

**Country case studies on using traditional
knowledge indicators for rights-based
monitoring of the Kunming–Montreal Global
Biodiversity Framework**

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¹ You can find out more about the Second Expert Workshop on Traditional Knowledge Indicators on the Transformative Pathways website at <https://transformativepathways.net/resources/report-on-the-second-expert-workshop-on-traditional-knowledge-indicators/>

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Key messages

1. Few countries have reported on the traditional knowledge indicators. In their seventh national reports, only 7% of Parties reported on headline indicator 22.1 (land-use change and land tenure in the territories of Indigenous Peoples and local communities). Fewer than 20% of reporting Parties provided data for headline indicator 9.2 (traditional occupations). Common challenges include unclear methods, insufficient data and the governance of community data.

2. Countries can start monitoring using existing systems. Monitoring is possible before methods and data systems are complete. Countries used existing data, institutions and partnerships, and partial or simplified approaches still produced useful evidence. Kenya, Colombia and the Philippines tested or adapted indicator 22.1. Finland has tested indicator 9.2.

3. Land monitoring needs several types of data and the knowledge of communities. Official records, satellite data and community data are stronger when used together. A change in land use can be positive, such as restoration, or negative, such as degradation. Communities help to interpret these changes.

4. Community data must be used with consent and respect. Countries noted a risk that community data is used without recognition, compensation or feedback. Some data is sensitive, such as the location of sacred sites. Monitoring is fairer when governments make commitments in return and protect communities' rights over their data.

5. The indicator on traditional occupations does not yet include all occupations. Finland could report on only two Sámi occupations: reindeer herding and fishing. There was no data for hunting, collecting berries and mushrooms, or handicrafts. The indicator also focuses on income and may not reflect cultural value. Finland recommends a regular survey of the Sámi people.

6. Legal recognition of rights and formal participation support progress. Progress on traditional knowledge indicators was linked to laws and processes that recognise the rights of Indigenous Peoples and local communities, secure land tenure, and formal mechanisms for participation. Examples include agreements between governments and Indigenous organisations, and Finland's legal duty to consult the Sámi Parliament.

7. Monitoring already brings benefits for policy and for communities. Governments can gain evidence they cannot collect alone and can report on several targets together. Communities can gain recognition, stronger land claims and knowledge exchange between generations. In the Philippines, evidence of positive biodiversity trends on Indigenous lands led to a change in national law. In Kenya, community mapping identified about 88,253 hectares restored by communities. Elders and young people working together helped to pass on traditional knowledge.

8. Wider uptake of indicators needs co-designed methods, connected data systems and funding. Priority actions include: co-designing methods with Indigenous Peoples and local communities; finalising the methods that are still in development; national data protocols that set out who holds and validates data; predictable funding for community-based monitoring; and strengthening capacities among youth.

1. Introduction

This year, 2026, marks the mid-point in the timeframe to implement the 2030 Targets in the Kunming–Montreal Global Biodiversity Framework (KMGBF). When Parties to the Convention on Biological Diversity (CBD) adopted the KMGBF in 2022, they renewed not only their ambitions on the conservation and sustainable use of biodiversity and the equitable sharing of benefits, but also their ambitions to recognize and support the roles, contributions and rights of Indigenous Peoples and local communities and to apply a gender-responsive and human rights-based approach to its implementation, monitoring and evaluation. Section C of the KMGBF acknowledges that Indigenous Peoples and local communities are essential actors in achieving the Framework’s goals and targets, and Targets 21 and 22 set specific ambitions for ensuring the full, equitable and effective participation of Indigenous Peoples and the appropriate use of their knowledge systems in decision-making and governance.

Marking a significant evolution from previous global biodiversity frameworks, alongside the KMGBF, Parties adopted an enhanced monitoring framework designed to help systematically track progress on the implementation of the Framework at the national and global level. Countries are in the process of developing and strengthening national systems for monitoring progress towards the targets in National Biodiversity Strategies and Action plans. In practice, this process typically requires identifying and selecting appropriate indicators for national targets, mapping available sources of evidence and data for monitoring each indicator, and putting institutional arrangements in place to facilitate a whole-of-government and whole-of-society approach to monitoring. While countries are at different stages of updating national monitoring systems, many countries are encountering new indicators with which there may be limited experience of monitoring, including indicators on traditional knowledge.

The case studies presented in this document offer practical insight into how four countries are monitoring the adopted traditional knowledge indicators of the KMGBF monitoring framework within their national contexts, and what early progress, challenges and opportunities are emerging. By sharing diverse experiences from Kenya, Colombia, Philippines and Finland, the report aims to provide practical guidance for other countries strengthening the use of indicators in national contexts. The primary audience for this report is government actors seeking guidance for monitoring and reporting on the KMGBF. The case studies are also relevant for partners interested in understanding how rights-based and community-led biodiversity monitoring can inform monitoring and policy decisions at the national level.

2. Policy mandate under the Convention on Biological Diversity

In 2025, Parties to the Convention on Biological Diversity (CBD) adopted an updated monitoring framework for the KMGBF ([CBD/COP/DEC/16/31](#)), which includes the four traditional knowledge indicators that were developed under the Ad-Hoc Working Group on Article 8(j) and related provisions to assess the status of traditional knowledge and measure the extent to which the rights of Indigenous Peoples and local communities are realized in the implementation of the CBD (see Table 1). In Decision 15/4 (CBD/COP/DEC/15/4), CBD Parties decided that the Framework is to be understood, acted upon, implemented, reported and evaluated, consistent with the 18 cross-cutting considerations set out in KMGBF Section C. Several of these

considerations specifically address inclusion, equity and rights: (a) contributions and rights of indigenous peoples, (c) whole-of-government and whole-of-society approach, (g) human rights-based approach, (h) gender, and (n) intergenerational equity. These cross-cutting considerations inform both *what* is monitored and *how* monitoring is undertaken.

Parties have recognized “the contributions of community-based monitoring and information systems to improving global biodiversity knowledge, data and information, while acknowledging the need to engage indigenous peoples and local communities in the development and management of those information systems”. Parties have also encouraged themselves “to provide support, including resources, for community based monitoring and information systems, including in the use of data from those systems in the implementation of the monitoring framework” ([CBD/COP/DEC/16/31](#)).

3. Four traditional knowledge indicators in the monitoring framework for the KMGBF

The four traditional knowledge indicators adopted in the KMGBF monitoring framework are summarised in Table 1. At the time of producing this report, methodologies for the indicators are at different stages in their development. Similarly, some of the indicators are already being piloted by countries, whereas others have not been piloted yet. Among the countries who participated in the Second Expert Workshop on Traditional Knowledge Indicators, Kenya, Colombia and the Philippines have piloted (to different extents) the indicator on “Land-use change and land tenure in the traditional territories of indigenous peoples and local communities” and Finland has piloted the indicator on “Percentage of the population in traditional occupations”. The case studies in this report focus on the experiences of Kenya, Colombia, Philippines and Finland.

Table 1: The four traditional knowledge indicators adopted by Parties in the monitoring framework for the Kunming-Montreal Global Biodiversity Framework

Indicator name	Indicator type
Land use change and land tenure in the traditional territories of indigenous peoples and local communities	Adopted as headline indicator 22.1 for Target 22
Percentage of the population in traditional occupations	Adopted as headline indicator 9.2 for Target 9
Index of linguistic diversity	Adopted as component indicator 21.CT.3 for Target 21
Participation of indigenous peoples and local communities in decision-making related to the implementation of the Convention at all levels	Adopted as component indicator 21.CT.2 for Target 22

4. Progress on monitoring traditional knowledge indicators in 7th National Reports

At the request of Parties, the CBD Secretariat prepared a Global Report on Collective Progress in the Implementation of the Framework², to inform the subsequent global review of collective

² Secretariat of the Convention on Biological Diversity. [State of Biodiversity Action: Global Report on Collective Progress in the Implementation of the Kunming-Montreal Global Biodiversity Framework](#). Montreal, 2026.

progress during CBD COP17. The report includes an analysis of national use of the globally-adopted indicators for monitoring and reporting, including the four traditional knowledge indicators, in the 7th national reports to the CBD. The report revealed that while some progress has been made by Parties to monitor and report on the four traditional knowledge indicators, overall reporting on the indicators has been low.

Both headline indicators (22.1 - land use change and land tenure in the traditional territories of indigenous peoples and local communities and 9.2 - percentage of the population in traditional occupations) had low reporting rates. Of all headline indicators, 22.1 was the least reported. 7% of Parties reported on the indicator, with only one Party submitting the indicator fully as described in the metadata (Secretariat of the CBD, 2026, p.309). Less than 20% of reporting Parties submitted data for headline indicator 9.2, while 13% of reporting Parties explicitly stated that the indicator was not relevant to their national circumstances (p.155). In addition, several countries noted challenges in identifying and monitoring traditional occupations due to the often localized and contextual nature of such occupations (p.156).

For Target 21 (focussed on ensuring that the best available knowledge, information and data from a range of actors are used to guide effective and equitable governance), the global report found that the element least reported on relates to the inclusion of traditional knowledge, innovations, practices and technologies of indigenous peoples with free, prior and informed consent (p.293). Target 22 (focussed on ensuring participation in decision-making and access to justice and information related to biodiversity for all), was also addressed unevenly across Parties and across the different actor groups named in Target 22 (Indigenous Peoples, local communities, women, youth and persons with disabilities) (p.391).

Overall, the report demonstrates that progress has been made by countries to address Indigenous Peoples and local communities in their national targets to at least some extent, though it notes lesser coverage of access to information and justice, rights over lands, territories, resources and traditional knowledge within national targets (p.304; 399). While some countries reported improving the enabling conditions for rights-based participation (p.305; 307; 391), monitoring systems to track the outcomes of those measures remain underdeveloped (p.305). Parties reported methodological and definitional challenges related to the indicators, insufficient data to assess trends, data governance challenges related to the inclusion of traditional knowledge and community-based information, and challenges related to coordinating and tracking the contributions of non-state actors (p.304; 391; 399; 400).

5. Supporting use of the traditional knowledge indicators, including sharing country examples

In March 2024, as part of the [Transformative Pathways Project](#), the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), Forest Peoples Programme (FPP) and the CBD Secretariat convened an Expert Workshop on Traditional Knowledge Indicators. The workshop brought together 38 experts, including Indigenous experts, members of the Ad Hoc Technical Expert Group (AHTEG) on Indicators, and other specialists to review and refine methodologies for the four traditional knowledge indicators. The discussions directly supported the AHTEG's development of guidance on the readiness and relevance of the indicators for monitoring the KMGBF ([CBD/COP/16/INF/3/Rev.1](#)).

In January 2026, the same organizations convened a Second Expert Workshop to build on this methodological work. The second expert workshop focussed on assessing how the traditional knowledge indicators were being used. Government partners and community representatives shared information on their progress, challenges and examples of how community-based monitoring and information systems (CBMIS) are feeding into national monitoring and reporting processes. The experiences of Kenya, Colombia, Philippines and Finland in monitoring traditional knowledge indicators within their national context were shared and compiled – following review and validation by national partners – and documented in this report as country case studies.

6. Country case studies

Headline Indicator 22.1 – Land-use change and land tenure in the traditional territories of Indigenous Peoples and local communities

During the Second Expert Workshop on Traditional Knowledge Indicators, attendees representing national government, Indigenous Peoples and local communities in Kenya, Colombia and the Philippines shared their experiences of using Indicator 22.1.

Summary of indicator status

Kenya: Piloting the updated methodology; not yet fully implemented due to data fragmentation and integration challenges.

Colombia: Adapted and used.

Philippines: Adapted and partially used.

6a. Kenya

Usage or adaptation of the indicator

In Kenya, the focus has predominantly been on identifying and consolidating spatial data on community land use and land tenure as provided for in the Community Land Act (2016). Mapping exists at multiple levels – county governments, the Ministry of Lands, the National Land Commission (NLC), the Survey of Kenya, regional bodies such as the Regional Centre for Mapping of Resources for Development (RCMRD), and initiatives supported by the United Nations Food and Agriculture Organization (FAO) and civil society – but these datasets have not yet been fully integrated into a national dataset that can robustly track land-use change within Indigenous and community territories.

Kenya has been engaging with the updated methodology for headline indicator 22.1 as a pilot country, with national dialogues taking place between government institutions, Indigenous Peoples' and local community organisations, and technical partners. A National Data Mapping and Validation Workshop on headline indicator 22.1 (and indicator 2.1 on ecosystem restoration), held in Nairobi in May 2026, brought these actors together to assess the availability, quality, governance and interoperability of both official and community-generated datasets against the indicator's three core dimensions: legal recognition of community lands and territories, perceived tenure security within these territories, and land-use change over time.

Kenya's legal foundation for this indicator is relatively strong: the Constitution of Kenya (2010) and the Community Land Act (2016) provide for the recognition, registration and governance of community land, which is estimated to cover approximately 69.1% of Kenya's land area (National Land Commission, 2026). Community land registration is progressing, but many communities remain at different stages of adjudication, registration, boundary verification, governance strengthening and land-use planning, so implementation of the legal framework is still uneven.

For land-use change, Kenya draws on remote-sensing and geospatial datasets held by both communities and national institutions, including the Directorate of Resource Surveys and Remote Sensing, potentially complemented by global datasets such as Global Forest Watch, LandMark and the ICCA Registry. For land tenure, the primary sources relate to community land registration and adjudication under the Community Land Act, held by the Ministry of Lands, county governments, community land registries and the National Land Commission. In the workshop discussions, participants noted that registered and unregistered community land, trust land histories, customary tenure arrangements and community conservation areas may each require different treatment in the indicator methodology. Nonetheless, Kenya provides an important emerging example of combining official and community-generated data in reporting on HI22.1 in its 7th national report.

Involvement of Indigenous Peoples and/or local communities

Much of Kenya's technical work and capacity-building efforts (e.g. training communities to generate and use maps) has been carried out by non-state actors and civil society organisations, while government agencies at national and county levels hold key datasets. Organisations such as IMPACT Kenya, Indigenous Livelihood Enhancement Partners (ILEPA), the Ogiek People Development Programme (OPDP), and Samburu Women's Trust are increasingly supporting the establishment of community-based monitoring and information systems (CBMIS) through biocultural mapping, participatory land-use planning, resource mapping, conservation monitoring and restoration documentation. Biocultural mapping documents sacred sites, grazing corridors, seasonal water points and culturally significant ecosystems. These dimensions are especially relevant in pastoralist and rangeland landscapes, where ecological integrity is closely linked to mobility and customary governance rather than fixed land-use categories. Community Land Management Committees that are mandated under the Community Land Act exist as potential platforms for engagement, but access to official maps and adjudication data remains limited, and much of the technical work has in practice been carried out by non-state actors.

Community monitoring increasingly combines traditional knowledge with digital tools such as participatory Geographic Information System (GIS) mapping, EarthRanger, SMART, GeoPasture and AudioMoth sensors to track wildlife, ecosystem restoration, grazing dynamics and human–wildlife interactions. These technologies complement rather than replace Indigenous knowledge: elders contribute historical ecological knowledge and cultural interpretation, while youth bring digital and mapping skills, together creating a stronger foundation for rights-based monitoring than either approach alone.

Evidence and information generated

Kenya's experience suggests that indicator 22.1 is most useful when treated as a governance indicator as much as a technical one, since its value lies in making visible the relationship between land tenure security, land-use change, restoration outcomes³ and community governance. The application of the indicator raises important questions such as who defines and validates the data, who controls access, and who benefits from reporting. It also suggests that national reporting is strengthened by combining three forms of evidence: official administrative records, geospatial/remote-sensing data, and community-generated knowledge, since no single source is sufficient alone. Kenya's next steps focus on moving from data mapping to an operational monitoring pathway: establishing a technical working group or community of practice, developing a national data protocol, clarifying data custodianship and validation roles, identifying pilot landscapes, and developing safeguards for community data governance, feeding these into NBSAPs and future progress reports.

Challenges and barriers

- Data fragmentation across institutions and levels of government
- Limited public accessibility of official maps
- Difficulty integrating adjudication maps with formally recognized community lands
- Heavy reliance on civil society participation and data without clarity around sustained resourcing or compensation
- Risk of treating community-generated data extractively, absorbing it into national systems without clear safeguards, free, prior and informed consent, data-sharing agreements or respect for Indigenous data sovereignty, noting that some of the data are sensitive (e.g. pertain to sacred sites, medicinal plants, wildlife locations, or contested boundaries)
- Complexity of interpreting land-use change: land-use change on community and Indigenous lands is not automatically positive or negative (it may reflect restoration, adaptive pastoral mobility or encroachment and degradation), so the indicator needs qualitative, community-validated interpretation alongside quantitative and spatial analysis
- Institutional coordination challenges across line ministries and agencies, national and county governments, the national statistical system, and community governance bodies

Factors enabling progress

Progress in Kenya has been supported by an existing legal framework for community land; an active ecosystem of Indigenous Peoples' and local community organisations with practical mapping and advocacy experience; government openness to testing and adapting the indicator methodology together with communities; access to national and global geospatial datasets, augmented by the presence of the RCMRD, a CBD technical partner hosted in Kenya with coordination of the FAO – custodian of the indicator; Kenya's role as a pilot country for the updated Indicator 22.1 methodology, feeding national lessons into global guidance; and active participation in international technical exchanges on rights-based monitoring.

³ As an example, community involvement in mapping identified an estimated 88,253 hectares restored through community-based approaches, linking Indicator 22.1 to Indicator 2.1 on ecosystem restoration.

6b. Colombia

Usage or adaptation of the indicator

Colombia has adapted indicator 22.1 to the national context and is relatively advanced in monitoring the indicator because of well-established data on Indigenous Resguardos⁴. As of 10 October 2025, there are 954 constituted Indigenous Resguardos in Colombia, covering approximately 35.2 million hectares. In parallel, the National Land Agency is processing 1,356 requests for constitution, expansion, or sanitation of Indigenous territories. The country combines government cadastral and land administration data with civil society and Indigenous-generated information, including analyses comparing deforestation rates inside versus outside Indigenous territories, to demonstrate land-use outcomes associated with secure tenure. Indigenous peoples' information systems, such as the Territorial Monitoring System (SMT-ONIC).

Involvement of Indigenous Peoples and/or local communities

Seven indigenous organizations of national order, recognized by decree, participate: ONIC (National Indigenous Organization of Colombia), OPIAC (Organization of Indigenous Peoples of the Colombian Amazon), AICO (Indigenous Authorities of Colombia for Pachamama), CIT (Tayrona Indigenous Confederation), Traditional Authorities of the Major Government, AISO (Indigenous Authorities of the Southwest), and CRIC (Regional Indigenous Council of Cauca). These organizations, in turn, represent regional organizations and remote territories. The entire representative structure is legitimized by the MPC (Permanent Roundtable for Consultation), a collective body that promotes processes of consensus-building on regulations, public policy, and development plans related to the environment, territorial management, and land-use planning.

Engagement is structured through formal agreements, such as Memoranda of Understanding (MOUs) between government institutions and Indigenous organizations. To guarantee participatory spaces for the establishment, expansion, and regularization of indigenous reserves, indigenous authorities submit requests for territorial formalization and validation of spatial and environmental data to the National Land Agency, in conjunction with the Ministry of Agriculture, the Ministry of Environment, and the Ministry of the Interior. Civil society organizations play a liaison role, supporting data analysis and ensuring comparability between sources, as these organizations utilize data from platforms such as SIB Colombia, and also generate alliances or spaces for dialogue with institutes such as the Humboldt Institute for information to support their own processes in the territories.

Evidence and information generated

Data, evidence and information gathered for indicator 22.1 in Colombia include:

- Official registry of constituted Indigenous Resguardos (area and location)
- Database of pending formalization requests
- Comparative deforestation analyses showing lower deforestation rates inside Indigenous territories than outside. The CNTI report found that the reserves currently hold the largest amount of conserved forest in the country, but it does not present a rigorous statistical

⁴ Legally recognized collective territorial units owned and administered by indigenous communities.

analysis comparing rates "inside vs. outside"; rather, it compares deforestation between different reserves (e.g., Nukak vs. Yuquera).

- Combined government–civil society spatial datasets
- The 2025 CNTI report includes detailed tables by department (Meta, Vaupés, Guaviare, Caquetá, Putumayo) with the number of applications for the formalization of reserves (establishment, expansion, restructuring, regularization), many inherited from INCORA/INCODER.
- Database of Pending Formalization Applications
- The analysis repeatedly relies on cross-referenced data from SIAC (Colombia's Environmental Information System, a government agency) and FCDS (Foundation for Conservation and Sustainable Development, a civil society organization), cited as "ODITP-SIAC; FCDS, 2022."
- Official register of constituted indigenous reserves (area and location): It is used partially: there are specific references to data from the IGAC and to specific reserves with dates of constitution, but it does not appear as a systematic register of area/location of all the reserves in the country.

Challenges and barriers

- Significant backlog of formalization requests creates uncertainty for large areas. There are many pending applications in Putumayo, Caquetá, and Meta, with processes delayed by INCORA/INCODER.
- Harmonizing datasets across institutions remains resource intensive.

Factors enabling progress

- Strong legal frameworks and constitutional recognition of Resguardos in Colombia. These include the 1991 Constitution, ILO Convention 169, Decree 2164 of 1995, Decree-Law 4633 of 2011, the systems of self-government, among other decrees.
- The existence of existing Indigenous governance structures - territorial organization under their own systems of traditional knowledge and governance.
- The existence of civil-society partnerships, which are often formalised through MoUs
- Collaboration with NGOs, research institutions and joint research agreements.
- The availability of national or regional spatial data infrastructure, even if it is not yet fully integrated at different spatial levels. In this regard, the CNTI highlights the use of SIAC, IDEAM, IGAC, SIB Colombia and FCDS, which in turn seek to strengthen the information systems of indigenous peoples.
- Evidence that secure tenure correlates with positive biodiversity outcomes, which has helped to justify continued investment.

6c. Philippines

Submitted by the International Land Coalition (ILC) on behalf of the National Land Coalition in the Philippines (NLC-PH)

Usage or adaptation of the indicator

In the Philippines, progress to monitor indicator 22.1 builds on decades of implementation of the Indigenous Peoples' Rights Act (IPRA), which mandates recognition and titling of ancestral domains. Rather than depending solely on remote sensing to evaluate isolated land-cover

changes, the national approach utilizes formal ancestral domain recognition and customary land governance instruments as direct proxies for secure tenure and sustainable land management. Central to this model are Certificates of Ancestral Domain Title (CADT) and Ancestral Domain Sustainable Development and Protection Plans (ADSDPPs). Formulated directly by Indigenous Cultural Communities (ICCs), ADSDPPs function as self-determined spatial frameworks that integrate customary biodiversity protection directly into ancestral domain management. Currently, approximately 5.9 million hectares are legally titled, with another 3.8 million hectares surveyed and progressing through the titling pipeline, against a long-term national scope of 13.5 to 15 million hectares. State geospatial assets, including the 2020 National Land Cover series, provide a baseline to correlate documented customary boundaries with long-term forest and canopy retention.

In its Seventh National Report to the CBD, the Philippines reported that active validation of Indicator 22.1 was underway. The submission drew upon tenure databases from the National Commission on Indigenous Peoples (NCIP) and spatial monitoring records from the Department of Environment and Natural Resources (DENR). Crucially, the data pipeline featured detailed spatial overlays of Indigenous Peoples' Conserved Territories (ICCAs), Key Biodiversity Areas (KBAs), Other Effective Area-based Conservation Measures (OECMs), and statutory Protected Areas (PAs) generated through the formulation and localization of the Indigenous Peoples Biodiversity Strategy and Action Plan (IPBSAP). Technical reconciliation led by the Philippine Association for Intercultural Development (PAFID) and the DENR Biodiversity Management Bureau (BMB) cleaned boundary registries across multiple provinces to address overlaps and eliminate data conflicts before national dataset consolidation.⁵

Involvement of Indigenous Peoples and/or local communities

Indigenous communities and their representative organizations are primary actors rather than external subjects in this data ecosystem. Communities direct field boundary identification, customary mapping, and territorial plan formulation. To broaden technical ownership and move away from centralized cartographic workflows, PAFID facilitated intensive geospatial workshops in June 2026 for partner civil society organizations and community leaders. This initiative equipped participating mappers with the tools to independently produce, audit, and manage GIS polygon layers, transitioning technical capacity into a shared community network. Community-generated cartographic data flows through regional IPBSAP localization mechanisms to the DENR-BMB GIS section, while NCIP oversees official title verification. This process establishes a functional working relationship between Indigenous cartographers and state environmental agencies, allowing validated community-source data to inform national reporting obligations directly.

Evidence or information generated

⁵ The reconciliation of spatial boundaries and the formulation of the IPBSAP represent a collaborative milestone achieved by Indigenous Peoples' Organizations (IPOs) and Indigenous People Biodiversity Coalition (Coordinating Committee) a coalition of NGOs supporting IP rights. Substantial technical guidance, field cartography, and community accompaniment were provided by the Philippine Association for Intercultural Development (PAFID) and Non-Timber Forest Products–Exchange Programme (NTFP-EP), alongside continuous institutional, policy, and financing support from the Foundation for Philippine Environment, ILC, and others.

In the Philippines, the following sources of data, information and evidence have been used for monitoring headline indicator 22.1:

- Number and area (hectares) of titled ancestral domains
- Number of ADSDPPs adopted or under revision
- Spatial maps of ancestral domains produced by government and CSOs
- National land-cover maps (2020) that can be overlaid with ancestral domains to infer land-use patterns (forests, water, other land uses)
- Proxy measures such as the proportion of ancestral domain area under community influence and control, linked to perceived tenure security

The multi-stakeholder partnership has established a robust baseline combining spatial, administrative, and qualitative records. This includes boundary registries of CADTs and titled claims overlaid against state-managed Protected Areas, potential OECM sites, and Key Biodiversity Areas, complemented by aggregated regional trackers documenting the adoption, mainstreaming, and revision of ADSDPPs. Additionally, national land-cover layers (2020 series) were intersected with customary boundaries to examine the statistical correlation between secure tenure and forest cover preservation, while field proxies evaluate community operational control and perceived territorial protection. Ongoing localization workshops continue to feed newly reconciled community spatial data into this national framework.

Challenges and barriers.

- Land-use change is difficult to capture consistently across domains.
- Not all ancestral domains have finalized management plans, which currently limits comparability.
- Titling processes are labour- and time-intensive, creating persistent administrative lags in updating national cadastral registries.
- Decades-old spatial overlaps between statutory reserves, extractive concessions, and ancestral domains require detailed, ongoing spatial reconciliation to resolve conflicting management claims.
- Ensuring ADSDPPs serve as viable, adequately financed local governance instruments rather than static documents created merely to satisfy regulatory compliance.
- While formal recognition of Indigenous stewardship has expanded, integrating traditional knowledge systems on equal terms with conventional conservation mechanisms within state structures requires sustained engagement and institutional parity of esteem.

Factors enabling progress

Progress has been propelled by a combination of statutory mandates, organizational shifts, and international platforms. The IPRA supplies an explicit rights-based foundation that vests territorial jurisdiction in traditional authorities, creating a legal counterpart for state collaboration. Within the state apparatus, progress accelerated through an internal transition within DENR's Biodiversity Management Bureau from traditional conservation paradigms to inclusive governance models, where BMB staff actively championed the structural inclusion of Indigenous priorities within the national biodiversity planning architecture ahead of wider inter-agency adoption.

This institutional momentum was elevated during the 81st Session of the UN General Assembly (UNGA 81) High-Level Week, where the Philippines DENR leadership formally reaffirmed the country's commitment to the 30x30 target across terrestrial and marine ecosystems. In its high-level statements, the DENR underlined that durable conservation hinges on genuine community ownership, citing the IPBSAP as the guiding framework that aligns national biodiversity protection and Target 3 area-based mechanisms (including OECMs) with the tenure rights and traditional ecological knowledge of Indigenous Peoples. Throughout this evolution, the International Land Coalition (ILC) and the National Land Coalition in the Philippines (NLC-PH) – anchored by PAFID's leadership alongside partner Indigenous Peoples' Organizations (IPOs) and in coordination with the Indigenous People Biodiversity Coalition (Coordinating Committee) for the IPBSAP, – collaborated to organize regular cross-learning forums, regional dialogues, localization workshops, and technical alignment, sustaining trust and multi-stakeholder partnership between state agencies and civil society.

Looking ahead, DENR-BMB is currently finalizing the 2024–2040 Philippine Biodiversity Strategy and Action Plan (PBSAP) Implementation Plan, which integrates the IPBSAP as a cross-cutting framework across all national targets rather than treating it as a separate annex. In parallel, national consultations on the Seventh National Report continue, establishing a collaborative precedent ahead of CBD COP negotiations in Armenia. Supported by multi-stakeholder consultations and shared partner stewardship, this model demonstrates how whole-of-society partnerships can turn Target 22 into a practical, rights-based reality.

Headline indicator 9.2 - Percentage of the population in traditional occupations

6d. Finland

Usage or adaptation of the indicator

For their 7th national report, Finland developed and used a methodology for headline indicator 9.2 that was suited to their national context. Finland reported two proxy indicators for headline indicator 9.2: *Percent of Sámi owning reindeer* and the *Share of 18–69-year-old population who have paid fisheries management fees in the Sámi Homeland*. The Finnish Environment Institute (SYKE) led the methodological development, compilation of data and calculation of these indicators in close cooperation with the Sámi Parliament, the representative body for the Indigenous Sámi people in Finland, who provided data, input on the methodological approach and validated indicator results. The methodology that Finland applied for headline indicator 9.2 reflects the country's recognition of the Sámi as the country's Indigenous Peoples, with their self-identified traditional occupations.

The traditional occupations of the Sámi considered for this indicator were based on those occupations recognised by the Sámi Parliament, encompassing reindeer herding, fishing, hunting, the collection of wild berries and mushrooms, and handicrafts. In some cases, small-scale tourism based on these livelihoods is also included.

Data availability was also a crucial factor in shaping the methodology for this indicator in Finland. Due to data limitations, Finland was only able to report on two traditional occupations,

reindeer herding and fishing, using proxy data. Monitoring data were not available for the collection of wild berries and mushrooms, or handicrafts, and hunting could not be reported due to practical issues.

Reindeer herding is the most important traditional source of livelihood for the Sámi in Finland. To produce the indicator *Percent of Sámi owning reindeer*, time series data on the total number of reindeer owners in the Sámi Homeland were obtained from the Finnish Reindeer Herders' Association based on official registrations. As these data are not disaggregated by ethnicity, the number of Sámi reindeer owners was estimated by applying a research-based estimate on the proportion of Sámi (assumption 90%) among the total number of reindeer owners in the Sámi Homeland. This value was then divided by the number of registered voters on the Sámi Parliament electoral roll, as a proxy for the Sámi population, provided by the Sámi Parliament to calculate the *Percent of Sámi owning reindeer* over time.

Fishing is another important traditional source of livelihood for the Finnish Sámi. Time series data on the number of people who paid the annual fisheries management fee in the Sámi Homeland, a mandatory fee for fishers aged 18–69 who use lures or traps or catch crayfish, were provided by Metsähallitus, the state agency responsible for managing public lands and waters. For each available year, the share of the 18–69-year-old population who paid the fee (regardless of ethnicity) was calculated by dividing the number of fee payers by the total 18–69-year-old population in the Sámi Homeland, based on census data from Statistics Finland.

Involvement of Indigenous Peoples and/or local communities

SYKE presented the proposed methodologies for monitoring headline indicator 9.2 to the Sámi Parliament for consideration through an expert committee meeting. The expert committee provided key input, including updating the estimate of the proportion of Sámi among reindeer herders in the Sámi Homeland to the 90% figure based on the most recent research (Magga 2024). The final indicator results were subsequently submitted to the Sámi Parliament through the expert committee, which issued a statement to the Executive Board for final approval and inclusion in Finland's 7th national report to the CBD.

Finland's Ministry of Environment steered the preparation and review of the 7th national report to the CBD. Indigenous Peoples were engaged and involved at multiple stages of indicator production, through the Sámi Parliament, the representative body for the Indigenous Sámi people in Finland. An expert committee of the Sámi Parliament provided input on the methodological approach. The methodology also reflected the Sámi Parliament's definitions of the traditional occupations of the Sámi. The Parliament also provided key data for the indicators. The Executive Board of the Sámi Parliament validated and approved the final indicator results for inclusion in Finland's 7th national report. All in all, data for indicator 9.2 were provided by the following actors in Finland:

- The Finnish Reindeer Herders' Association, part of the Ministry of Agriculture and Forestry, provided data on the number of reindeer owners in the Sámi Homeland based on official registrations.
- The Sámi Parliament of Finland shared data on the number of registered voters in the election of the Sámi Parliament from the electoral roll.

- Metsähallitus, a state enterprise responsible managing public lands and waters, provided data on the number of people who paid annual fisheries management fees in the Sámi Homeland.
- Statistics Finland, Finland's national statistical office, provided data on the total population of 18–69-year-olds in the Sámi Homeland.

Evidence and information generated

While an official methodology for headline indicator 9.2 is still under development, Finland used proxy indicators based on the best available data. This enabled Finland to produce quantitative time series indicator results for the two traditional occupations for which reliable data were available. For reindeer herding, the *Percent of Sámi owning reindeer* were calculated for 2000–2023, showing a slight declining trend. For fishing, time series data on the *Share of 18–69-year-old population who paid fisheries management fees in the Sámi Homeland* were produced for 2016–2024. The estimates rely on assumptions regarding the proportion of Sámi among reindeer owners, and the number of fisheries license holders in the Sámi Homeland as a proxy for the number of Sámi engaging in these traditional occupations.

Challenges and barriers

In Finland's experience of monitoring headline indicator 9.2, a key technical challenge was the absence of a fully operational and standardized methodology for the indicator, which required Finland to use proxy indicator methodologies based on available data.

Data availability was also a challenge. There was no available monitoring data for traditional occupations related to the collection of wild berries and mushrooms, and handicrafts. In addition, the absence of direct counts of Sámi participation in reindeer herding and fishing meant that proxy data had to be used, with a difficulty of distinguishing between Indigenous and non-Indigenous practitioners. The indicator on fishing was based on the number of individuals aged 18–69 who paid fisheries management fees in the Sámi Homeland, which includes both Sámi and other registered fishers. For reindeer herding, a research-based estimate on the proportion of Sámi among reindeer owners in the Sámi Homeland was used to distinguish between Sámi and non-Sámi herders, however, this remains an approximation and is not based on primary data disaggregated by ethnicity.

The available data were also geographically limited to the Sámi Homeland, excluding Sámi living outside this area who may still engage in these traditional occupations. Furthermore, individuals practicing traditional livelihoods without formal registration or licenses were not captured.

Lack of data availability also limited Finland's ability to generate more meaningful insights into the importance of traditional occupations for Sámi livelihoods and cultural practices. For example, Finland was only able to report the proportion of Sámi who own reindeer, rather than indicators reflecting the relative importance of reindeer herding, such as the share of individuals deriving most of their income from it, or the importance to their culture and way of life. In addition, it was not possible to aggregate the indicators into a single value. This was due in part to the lack of data on the overlap between individuals engaged in both reindeer herding and fishing, meaning

the proportion of the Sámi population engaged in at least one traditional occupation could not be estimated.

To address these challenges, in its 7th national report to the CBD, Finland recommended the development of a statistically robust and repeatable survey focused on the Sámi. Such a survey would enable the collection of primary data from the Sámi on their participation in traditional occupations, including fishing and reindeer herding but also for the occupations currently missing, such as hunting, wild berries and mushrooms collection and handicrafts, and would allow for analysis of overlap between occupations and ability therefore to estimate the proportion of Sámi engaging in at least one traditional occupation. This would also enable Finland to better capture the cultural and economic importance of these activities.

However, implementing such a survey would present several challenges. A statistically representative approach would likely require distribution through the Sámi electoral roll through the Sámi Parliament, while recognising that this would still not capture all individuals who identify as Sámi. It would also require the active involvement of the Sámi Parliament to ensure appropriate governance of the process and adherence to FPIC. Previous survey efforts by the Sámi Parliament to collect data on traditional knowledge indicators faced low response rates and were difficult to repeat. A more robust approach would therefore require close collaboration between statisticians and the Sámi Parliament in survey design, supported by adequate financial and technical resources. Crucially, any such effort would need to align with the priorities of the Sámi Parliament and demonstrate clear value to Sámi communities.

Factors enabling progress

Progress and successful engagement of the Sámi in Finland's national monitoring of this headline indicator was enabled by a combination of legislative frameworks and well-established relationships between the government, the Sámi parliament and other agencies involved in monitoring traditional occupations. For example, having a legally mandated process for consulting the Sámi in interactions with state authorities was a significant enabler. The Sámi Parliament Act, updated in 2025, strengthens Sámi self-determination in political representation and imposes binding obligations on state authorities to consult with the Sámi Parliament on matters affecting the Sámi Homeland, including land use, resource management, and cultural heritage. In addition to this legal framework, the long-standing trust and working relationship between the Sámi Parliament and national government authorities facilitated was key. Decades of collaboration, particularly with the Ministry of Environment, provided a strong foundation for dialogue and data sharing, ensuring that Sámi perspectives were integrated into indicator design, data interpretation, and validation.

Analysis of country case studies

The country case studies presented above illustrate a range of experiences, progress and challenges in adapting traditional knowledge indicators to national circumstances and for biodiversity monitoring. Drawing on discussions during the Second Expert Workshop on Traditional Knowledge Indicators and the experiences shared by participants from Kenya, Colombia, Philippines and Finland, this section explores some of the differences and commonalities across country experiences. It also synthesizes the benefits countries reported

on monitoring these indicators, and the actions needed to improve the uptake and use of traditional knowledge and rights-based indicators.

Key insights for headline indicator 22.1

Discussions on indicator 22.1 during the Second Expert Workshop on Traditional Knowledge Indicators demonstrated that the indicator is feasible to monitor but sometimes involves methodological complexities. Countries with long-standing recognition of Indigenous territories, such as the Philippines and Colombia, have been able to adapt existing systems, while others, such as Kenya, highlight the risks of data fragmentation and/or over-reliance on data from non-state actors. In all cases, partial and imperfect approaches still generate valuable learning and point toward more rights-respecting monitoring under the KMGBF.

Across all countries, indicator 22.1 proved conceptually challenging at times, as it requires linking tenure status with land-use change. Also, a cross-cutting concern that countries raised was the risk that citizen- and community-generated data are used without formal recognition, compensation, or feedback, raising questions about fairness.

Indigenous and local partners expressed that indicator 22.1 can be most useful for monitoring when it respects these realities and does not reduce complex territorial relationships to narrow metrics. Evidence of land tenure security is not only legal but also perceived and lived, suggesting the value of qualitative, perception-based indications of trends alongside spatial metrics.

Key insights for headline indicator 9.2

Of the four countries that attended the Second Expert Workshop on Traditional Knowledge Indicators, Finland was the only country to have piloted indicator 9.2. However, Finland's experience resembles the experiences of Kenya, Colombia and the Philippines in the sense that Finland had to adapt their approach to monitoring indicator 9.2 based on the data that was available and by making use of existing institutional arrangements in adherence with national laws. The current approach for indicator 9.2 primarily captures occupations linked to income-generating activities. As a result, it may not fully reflect the broader cultural dimensions of traditional occupations, such as handicraft making, which are not always practiced as primary or income-generating activity but remains an important aspect of Sámi identity and way of life.

Differences and commonalities

In this section, we explore some of the emerging differences and commonalities across the four countries with regards to their experiences of monitoring traditional knowledge indicators.

For all four countries, the approach that countries took to monitor and report data for the traditional knowledge indicators was tailored to suit national contexts and capacities. All four case studies show that progress is still possible even where conceptual, methodological, institutional and data-related challenges exist. Each country's experience demonstrates that even where national monitoring systems still require updating and improving to meet all of the country's monitoring needs, early progress can be made when countries make use of their existing monitoring architecture (e.g. existing data flows, coordination through existing partnership), rather than building new monitoring systems from scratch. The case studies also reveal, even where "ideal" indicator methodologies are not yet available or in use, monitoring

approaches that allow partial, adapted or proxy approaches to monitoring traditional knowledge indicators are still valuable and generate useful evidence that can inform monitoring and evaluation at the national level.

Secondly, in all four countries, progress on reporting the traditional knowledge indicators is closely tied to an enabling legal and institutional framework for recognising Indigenous and local community rights, having formal mechanisms and structures in place that enable meaningful participation of Indigenous Peoples and local communities in decision-making, and where Indigenous Peoples and local communities have secure land tenure rights. The experiences of Kenya, Colombia and Philippines reveal that in order to adequately monitor land tenure, qualitative and community-validated knowledge are required alongside quantitative and spatial data because “land-use change” in the lands and territories of Indigenous or local communities does not automatically indicate whether that change is positive or negative. For example, land-use change may occur as a result of positive drivers such as restoration and adaptive stewardship, or negative drivers such as encroachment or degradation.

The issue of data interoperability was highlighted as a challenge across the four countries. For example, in the case of Colombia, making GIS data interoperable with data on human rights defenders and other government datasets remains a challenge. In all four countries, Indigenous Peoples are producing data that are highly relevant for monitoring progress to implement the KMGBF, and the case studies demonstrate that national monitoring and reporting can be stronger when monitoring combines multiple sources of data and evidence in a complementary manner, since a single source of data is rarely sufficient on its own. The case studies demonstrate what is possible when data from official administrative sources, geospatial/remote-sensing data and community-generated knowledge are combined.

Benefits

Despite conceptual, institutional, data- and resource- related challenges, the experiences shared by Kenya, Colombia, Philippines and Finland show that their attempts to monitor traditional knowledge indicators have had numerous positive impacts at both community and national levels. Here, benefits are grouped by relation to what is monitored, how monitoring is conducted, and the user groups.

Benefits related to what is monitored

Traditional knowledge indicators require disaggregated, rights-focused data that many governments do not typically collect. The process of trying to monitor such data, by non-state organizations, Indigenous Peoples and local communities, has itself surfaced information with direct policy relevance. In Colombia, comparing deforestation rates inside and outside Indigenous territories gave government agencies concrete evidence that secure tenure for Indigenous Peoples is associated with better biodiversity outcomes, evidence that participants noted has helped justify continued investment in titling and formalization. Similarly, in the Philippines, through working with communities across the country to collect and monitor data related to Indigenous livelihoods and occupations and biodiversity-related data on the land and territories managed by Indigenous Peoples, the Philippine Association for Intercultural Development (PAFID) demonstrated positive biodiversity trends in the lands and territories

managed by Indigenous Peoples using traditional occupations, leading to a change in national legislation.

In Finland, disaggregating time series data on reindeer ownership revealed a slight declining trend, drawing attention to a livelihood of central cultural and economic importance to the Sámi that would not otherwise have been visible in national statistics. In Kenya and the Philippines, the process of consolidating spatial and tenure data, even where incomplete, has begun to make visible the extent and status of Indigenous and community lands in ways that were previously fragmented across institutions. In Kenya, deliberately linking Indicator 22.1 with Indicator 2.1 on ecosystem restoration surfaced evidence of approximately 88,253 hectares restored through community-based approaches, illustrating how tenure-linked monitoring can strengthen reporting across multiple KMGBF targets at once; biocultural mapping has similarly made visible sacred sites, grazing corridors and seasonal water points that would not otherwise appear in official datasets.

Benefits related to how monitoring is carried out

Workshop participants placed as much emphasis on the monitoring process as on the resulting indicator data. Community-based approaches to generating data for the indicators were described as strengthening intergenerational bonds and fostering cultural preservation by supporting the transmission of traditional knowledge from elders to younger generations. In the Philippines, as more youth attend mainstream national schooling, Indigenous knowledge systems are eroding; PAFID shared how involving Indigenous youth in ancestral land-management planning has helped educate them in their culture, build mutual respect between generations, and motivate young people to secure and preserve their communities' lands and knowledge systems.

In Colombia, the National Commission of Indigenous Territories (CNTI) is training Indigenous youth in GIS mapping and co-developing an app to monitor territories. The process is necessarily intergenerational; young people are often more comfortable with the technology, while elders hold knowledge of their lands and biodiversity. Community-based monitoring therefore created a structured space for elders and youth to work together and foster intergenerational knowledge exchange, including on decisions about access to land, food and species.

In Kenya, IMPACT Kenya's Inclusive Conservation Initiative project engages youth in biocultural mapping and restoration work. The involved youth became more responsible and developed greater respect for elders' decision-making, particularly on decisions affecting the long-term land rights of communities. Community monitoring increasingly combines traditional knowledge with digital tools such as participatory GIS, EarthRanger, SMART and AudioMoth sensors, with elders contributing historical ecological knowledge and cultural interpretation while youth bring digital and mapping skills, fostering the same intergenerational collaboration observed in the Philippines and Colombia.

Participants representing Indigenous Peoples and local communities from Kenya, Colombia and the Philippines emphasized that their biodiversity monitoring efforts did not begin with the adoption of the KMGBF and its monitoring framework. On the contrary, their practices for biocultural mapping and land stewardship have long histories. Recognition and use of this information at national and international levels contributes to sustaining, respecting and

benefiting from these practices. Participants considered that monitoring was most conducive when data generated by communities is recognized as legitimate by governments.

Benefits observed at government level

Overall, these case studies represent progress towards fulfilling international commitments under the KMGBF and CBD Article 8(j), including the human rights-based approach, gender and intergenerational equity considerations set out in KMGBF Section C. The benefits identified at the government level included:

- Support for the operationalization of the Framework's whole-of-government and whole-of-society approach. For example, piloting indicator 22.1 in Kenya strengthened the links between different actors across land governance, community land rights and stewardship, ecosystem integrity, restoration, Indigenous knowledge systems and national reporting under the CBD.
- A stronger evidence base for rights-based policy and investment decisions. For example, Colombia's use of deforestation comparisons demonstrated the biodiversity value of secure Indigenous tenure. Similarly, in the Philippines, positive biodiversity trends in lands and territories managed by Indigenous Peoples using traditional occupation led to a change in national legislation.
- Access to data and local knowledge that government systems could not generate alone, helping to fill information gaps in national reporting (e.g. Finland's use of Sámi Parliament and community data; the Philippines' and Kenya's use of civil society-generated spatial data).
- Strengthened working relationships and trust with Indigenous Peoples' and local communities' institutions, built through formal engagement mechanisms such as MOUs (Colombia, Philippines) and statutory consultation requirements (Finland's Sámi Parliament Act), providing a foundation for continued collaboration in future reporting cycles.
- Cross-target synergies in reporting; for example, linking Indicator 22.1 with restoration monitoring under Indicator 2.1 (Kenya) allowed a single data-gathering effort to support multiple KMGBF targets and demonstrate whether restoration is occurring in ways that strengthen tenure security and respect Indigenous rights.

Benefits observed at local/community level

The benefits identified by and for Indigenous Peoples and local communities included:

- Intergenerational knowledge transfer and strengthened cultural identity, as elders and youth work together on mapping, monitoring and land-management planning (Philippines, Kenya, Colombia).
- Recognition and validation of community- and Indigenous-generated data and knowledge as legitimate evidence. Some of the secondary benefits included strengthened customary governance and community standing in biodiversity decision-making, for example as monitoring processes combine elders' historical and cultural knowledge with technical/digital skills contributed by youth (Kenya, Colombia).
- New technical skills and capacity, particularly among youth, for example in GIS mapping and app development (Colombia).

- Strengthened tenure security claims and negotiating position with government, where community-generated evidence supports the recognition or formalization of territorial rights (Kenya, Philippines, Colombia).
- Greater community engagement in decisions on their own land and resources, exercised through structures such as community land management committees, resguardo councils and ancestral domain authorities.
- For the Sámi in Finland, a formal channel through the Sámi Parliament to shape how their own traditional occupations are defined and measured, ensuring the indicator methodology reflects Sámi-identified priorities and adheres to free, prior and informed consent.

Monitoring was considered most valuable when it benefits communities directly, through for example delivering tangible legal, planning, and resource benefits, rather than serving solely as an external reporting tool. Monitoring was perceived as fairer and more inclusive when community monitoring is reciprocated by commitment or accountability from governments. In the case of the Philippines, workshop participants stated that verified geospatial data produced by Indigenous organizations warrants formal integration into government clearinghouses, matched by reciprocal state commitments including budget allocation, protection against encroachment, and mainstreaming of ADSDPPs into local development plans. Community representatives noted that for Indicator 22.1 to retain utility, it must reflect the grounded realities of territorial defence, community management, and customary rights. Despite concerns related to reliance on community efforts without reciprocal commitments, indicator 22.1 is welcomed as it gives governments a stated commitment to report on tenure security, which can encourage concrete actions.

7. Actions that can improve uptake and use of traditional knowledge indicators

Discussions and development of the case studies elicited the following potential actions linked to strengthening the uptake and use of the studied indicators. Rather than one pathway, a combination of actions could be tailored to individual contexts. Not all of the actions may be relevant or possible at once; for instance, there is a tension between the use of flexibility in indicator methodologies allowing for varied forms of knowledge and the use of standardized methodologies that facilitate comparison across locations.

Technical

- Co-designing indicator methodologies with Indigenous Peoples and local communities.
- Completing and formally adopting methodologies for indicators that remain under development (Indicator 9.2 and the component indicators); this can facilitate the comparison of data from different countries and reporting on the global scale.
- Investing in systems and protocols to integrate spatial, tenure and socio-economic data currently held across multiple institutions and levels of government, including common data standards that allow community-generated data to be combined with government datasets.

- Developing guidance and tools for disaggregating data by Indigenous/ethnic identity where this is not currently possible, recognizing relevant restrictions and the need for safeguarding.
- Supporting the design of statistically robust, repeatable surveys and community-based monitoring protocols that generate primary data on traditional occupations, land use and tenure security over time, building on lessons from Finland's proposed Sámi survey and Kenya's perception-based tenure security assessments (e.g. Prindex).
- Developing approaches that combine spatial/legal metrics with perception-based indicators of lived tenure security, reflecting Indigenous Peoples' and local communities' own reflections that tenure security is not only a legal status but also perceived and lived.
- Developing national data protocols that clarify data custodianship, validation roles and interoperability standards across the many institutions that hold relevant data, building on Kenya's experience establishing a technical working group/community of practice for Indicator 22.1.
- Clarifying the desired focus on biodiversity outcome or other priority; for example, for indicator 9.2 on traditional occupations, consider the approach of measuring the status or vitality of the occupations as practiced by any individuals of any ethnicity, versus the status of such occupations as practices by Indigenous Peoples.

Political/institutional

- Strengthening legal recognition and reporting of Indigenous and community land rights where this remains incomplete or recent, as in Kenya, drawing on lessons from more established frameworks such as Colombia's constitutional recognition of Resguardos and the Philippines' IPRA.
- Establishing or strengthening binding mechanisms that require government authorities to consult and collaborate with Indigenous Peoples' representative institutions on data affecting them, such as Finland's Sámi Parliament Act.
- Strengthening and possibly formalizing partnerships between government agencies and Indigenous Peoples'/community organisations and civil society, for example through MOUs, to institutionalize, rather than leave ad hoc, the roles of different actors in generating, validating and using indicator data.
- Establishing clear policies and, where appropriate, resourcing arrangements to formally recognize the contributions of community-generated data to national and global reporting.
- Addressing institutional backlogs that constrain data completeness, such as the large number of pending Indigenous territorial formalisation requests in Colombia and unfinalized ancestral domain titling and management plans in the Philippines.
- Strengthening coordination mechanisms across national and county/sub-national governments, ministries, national statistical systems and community governance bodies that each hold part of the picture (e.g. data, jurisdiction, mandate), to address institutional fragmentation.

Conceptual

- Ensuring indicator design and use does not reduce complex territorial, cultural and livelihood relationships to narrow metrics; the case studies show these relationships have long histories that predate the KMGBF and cannot be fully captured by a single indicator value.
- Grounding indicators in Indigenous-defined categories and priorities rather than externally imposed definitions, following, for example, Finland's approach of using the Sámi Parliament's own definition of traditional occupations.
- Clarifying the relationship between monitoring for national/global reporting and monitoring that directly benefits communities, so that indicator frameworks are designed considering both purposes rather than being seen by communities as extractive.
- Building a shared understanding of what constitutes credible evidence for these indicators, recognising perception-based and qualitative evidence (e.g. on lived experience of tenure security or the cultural importance of traditional occupations) alongside quantitative and spatial data.
- Recognizing that indicators such as 22.1 function as governance indicators as much as technical ones: their credibility depends on who defines and validates the data, who controls access, and who benefits from reporting, not only on the resulting indicator value.

Practical

- Sustained, predictable funding for community-based monitoring and for civil society and Indigenous organizations that generate much of the underlying data.
- Investment in capacity-building, particularly for Indigenous youth, in technical skills such as GIS mapping and data management, building on models already underway in Colombia and Kenya.
- Iterative feedback and validation loops between technical agencies and Indigenous representative institutions, as demonstrated by Finland's expert committee review process, to ensure results are accurate, trusted and endorsed before submission in national reports.
- Efforts to address practical barriers to primary data collection identified by countries, such as low survey response rates (Finland) and limited accessibility of official maps and datasets to communities (Kenya).
- Documented and shared country experiences and practical lessons (including partial and adapted approaches) through mechanisms such as further case studies and expert technical workshops, to support other Parties beginning to monitor these indicators for the first time.
- Safeguards for community data governance, including FPIC protocols and recognition of Indigenous data sovereignty, so that sensitive information (e.g. on sacred sites or contested boundaries) is protected and community-generated data is not absorbed into national systems extractively.

8. Conclusion

Many countries are still in the early stages of developing and refining national monitoring systems for tracking progress towards NBSAPs, and contributions to the KMGBF. Even at this early stage, the case studies in this report demonstrate that the traditional knowledge indicators can still be monitored in practical and meaningful ways even where methodological approaches, data systems and institutional mechanisms for coordination with knowledge and data providers are still in development. In particular, the case studies demonstrate numerous social and ecological benefits when governments apply respect-driven, reciprocal and rights-based approaches to monitoring in partnership with Indigenous Peoples and local communities.

As countries advance in developing and updating national monitoring systems and monitor traditional knowledge indicators, the country case studies in this report can be expanded to showcase more examples of how countries are adapting their approaches to monitoring traditional knowledge indicators based on their national contexts.

Projects such as Transformative Pathways are playing an enabling role in supporting the methodological development of traditional knowledge indicators, convening dialogue and peer learning between actors involved in monitoring traditional knowledge indicators, and offering guidance on rights-based approaches to implementation, monitoring and reporting based on in-country experiences. Sustained collaboration on this work will further enhance the use of traditional knowledge indicators in national reports and global assessments of collective progress under the KMGBF.