which consent has been granted, unless permission is sought and given by participants.
- Participants can decline to consent or withdraw their knowledge or information from the process at any time, and records of that information will be deleted if requested by the participant. Participants should however be aware that once an assessment is published it cannot be changed, and information incorporated into the assessment cannot therefore be withdrawn from the assessment after this point.
- The second external review of the draft assessment allows participants to review and comment upon the close-to-final product, bearing in mind that responsibility for the final product rests exclusively with the authors.

The participants of the workshop, listed below in Annex 3, agreed to follow the principles and steps laid out in this FPIC document.

Annex 3: Participants of the dialogue workshop

Indigenous Peoples and local communities		
Joji Cariño	Philippines	Forest Peoples Programme / IPBES ILK task force
Udom Charenniyomphrai	Thailand	Head of Environment program of Pgakenyaw Association for Sustainable Development (PASD)
Florence Daguitan	Philippines	Tebtebba, Philippines
Guadalupe Yesenia Hernández Márquez	Mexico	ILK focal point for IPBES in Mexico
Sompnop Jiraphapairo	Thailand	Local participant
Edna Kaptoyo	Kenya	Programme Officer Pawanka and advisor to Pastoral Communities Empowerment Programme (PACEP) Kenya
Chupinit Kesmanee	Thailand	Interpreter / PASD Executive committee board member
Praewa Narrarakphraiwong	Thailand	Sharman/traditional head man of Ban Pa Pong community
Jorni Odochao	Thailand	Local philosopher, head man of Nong Tao community and formal leader of ecological movement in northern Thailand
Kamal Kumar Rai	Nepal	Society for Wetland Biodiversity Conservation / IPBES ILK task force / Nexus assessment author
Suwichan Phattanaphraiwan	Thailand	Indigenous academic, lecture of Srinakharinvirot University, a well-known musician among Karen people.
Chaiprasert Phokha	Thailand	Leader and philosopher of Hin Lad Nai community
Sherry Pictou	Canada	Schulich School of Law, Dalhousie University / IPBES ILK task force
Loupa Pius	Uganda	Program officer Natural Resources with Karamoja Youth Efforts Save Environment (KAYESE)
Songphonsak Rattanawilailak	Thailand	PASD manager/Head of cultural and education program of PASD
Prasit Siri	Thailand	Youth leader of Hin Lad Nai community
Lakpa Nuri Sherpa	Nepal	Asia Indigenous Peoples Pact
Polina Shulbaeva	Russia	Centre for Support of Indigenous Peoples of the North (CSIPN)
Prayad Suachuchip	Thailand	Local participant
Daepho Srivanalapsiri	Thailand	Sharman/traditional headman of Doi-liam community
Yanika Thamoorn,	Thailand	Woman leader of Mae Yod community
Naw Aeri Thungmuangthong	Thailand	Official head woman of Huay E Kha, and Chair of Indigenous women's network in Thailand.
Prasert Trakansuphakon	Thailand	Pgakenyaw Association for Sustainable Development (PASD)
Dilok Trakulrungamphai	Thailand	Leader of Mae Yod community
Nai Phakaesaw Wiangchomthong	Thailand	Local participant

IPBES nexus assessment		
Pam McElwee	USA	Co-chair
Paulina Karimova	Russia	Chapter 1
Silvia Francis Materu	Tanzania	Chapter 2
Denise Margaret Matias	Philippines	Chapter 4
Pablo De La Cruz	Colombia	Chapter 5
Kamal Kumar Rai	Nepal	Chapter 5
Walter Alberto Pengue	Argentina	Chapter 6
Tiff van Huysen	USA	Technical support unit

IPBES task force on Indigenous and local knowledge		
Joji Cariño	Philippines	Forest Peoples Programme / IPBES ILK task force
Kamal Kumar Rai	Nepal	Society for Wetland Biodiversity Conservation / IPBES ILK task force / Nexus assessment author
Sherry Pictou	Canada	Schulich School of Law, Dalhousie University / IPBES ILK task force
Peter Bates	United Kingdom	Technical support unit

Annex 4: Images for conceptualizing the nexus

During the workshop, participants were asked to sketch images that would help to convey their conceptualizations of the nexus, which could be broader than the nexus itself and could include any elements or themes that they deemed appropriate. These images will not be made publicly available, and they are therefore not included here, but they are available to assessment authors and participants as a resource and a basis for further work and discussion with participants.

