Ensuring the sustainability of customary use on Indigenous and community-held lands

Transformative Pathways

ICCS Interdisciplinary Centre for Conservation Science

Forest Peoples Programme

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Further resources developed through this project can be found at https://transformativepathways.net

Cover photo: The indigenous Ogiek of Chepkitale live in Kenya’s Mt Elgon forests. The community uses laws to protect ancestral lands in Kenya.

Credit: Stephen Nderitu for TonyWild Photography and Rights and Resources Initiative (RRI)

Fishers bringing in their catch in a coastal village in Sumba, Indonesia.
Credit: *Hollie Booth*

Introduction and background

Our guide

This guide is for local organisations (e.g. community-based organisations and trusted local non-governmental organisations) which are supporting Indigenous Peoples and local communities (IP & LCs) in their desire to assess the sustainability of natural resources on their lands (both terrestrial and marine), and implement activities to ensure that this use is sustainable, where necessary. It can also be used by Indigenous Peoples and by local community groups directly. In this guidance, we're looking at sustainability simply as making sure natural resources are used in a way that doesn't decrease their amount, ensures nature can keep working properly, and aligns with community understandings about responsibilities to future generations.

As circumstances change due to development pressures, or as communities feel the impacts of climate change and biodiversity loss, change may be needed to adapt their sustainable practices. Blending traditional knowledge with new insights and techniques from scientific approaches, where wanted and appropriate, can help them to do so.

Communities may wish to ensure that their use is sustainable for internal purposes. In such cases, more informal approaches may be suitable, such as arranging regular meetings to review the changes observed in natural resources and identify new priorities for action. However, if communities wish to demonstrate the sustainability of their use of nature to outsiders, they may require more formal approaches and techniques. In this guidance, we offer some technical guidance and approaches to sustainable use that fall on the more formal end of the scale.

International policy recognises the sustainability of many customary forms of use (the traditional ways in which communities use natural resources), which are based on traditional knowledge and practices, and the purpose of this guidance is to set out how customary sustainable use can be supported when necessary with insights and tools from 'scientific' approaches to monitoring and managing natural resources.

Enabling local organisations to support Indigenous Peoples and local communities (IP & LCs) in assessing and developing sustainable use strategies will help these communities to independently manage their land and sustainability plans more effectively.

What is sustainability?

Sustainability is about the balanced coexistence of human societies with the natural world. A holistic view of sustainability encompasses social, cultural, biological, political and economic dimensions. Indigenous Peoples have long argued that distinctions between nature and human societies – treating them as separate – undermines such holistic thinking, and put forward concepts of sustainable use that rest on ideas of mutuality. These cosmo-visions or lifeways emphasize the responsibilities that we have to sustain the world that sustains us.

For indigenous-led organizations and communities, intergenerational sustainability is also crucial to maintaining their cultural heritage and traditional and evolving ways of life.

It is important to acknowledge that sustainability is broad and has varied definitions, making it hard to pin down. The dynamic nature of social-ecological systems requires adaptability. A truly sustainable approach considers the intricate web of life, including wildlife, natural resources, ecosystem functions and services, and the impacts of external factors that affect the system, like climate change. It recognizes that every component of nature, no matter how small, plays a crucial role in the functioning of the system within which it is found. For indigenous communities, sustainability may be deeply rooted in cultural and spiritual beliefs. It's not just about using resources judiciously but also about respecting the land, the water, and all beings. Traditional knowledge, passed down through generations, often holds the key to sustainable practices that have been tried and tested over centuries.

While environmental and social sustainability are often the focus of natural resource managers, economic sustainability is equally vital and interconnected. It ensures that communities can meet present economic needs without compromising the ability of future generations to meet theirs. This includes fair trade, equitable distribution of resources, and creating sustainable livelihoods that don't harm the environment.

Indonesia Scaling rights-based approaches for conservation and poverty reduction. A farmer supported by the Sustainable Agriculture and Agroforestry Program collecting peppers. **Credit:** *Yayasan Planet Indonesia*

What is sustainable use?

Wild relatives of the raspberry and loganberry (possibly Rubus steudneri) gathered by the Ogiek community in the high moorlands on Mount Elgon, Kenya. **Credit:** Tom Rowley, FPP

Sustainable use means the use of the environment in a way and at a rate that does not lead to its long-term degradation, thereby maintaining its potential to meet the needs and aspirations of present and future generations (MEA, 2007). Natural resource use is just one component of wider sustainability.

Indigenous-led organizations play a pivotal role in promoting sustainability. By bridging the gap between traditional practices and modern conservation techniques, these organizations can help communities navigate the challenges of the 21st century while staying true to their cultural heritage.

Customary sustainable use is recognized not only as compatible with conservation outcomes and objectives, but in many cases essential to ensuring them.

Achieving sustainable use will often require continuous effort, learning, and adaptation as conditions change. With the right technical and additional support, Indigenous Peoples and local communities can continue, or regain, their customary sustainable use practices and realise their visions of sustainability, preserving their rich heritage for generations to come.

The central role of a rights-based approach in customary sustainable use

Focus group in Tonle Sap plains, Cambodia
Credit: Harriet Ibbett

Customary sustainable use is not just a technical practice but a deeply rooted expression of the human rights of Indigenous Peoples and local communities (IP & LCs). Grounding this guide in a human rights-based approach is essential to fully capture the holistic nature of customary sustainable use. This approach recognizes and emphasizes that self-determination and the exercise of social, cultural, and economic rights of IP & LCs as fundamental elements of sustainability.

A rights-based approach ensures that the strategies and tools provided in this guide are not merely technical interventions but are also aligned with the respect, protection, and fulfilment of the human rights of IP & LCs, and that the guide recognizes that realizing these rights is part of achieving the aim of truly and generationally sustainable outcomes. Doing so is integral to empowering communities, foregrounding their agency, and ensuring that their voices and traditional knowledge are central to the management of natural resources on their lands.

Grounding customary sustainable use in a human rights framework is about technical effectiveness and about justice, equity, and empowerment. By recognizing the importance of a rights-based approach, this guide supports IP & LCs in realizing their full potential to manage their natural resources sustainably and equitably, ensuring the well-being of their communities for generations to come.

Sources and further links:

- *Newing, H et al. (2024). Conservation & Human Rights: An introduction.* Available here:
  - https://www.forestpeoples.org/en/Conservation-and-human-rights
  - https://transformativepathways.net/conservation-and-human-rights
  - http://iccs.org.uk/wp-content/uploads/2024/10/Conservation-and-Human-Rights-an-introduction.pdf

- *United Nations Environment Programme. (2020). Human Rights and Biodiversity: Key Messages from the Report of the Special Rapporteur on Human Rights and the Environment.* Available here.

- *The Nature Conservancy (2022). Human Rights Guide for Working with Indigenous Peoples and Local Communities.* Available here.

- *CBD (2022). The Kunming-Montreal Global Biodiversity Framework.* Available here.

- *University of Joensuu (2007). Multilateral Environment Agreement: Negotiator's Handbook (2007). UNEP Course Series 5. Second Edition.* Available here.

An overview of this guidance

Figure 1 shows how this guidance is structured into six stages, each with a series of key questions that the reader should consider before moving onto the next stage:

Stage 1:
Key considerations

Stage 2:
Adaptive management for CSU

Stage 3:
Indicators of (un)sustainable use

Stage 4:
Implementation tools & strategies

Stage 5:
CSU in national & international decision-making

Figure 1: *An overview of the guidance structure*

A new sustainable partnership is providing income to the Kayopó people in exchange for wild foraged Brazil nuts
Credit: *Simone Giovine*

Stage 1: Key considerations for the sustainable use of natural resources

To achieve sustainable use of natural resources in the long-term, it's first important to understand how and why resources are used. Governance structures within the community need to enable decision-making and to support the monitoring of resources over time and in response to emerging challenges as they are identified, such as increasing pressure on natural resources from both within and external to the community, climate change and changes in governance, for example.

Some key questions to ask are as follows:

Q1. How and why do people use natural resources on community lands?

Q2. What are the governance structures in place?

Q3. Is local governance capable of ensuring sustainable and equitable use in the long term?

Q4. What can the communities control, and what can they not control?

Q5. What to do if these conditions aren't in place?

Q1. How and why do people use natural resources on community lands?

As a first step, community members may wish to consider the following key questions about the ways they use resources on community lands. By responding to each question, communities can think about how to ensure resources are used sustainably. Participatory methods can help to explore this together and can also strengthen a shared connection with their lands.

- **What do you use from your land?**

Recognizing the resources that a community extracts is a foundational step in understanding their relationship with the environment. This question helps in cataloguing the variety and quantity of resources that are integral to the community's way of life. Communities could consider both tangible resources (like timber, water, species and medicinal plants) and intangible ones (like cultural sites or spiritual areas). Hosting community storytelling sessions or mapping exercises can help in identifying and documenting the various resources used. Elders can also share knowledge of traditional uses, supporting intergenerational knowledge sharing with younger participants.

- **How much do you use?**

Over-extraction of the resources identified can lead to resource depletion, which affects both the sustainability of current livelihoods and the security of future generations. Getting a sense of the scale of resource use is essential in assessing whether the current rate of extraction is sustainable, as is differentiating between seasonal variations in use and long-term trends. For instance, a resource might be used more during a particular season but less throughout the rest of the year. Community-led surveys, resource diaries, or participatory resource mapping can be effective ways to explore this question. These methods allow community members to visually represent and quantify resource use over time. However, sometimes it's hard to spot resource depletion just from local experience until it's really bad - e.g. for animals (or fish) that move over long distances. In such cases, pooling knowledge over several communities, or combining local knowledge with scientific input, can help to identify smaller declines in natural resources.

- **How are use and availability of resources changing currently? Are natural resources used becoming scarcer?**

Recognizing scarcity is crucial for adapting and ensuring that resources are used sustainably. Increased scarcity of resources can be due to over-extraction (either by the community or by external actors), environmental degradation, or external factors like climate change. Community feedback sessions, where community members share observations and experiences with each other can be valuable. Additionally, trend analysis workshops, whereby current resource levels are compared to past levels, can also provide helpful insights. Furthermore, communities can also consider dialogue with neighbouring communities as in some cases it may be challenging to ascertain whether resources are declining, or any negative effects of natural resource use exist from within the community territory alone (e.g. pollution at source of a stream).

- **How do you know about these changes?**

Verification of the perceived changes helps to ensure that community perceptions of resource levels align with reality. If there is uncertainty, traditional knowledge and modern scientific methods can complement each other in assessing resource levels (e.g. see case study 1). For example, community-led resource monitoring initiatives, where members are trained to collect data and analyse trends, while also drawing on indigenous knowledge of the land, can be effective.

CASE STUDY 1:

Community monitoring of natural resources.

Basket weaving workshop with the Ogiek of Mount Elgon, Kenya
Credit: Agata Pilarz, FPP

As part of Transformative Pathways, communities in Northern Thailand, Peru, Philippines and in Kenya are developing protocols for community-based biodiversity monitoring to both demonstrate their environmental stewardship to national and international decision-makers, and to monitor their use of natural resources on their lands to develop sustainable use protocols if required.

For the Ogiek of Mount Elgon, Kenya, bamboo forests are a key source of livelihood as women use bamboo to weave baskets for trade with neighbouring communities, and the community harvest canes for the construction of houses and shoots for food. Women are responsible for monitoring changes in the health of bamboo forests by establishing quadrants across their land, and monitoring changes in the rate and nature of harvest in those quadrants, as well as changes in the presence of key biodiversity (including elephants and primates) and other resources of importance for their livelihoods and well-being. It is hoped that by documenting areas that are being sustainably harvested, and areas that are showing signs of degradation, that the Ogiek can work with neighbouring communities to try and slow degradation at the frontiers of their territory, and secure the future of the bamboo forests.

- **How are use and availability of resources likely to change in the future?**

Anticipating future changes helps to ensure that the community is prepared for shifts in resource availability or demand. Changes could be due to environmental factors, population growth, cultural shifts or political and economic factors. Factors like climate change, external market demands, or the introduction of new harvesting methods can influence future resource use. Situation analysis and future scenario workshops or visioning exercises can be conducted to facilitate community members to envision how they may respond to different future scenarios and plan accordingly.

A situation analysis explores the drivers of change affecting biodiversity in a landscape. During such an analysis, the local organisation should help the community to consider the relevant environmental, social, economic, political and institutional systems that affect biodiversity, how they have changed over time and how they expect them to change in the near future. A better understanding of this context will enable better development of focused and achievable monitoring objectives.

Sources and further links:

See also our guidance on community-based monitoring for more information on situation analyses, and scenario planning for the future:

- *Brittain, S et al. (2024). Introduction to community-based environmental monitoring: practical guidance for monitoring of natural resources by Indigenous Peoples and local communities. Transformative Pathways.* Available here.

Q2. What are the governance structures in place?

This includes formal and informal structures, such as local councils, elders' councils, or other community-based organizations that have a role in managing natural resources. Identifying these structures helps to understand the existing framework and its effectiveness in addressing resource use.

- **Are there clear and documented guidelines and processes for natural resource use?**

Clear guidelines help to manage the use of resources sustainably. These guidelines should be well-documented and accessible to all community members, outlining permissible activities, quotas, and restrictions on resource use. Effective governance requires transparent decision-making processes and enforcement mechanisms. This includes regular community meetings, participatory decision-making, and agreed-upon sanctions for non-compliance.

Q3. Is local governance capable of ensuring sustainable and equitable use in the long term?

Having ascertained how and why natural resources are used within the community, a subsequent step is to consider whether local governance is sufficiently well-equipped to support the long-term sustainable use of natural resources. Local governance structures play a pivotal role in managing and regulating the use of natural resources (see Box 1). The effectiveness of these structures can determine whether resource use remains sustainable over time and whether the resources are shared equitably amongst the community. This question prompts communities to evaluate the robustness, inclusivity, and adaptability of governance mechanisms. Some questions to ask include:

- **Are institutional frameworks in place for decisions to be made collectively, with input from different subgroups within the community to address the sustainability of resource use?**

The manner in which decisions are made can influence the sustainability of resource use. Top-down decision-making might not consider ground realities, while collective decision-making over resources can give more clout in negotiating with external stakeholders while also tapping into community wisdom. Collective decision-making in collaboration with outsiders can be supported through a programme of regular community meetings.

Representation ensures that all segments of the community have a voice in governance, which can lead to more inclusive decision-making. A governance system that lacks representation might overlook the needs or knowledge of certain groups, potentially leading to unsustainable decisions. Inclusive forums that encourage participation from all community segments, including marginalized groups, women, and youth, and feedback mechanisms enable community members to voice concerns about representation.

- **Are there mechanisms in place to ensure that decisions related to resource use are enforced and adhered to?**

Effective enforcement mechanisms ensure that decisions related to sustainable use are adhered to. Without enforcement, even the best governance decisions might be ignored, leading to unsustainable practices. Community protocols including informal reporting to elders, or more systematic patrols can be established to monitor and ensure adherence to governance decisions. Communities can develop clear and fair sanctions for violations, ensuring they are known to all community members, with agreement on who will adjudicate and apply the sanctions where needed (See case study 2).

Ogiek homes built using customary material and methods at Laboot, Kenya (building homes with stone remains prohibited under the Ogiek customary by-laws.) **Credit:** Tom Rowley, FPP

CASE STUDY 2:

Community setting and enforcing of rules: The bylaws of the Ogiek Indigenous Peoples of Mount Elgon, Kenya

The Chepkitale Ogiek Community Bylaws are a set of community-enforced rules developed through a participatory process to manage and protect their natural resources sustainably. These bylaws cover various aspects of resource use, including grazing, honey production, and the collection of firewood and medicinal herbs, establishing a comprehensive governance framework. The development process involved community members and leaders, ensuring the bylaws reflect traditional knowledge and practices while addressing contemporary challenges. Enforcement mechanisms are clearly defined, with the Chepkitale Ogiek Governing Council and subordinate councils playing key roles in monitoring adherence, resolving disputes, and imposing penalties for violations, thereby ensuring the community's long-term environmental and cultural sustainability.

Sources and further links:

- Indigenous community uses traditional bylaws to protect ancestral lands in Kenya. Available here.
- Chepkitale Ogiek community document their customary bylaws for the first time in order to ensure the continued conservation of their ancestral lands and natural resources. Available here.

- **Is there a mechanism to resolve disputes?**

Conflict resolution mechanisms can offer clear processes to address and resolve disputes during collaborative decision-making, to ensure such processes are transparent and accessible to all community members.

CASE STUDY 3:

Conflict Resolution for the Ogiek of Mount Elgon Using the Whakatane Mechanism

Whakatane Mechanism workshop, Kenya 2011. **Credit:** Emmanuel Freudenthal

The Ogiek Indigenous Peoples of Mount Elgon, Kenya, have long faced conflicts over land rights and access to natural resources. These conflicts stem from encroachments by other communities, government eviction attempts, and environmental degradation, which have threatened the Ogiek's traditional way of life. To address these issues, the Whakatane Mechanism, an initiative of the International Union for Conservation of Nature (IUCN), was employed. This mechanism focuses on resolving conflicts by ensuring that conservation efforts respect the rights and knowledge of Indigenous Peoples.

Through the Whakatane Mechanism, representatives from the Ogiek community, government officials, and conservation organizations engaged in stakeholder meetings, participatory mapping, and mediated dialogues. This process facilitated the documentation of the Ogiek's ancestral lands, addressed grievances, and developed mutually agreeable solutions. As a result, the Ogiek secured formal recognition of their land rights, improved their relationship with government authorities, and integrated traditional knowledge into sustainable resource management practices. These efforts have reduced tensions and conflicts, fostering a more stable environment for the Ogiek community.

Sources and further links:

- What is the Whakatane Mechanism? Forest Peoples Programme. Available here.
- Freudenthal, E., Farhan Ferrari, M., Kenrick, J, Mylne, A. (2012). The Whakatane mechanism: promoting justice in protected areas. Nomadic Peoples. Available here.
- Whakatane Mechanism: Kenya. Available here.

- **Can local governance adapt to changing circumstances, such as environmental shifts or external pressures? Do good monitoring frameworks exist with sensible indicators?**

Governance structures need to allow for changes to address emerging challenges, such as environmental shifts or external pressures, so they need to be flexible. Scenario planning can engage the community in envisioning potential future challenges and developing adaptive strategies, while governance reviews can assess and update governance structures to ensure they remain relevant and effective.

Box 1: Ostrom's principles

"Commons" refers to resources shared by a community, such as forests, fisheries, grazing lands, or water systems, that are collectively managed and used. Elinor Ostrom conducted research focused on how groups can organize and govern these shared resources sustainably, challenging the idea that common resources are inevitably doomed to overuse and depletion. Ostrom produced a list of key principles that were required for effective governance of the commons. These are as follows:

1. Commons need to have clearly defined boundaries. In particular, who is entitled to access to what? Unless there's a specified community of benefit, it becomes a free for all, and that's not how commons work. (When people refer to 'the tragedy of the commons' they are actually referring to 'the tragedy of open access/ free for all systems'. In contrast, commons systems have proved remarkably resilient and sustainable where they have not been decimated by more powerful outside forces).

2. Rules should fit local circumstances. *There is no one-size-fits-all approach to common resource management. Rules should be dictated by local people and local ecological needs.*

3. Participatory decision-making is vital. *There are all kinds of ways to make it happen, but people will be more likely to follow the rules if they had a hand in writing them. Involve as many people as possible in decision-making.*

4. Commons must be monitored. *Once rules have been set, communities need a way of checking that people are keeping them. Commons don't run on good will, but on accountability.*

5. Sanctions for those who abuse the commons should be graduated. Ostrom observed that the commons that worked best didn't just ban people who broke the rules. That tended to create resentment. Instead, they had systems of warnings and fines, as well as informal reputational consequences in the community.

6. Conflict resolution should be easily accessible. *When issues come up, resolving them should be informal, cheap and straightforward. That means that anyone can take their problems for mediation, and nobody is shut out. Problems are solved rather than ignoring them because nobody wants to pay legal fees.*

7. Commons need the right to organise. Effective governance of commons relies on local rules being acknowledged as legitimate, particularly when facing external pressures. In the absence of outsider threats, these rules can still be effectively self-enforced within the community.

8. Commons work best when nested within larger networks. Some things can be managed locally, but some might need wider regional cooperation – for example an irrigation network might depend on a river that others also draw on upstream.

Q4. What can the communities control, and what can they not control?

Recognising over what communities have control and influence and where they don't encourage communities to identify domains where they have the autonomy to enact change, allowing focus on efforts where the community can have the most significant impact. Considerations when the communities are harvesting resources for sale (where relevant) include the following:

- **Does the community have legally recognized rights over land, allowing control of land use and access?**

Recognizing land and resource rights empowers communities to make decisions about their territories without external interference. Without secure land and resource rights, external entities might exploit resources unsustainably, undermining community efforts. Integrating sustainable cultural practices can enhance conservation efforts and community cohesion. Furthermore, workshops on land rights with community members, and participatory mapping exercises to demarcate community territories and avoid land disputes can strengthen land rights and enable communities to assert their rights.

- **Are there external entities, such as government agencies or corporations, that influence community decisions? If so, to what extent?**

External entities, such as governments, NGOs or private companies, can significantly influence community decisions, especially if they wield economic or political power. Pressures from these external actors might lead to resource over-exploitation or introduce unsustainable practices. Stakeholder analyses can help to identify and assess the intentions of external organisations. Building partnerships with supportive and collaborative external organisations can help to bolder community positions and provide insights into areas where the community might gain more control or collaborate for change.

- **Does the community have control over its economic activities, such as livelihood practices, trade and markets?**

Economic autonomy can enable communities to make decisions that prioritise long-term sustainability over short-term gains, where they don't also have immediate basic needs. Without economic autonomy, communities might resort to unsustainable practices for immediate economic benefits. If they do have control, then communities could arrange workshops to explore alternative sustainable livelihoods, and understand and tap into markets that value sustainability.

Q5. What to do if these conditions aren't in place?

If the conditions for control and sustainable resource management are not in place for Indigenous Peoples or local communities across the whole of their customary territory, the community may face challenges that can undermine efforts towards sustainability. In such cases, communities can make decisions about areas or resources that they can control and put sustainable community land use plans in place which will help argue for greater autonomy and recognition across a larger part of their customary territory in the future. Meanwhile, the community can also proactively address these challenges. By leveraging both internal strengths and external support, indigenous organizations can work towards creating conditions conducive to sustainable use and community well-being.

1. Without legally recognized land rights communities are vulnerable to land grabs, displacement, and external exploitation. Communities can seek legal assistance to understand, assert, and defend their land rights. They can document historical and cultural ties to the land as evidence of longstanding occupancy, and provide evidence of sustainability to support their claims both within the community and externally to gain support (see case study 4).

CASE STUDY 4:

Mapping Customary Lands to Support Ogiek Land Rights Claims

Using a stick to suggest placement of a sampling transect line measuring signs of wildlife and threats to the forest ecosystem along a gradient of Ogiek community management presence. **Credit:** *Tom Rowley, FPP*

The Ogiek community of Mount Elgon, known for their unique way of life that revolves around forest livelihoods such as beekeeping and forest gathering, have faced significant challenges due to loss of their customary land. Having lost about 89% of their traditional territory, over 30 clans have been compressed into a small triangular area on the mountainside. This area is bordered by the National Park, raiders, militia, and advancing forest encroachment. Despite this severe reduction in land, the Ogiek community has maintained a sustainable lifestyle, with minimal detectable impact on the environment.

To address these challenges and support their ongoing land rights claims, the Ogiek community embarked on a project to create a spatial plan illustrating their customary bylaws. This project, led by the community itself, highlighted key areas such as the upper mountain headwaters and the lower forest belt, which are prioritized for protection and rarely visited to safeguard river sources and wildlife habitats. The plan also identified areas for habitat restoration and sustainable grazing practices, ensuring that forest regeneration and animal corridors are maintained. This detailed mapping has enabled the community to make collective decisions, refine their practices, and plan for re-expansion as the security situation improves.

The project has also underscored the community's sustainable use of forest resources. The density of gathered forest fruits, vegetables, and medicinal plants, as well as deadwood for fuel, shows sustainability even under current pressures. The re-adoption of local language place names and the intergenerational transfer of knowledge fostered by the mapping process has boosted cultural pride and adherence to customary bylaws. This resurgence of Ogiek culture, coupled with the detailed spatial plan, supports the community's land rights claims by demonstrating their sustainable and historically rooted stewardship of the land.

2. Disconnection from cultural practices can weaken community cohesion and traditional sustainable practices. Communities could organize events, workshops, and gatherings to revive and celebrate traditional practices. These events could also serve to facilitate discussions between elders and youth to transfer knowledge, and to engage with other indigenous communities to learn and share sustainable cultural practices.

3. Strong external influences can push communities towards unsustainable practices or decisions against their interests. Open dialogues and stakeholder engagement with external entities can help communities to understand the intentions of external parties and negotiate terms. Efforts to strengthen community cohesion can help to present a united front against adverse external pressures, and building allies with other indigenous communities and NGOs could help to bolster the community's position.

4. Economic dependency can force communities into unsustainable practices for immediate gains. Communities could explore and promote traditional practices with appropriate innovations that are both sustainable and economically viable, and seek out training in financial management, entrepreneurship, and market access. They could also then seek grants, funding, or partnerships that support sustainable economic initiatives, independently or in collaboration with supporting partners if wanted.

Using maps to address the issue of expanding farming areas, Thailand
Credit: *Inter Mountain Peoples Education and Cuture in Thailand (IMPECT)*

Stage 2: Adaptive management in the context of customary sustainable use

In stage 1, we highlighted some of the key considerations that need to be accounted for if sustainable use is to be achieved or maintained in the long term. In stage 2, we introduce the concept of adaptive management, and describe how it can be applied in the context of customary sustainable use.

Adaptive management is a process of feeding evidence into management actions, with the intention of adapting and learning. In the context of sustainable natural resource use, adaptive management can be defined as management that is revised and updated based on analysis of changes in the availability and condition of natural resources, to improve natural resource management strategies.

Figure 2 outlines the Adaptive Management Framework, which offers a structured approach to sustainable resource management. By continuously assessing, planning, monitoring, evaluating, and adapting, Indigenous communities can ensure that resource use remains sustainable in the face of changing conditions. This iterative process, which can be rooted in both traditional knowledge and scientific insights, empowers communities to address challenges as they arise and help to ensure the long-term well-being of both the environment and the community.

Adaptive management is a tool that can be used alongside community land-use planning. The key difference is that community land-use planning is based on a snapshot in time, whereas adaptive management also incorporates subsequent changes, which are tracked through monitoring. As such, developing a community land-use plan can be the first part of adaptive management, as shown below:

1. **Assess the current conditions**: Identify problems and determine goals (see guide 1 on community-based monitoring for conservation and sustainable use). Understanding the current state of resources and identifying existing problems is the foundation for any sustainable management plan. Without a clear assessment, communities might overlook critical issues, leading to unsustainable practices. This step forms the baseline against which future changes can be measured.

2. **Decide where you want to get to:** What is the target with regard to specific resources of interest, or in general? Using the current assessment, the community may decide to hold a meeting to identify the priority areas they wish to change, and what their goal is. For example, they may have identified unsustainable harvesting practices of bamboo

shoots, and wish to reach a point where all harvest within the community territory is carried out using traditional practices that ensure the survival of the bamboo plant.

3. **Develop and implement a community-land management plan:** A well-structured plan provides a roadmap for sustainable resource use, ensuring that community actions align with sustainability goals. A community without a plan might engage in ad-hoc resource use, which can be detrimental in the long run. This step translates the findings from the assessment into actionable strategies, ensuring that the community moves in a coordinated direction (See case study 4).

4. **Monitoring of resources, where necessary, within that territory**: Regular monitoring helps track the health and availability of resources, ensuring that they are not over-exploited. Without monitoring, communities might remain unaware of declining resources until it's too late. Monitoring can provide the data needed to evaluate the effectiveness of the management plan and informs necessary adjustments. See guide 1 in this series, on community-based monitoring for conservation and sustainable use. See also box 2 for some important caveats about biodiversity monitoring.

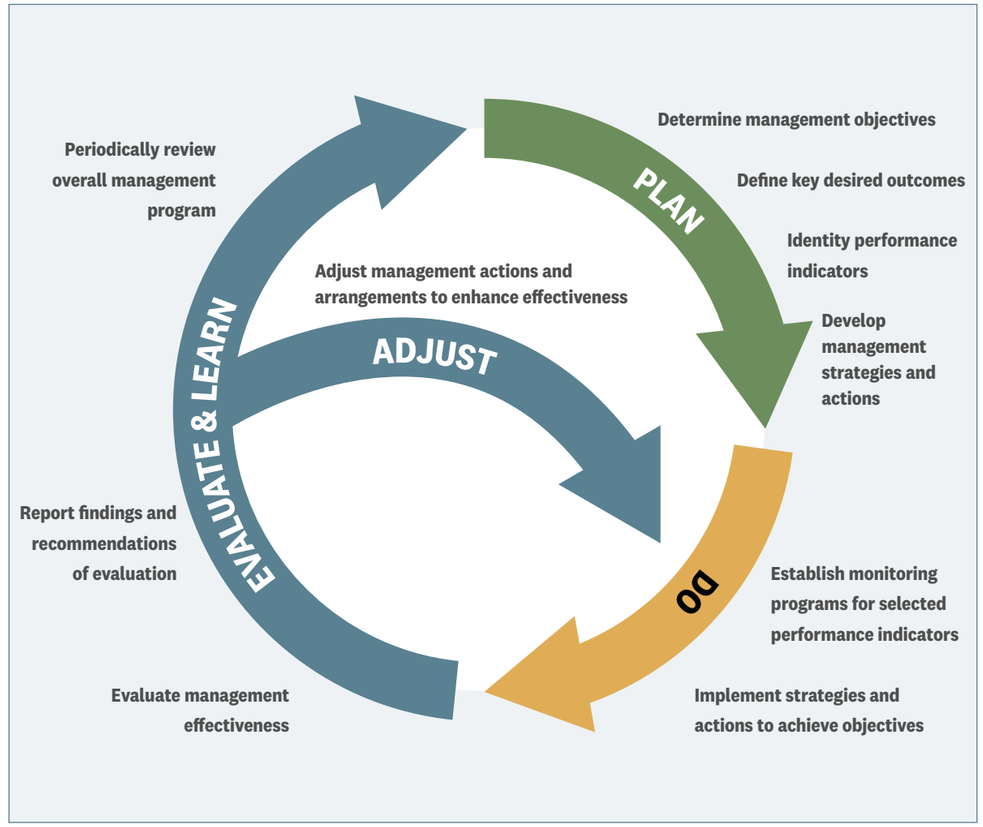
5. **Evaluate the results of the monitoring process:** Evaluation helps determine if the community's actions are leading to sustainable outcomes and where improvements are needed. Regular evaluations ensure that the community stays on the path of sustainability, and allows for corrections if needed. This step is crucial for learning and refining the community's resource use strategies. See again guide 1 on community-based monitoring for conservation and sustainable use.

6. **Tailoring community plans:** Modify the plan, community activities and natural resource use as needed to respond to changing conditions, as identified through monitoring and evaluation process. Adapting to new information ensures that the community's actions remain sustainable even as environmental or social conditions change. This step embodies the essence of "adaptive" management, ensuring that the community's approach evolves based on experience and new information.

Sources and further links:

- Kuiper, T et al (2023). Making adaptive management more user friendly to encourage manager buy-in. People and Nature. Available here.

Figure 2: The adaptive management framework



Inside the community benab for the meeting. Parabara hosted the SRDC meeting in February 2020.
Credit: Vicki Brown/FPP

CASE STUDY 5:

Developing a community-land management plan

The Wapichan people of Guyana faced significant threats from illegal mining, logging, and other forms of encroachment on their traditional lands. To address these challenges, they developed a comprehensive community land management plan. A community-land management plan is a strategic document developed by a community to guide the use, management, and conservation of land and natural resources within their territory. It outlines goals, practices, and policies for sustainable land use, balancing ecological health, economic development, and cultural values. This plan is typically created through a participatory process, ensuring that the needs, knowledge, and rights of the community members are central to how land is managed and used.

The community collaborated with the South Central and South Rupununi Districts Toshaos Council (SCDT/SRDC), and draw on a combination of GPS technology and traditional knowledge. This plan outlines sustainable land use, conservation strategies, and methods for protecting their cultural heritage. The Wapichan also engaged in extensive advocacy with the government to gain legal recognition of their land rights.

The implementation of this plan has strengthened community cohesion, improved environmental protection, and supported sustainable livelihoods through projects like eco-tourism. Their efforts have led to ongoing dialogues with the government to secure formal land rights. The Wapichan's work serves as a model for other indigenous communities facing similar challenges, demonstrating the power of community-driven initiatives in achieving sustainable development and land rights recognition.

Sources and further links:

- Wapichan people in Guyana present territorial map and community proposals to save ancestral forests. Forest Peoples Programme. Available here.

- Forest Peoples Programme, South Central People's Development Organisation (2012). Thinking together for those coming behind us. An outline plan for the care of Wapichan territory in Guyana. A document of the indigenous peoples of the South Rupununi. Available here.

Box 2: Monitoring caveats

Monitoring can be deceptive. This is true of all observation processes, and it can be a sensitive issue to discuss whether the observations people (both scientists and local communities) have spent lots of time and effort gathering are not giving them the reliable info that they think they are. However, it's so important to be open and honest about the challenges of biodiversity monitoring. Some things are much more reliably monitored than others, for example sedentary things like trees, wetlands. But animals, particularly cryptic, rare, and mobile ones, are not easy to observe trends in.

A small-scale coastal fishery in Aceh, Indonesia
Credit: *Hollie Booth*

Stage 3: Indicators of (un)sustainable use

In stage 2, we introduced the concept of adaptive management, and how it can be applied as a tool for assessing customary sustainable use. Here we consider the use of indicators to monitor the sustainable use of natural resources. Sustainability is notoriously hard to measure, but there are some helpful indicators that can be used in monitoring and which can help flag when there is a problem. Indicators are essential tools for monitoring and evaluating the sustainability of resource use. They provide insights that can be tracked over time to assess progress and inform adaptive management decisions.

When selecting indicators, it's essential for Indigenous Peoples and local communities to consider their unique context, values, and priorities. The timescales for monitoring can vary based on the specific resource, the community's capacity, and the rate of change of the resource. Indicators developed by or chosen by Indigenous Peoples and by local communities will often have cultural relevance and relationships with other aspects of community governance other than purely ecological measurements (e.g. extent and use of medicinal plants for care, or the strength and trends in the practice of seasonal rituals).

Sustainable use takes time - and it's not always easy to see changes quickly - particularly in populations of slow-growing species, or habitats that take a long time to regenerate. It's helpful to find monitoring approaches that can pick up these short-term signs of progress as well as the longer-term changes, including recovery, to ensure that communities can remain motivated to achieve longer-term sustainable use.

The adaptive management approach emphasizes regular review and adjustment of targets and indicators to ensure they remain relevant and effective. Table 1 displays some key indicators, potential targets, timescales, and the components of the socio-ecological system that they target. The timescales are approximate suggestions only; repeat monitoring may need to occur more or less frequently depending on the particular context.

Table 1: Common ecological and social indicators for monitoring the sustainable use of natural resources on community lands.

Indicator type	Indicator	Target	Timescale	Socio-ecological system (SES) component
Ecological	The level (abundance, or variety) of elements of biodiversity that are important to the community (e.g. fruiting trees, hunted animals, areas containing particular habitat types)	Maintain or increase abundance or diversity of important species or ecosystem types	Annual-every 5 years	Ecosystem health and resilience
	Population Sizes of Key Species (e.g. medium to large mammals, fish, culturally significant tree species,	No significant decline in population sizes; maintain populations above critical thresholds.	Seasonally or Annually	Species conservation and ecosystem balance.
	Habitat quality and extent (e.g. health and extent of bamboo forests, agricultural encroachment)	No net loss of critical habitats; restoration of degraded areas.	Every 3-5 years (or more frequently in a rapidly changing situation (e.g. Ogiek-month by month)	Ecosystem integrity and habitat conservation.
	Water quality or availability (e.g. presence of chemicals, turbidity, water levels throughout the year)	Maintain water quality within safe limits for human consumption and ecosystem health.	Seasonally or annually	Freshwater ecosystem health and human well-being.
	Frequency, extent and severity of events (e.g. fires, floods, droughts, high winds) which may be necessary for ecosystem function, but may also be destructive	Maintain usual/safe number and scale of these events to maintain ecological health, and notice trends which may signify climate change impacts and require adaptation	Seasonally	Ecosystem integrity and habitat conservation.
	Species composition	No significant change in composition indicative of ecological degradation	Seasonally or annually	Species conservation and ecosystem balance.
Social-economic indicators	High dependence on particular resources	Diversification of resource use to reduce over-dependence on a single resource.	Annually	Community resilience and economic stability.
	Local employment in resource management	Increase local employment opportunities related to sustainable resource management.	Annually	Community well-being and engagement in conservation.
	Income from sustainable use	Increase or stabilize income derived from sustainable resource-based activities.	Annually	Economic sustainability and community well-being.
	Traditional occupations	Helps to measure the continuity, transformation, or loss of indigenous and local community livelihoods over time. It can highlight shifts from traditional practices to modern occupations due to various socio-economic pressures.	Annual-every 5 years	Reflects cultural continuity, identity, and the intergenerational transfer of knowledge and skills. Also reflects on the sustainable use and management of natural resources.
Cultural and social indicators	Traditional knowledge retention	Document and pass down traditional knowledge related to resource use.	Ongoing	Cultural preservation and intergenerational knowledge transfer.
	Community engagement in resource management	Increase community participation in decision-making processes.	Annually	Social cohesion and community-led conservation.

Indicator type	Indicator	Target	Timescale	Socio-ecological system (SES) component
	Conflict in relation to natural resource use/ needs	Reduce or maintain low levels of conflict related to resource access and use.	Annually	Social harmony and community resilience.
	Index of Linguistic Diversity (ILD)	Measures the vitality and trends of languages over time, reflecting the health of cultural diversity. A decline in linguistic diversity indicates cultural erosion, whereas stability or increase suggests strong cultural retention and transmission.	Every 5-10 years	Loss can signal cultural assimilation pressures, loss of traditional knowledge, and reduced intergenerational language transmission. Conversely, an increase or stable ILD suggests effective cultural preservation efforts and robust community resilience.
Governance	Clarity of resource rights and responsibilities	Clear documentation and understanding of community resource rights	Every 3 years or as changes occur	Governance clarity and conflict prevention.
	Effectiveness of enforcement mechanisms	Increase compliance with community-defined sustainable use guidelines.	Annually	Governance effectiveness and resource protection.

Box 3: Shifting baselines

"Shifting baselines" is a phenomenon where each generation accepts the current state of a socio-ecological system as the norm or baseline, often overlooking the changes and declines that have occurred over time up to that point. It can also happen within an individual's lifetime, where we forget what things used to be like. This can lead to a gradual acceptance of environmental degradation and loss of cultural practices as each successive generation resets the 'normal' condition to what they first encountered. In the context of qualitative indicators for sustainability, this can introduce biases that skew perceptions and assessments of ecosystem health or social well-being. For instance, stories and recollections that rely on personal memory may inadvertently downplay the extent of resource depletion or cultural loss. To counteract these biases, communities can incorporate historical data, long-term monitoring, and intergenerational knowledge transfer (e.g. through telling stories about how things were) into the assessment process. By acknowledging and adjusting for shifting baselines, communities can set more informed targets for sustainable use, ensuring that qualitative indicators reflect both past and present realities.

Participatory Mapping Mozambique
Credit: *Rebecca Short*

Stage 4 : Implementation strategies & tools for managing natural resources

So far, we have discussed the key considerations for the sustainable use of natural resources, the role of adaptive management, and some indicators of sustainability. In this section we will outline some strategies that can be used to guide sustainable use of natural resources, once community-land management plans have been developed.

Some general strategies exist that can be used for natural resource use management, each tailored to the specific ecological and social contexts of a community. Among these, establishing no-take zones, implementing closed seasons, setting quotas, and restricting destructive technologies—such as certain types of fishnets, the use of poisons for fishing, or the deployment of snares—are proven methods that can mitigate overexploitation. Additionally, practices like eradicating invasive species, and imposing restrictions on chemical use or land clearance play a crucial role in conservation efforts. Equally important is the regulation of resource use by outsiders to ensure that local sustainability is not compromised by external demands.

When developing community-land management plans, the use managed according to Indigenous knowledge systems, often referred to as “customary sustainable use,” provides a robust foundation for responsible resource management. In the face of new challenges—such as increased population pressures, commercial harvesting, and environmental changes—communities can benefit from complementing their traditional practices with scientific knowledge. This can help adapt existing management strategies and demonstrate customary sustainable management practices to a wider audience.

Here, we share some strategies for the sustainable use of natural resources, in line with the four steps for the earth framework: Refrain, Reduce, Renew, Restore (See box 4). These examples are illustrative rather than prescriptive, as effective strategies are highly context-dependent both ecologically and socially. The goal is to strike a balance that increases natural resource abundance and enhances productivity.

It’s important to note that biodiversity loss is taking place less in IP & LCs’ lands than in other lands and that in some cases IP & LCs’ lands are islands of biodiversity in a sea of degradation (IPBES Global Assessment), but where communities wish to consider their use of resources, this could be a helpful framing to consider. It must be noted that many IPs & LCs already apply these concepts with different names and terms through their customary practices.

Box 4: The Mitigation and Conservation Hierarchy (MCH).

The Mitigation and Conservation Hierarchy (MCH) is a strategic framework designed to guide individuals, communities, governments, and organizations in making decisions that minimize negative impacts on biodiversity. It provides a framework to help communities to get towards their intended target and a way to know if the actions they are taking are sufficient enough in order to get there (e.g. Stage 2, step 2).

It comprises four main actions: Refrain from causing harm, Reduce the impacts of actions already taken, Restore ecosystems that have been degraded, and Renew damaged environments through proactive measures. In the context of customary sustainable use, this wording of the hierarchy has been to acknowledge that Indigenous communities and the natural environment are interconnected and can sustainably coexist.

The MCH offers a tool to integrate community contributions to conservation into decision-making processes, both by communities themselves and by other stakeholders, in regional and national planning. By applying the MCH, communities can highlight their contributions to biodiversity conservation and sustainable use, ensuring their practices are recognized and supported. For example, Indigenous Peoples manage at least a quarter of the world's land surface, including about 40% of terrestrial protected areas and ecologically intact landscapes. Through the MCH, communities can demonstrate biodiversity gains from actions such as forest protection (step 1), sustainable non-timber forest product extraction (step 2), managed fire regimes to restore vegetation (step 3), and restoring forest on historically degraded land (step 4).

The amended steps for use by Indigenous Peoples and local communities are:

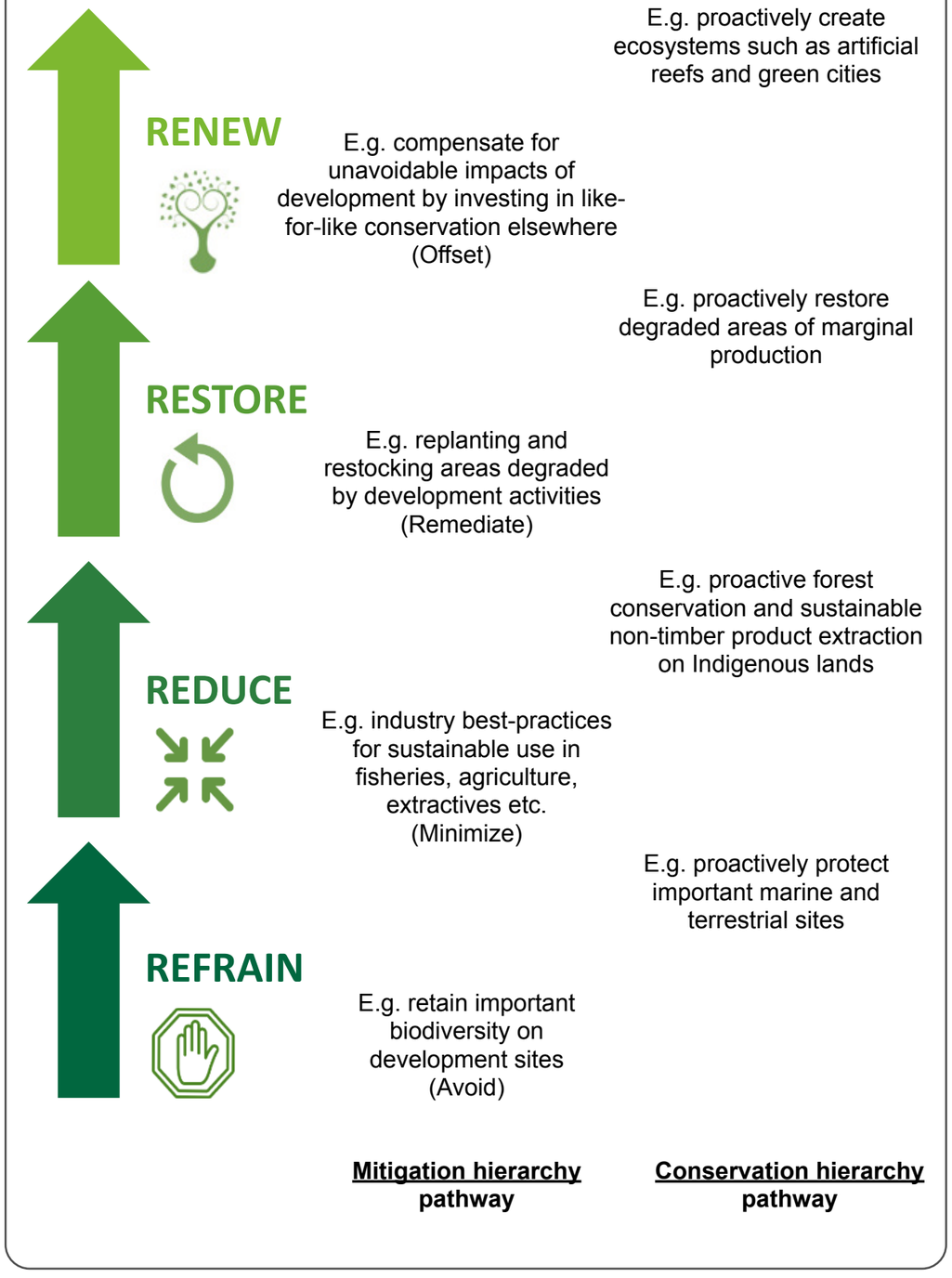
- Refrain from causing harm to **socio-ecological environments where people and nature co-exist**
- Reduce the impacts of actions already taken **on socio-ecological environments**
- Restoring **socio-ecological environments** that have been degraded, and
- Renew damaged s**ocio-ecological environments** through proactive measures.

By integrating Indigenous and local knowledge and customs within this framework, communities can enhance their stewardship of natural resources, by ensuring that their use is sustainable in a way that respects cultural traditions that support biodiversity conservation for future generations. This holistic approach recognizes and amplifies the positive conservation outcomes achieved by IP & LCs, providing a structured way to document and share their contributions to global biodiversity goals.

Sources and further links:

- *Milner-Gulland, EJ et al. (2021). Four steps for the Earth: mainstreaming the post-2020 global biodiversity framework. One Earth, 4:1, pp75-87.* Available here.
- *The Mitigation & Conservation Hierarchy (2021).* Available here.

'Four steps for the Earth'



Timber: Timber serves as a vital resource for countless communities around the world, providing material for construction, fuel, and cultural practices. However, its value also places it at risk of unsustainable exploitation. Signs of unsustainable timber use include deforestation, tree sickness or death (e.g. if branches are regularly cut off, if the tree is over-eaten by livestock, or if the tree is in a drying area), a decline in the diversity of tree species, soil erosion, and disrupted ecosystems. When mature trees are removed without consideration for regeneration, it can lead to a cascade of environmental issues, including loss of habitat and biodiversity, altered water cycles, and increased carbon emissions. To ensure the sustainability of timber resources, several proactive measures can be implemented:

- **Refrain:** Implement strict controls to prevent deforestation and ensure mature trees are not removed without plans for regeneration.

- **Reduce:** Practicing selective harvesting, where only certain trees are cut down while others are left to mature, can maintain the forest's structural integrity. By leaving a mix of tree species and ages, including seed-bearing trees, the forest can naturally regenerate, preserving its biodiversity and ecological functions.

- **Restore:** Silviculture, the science of managing forests, offers a suite of techniques to promote forest health and productivity. One such technique is the preservation of forests on steep slopes and riverbanks, areas that are crucial for preventing soil erosion and protecting water quality. By maintaining these areas as intact forests, communities can mitigate the risk of landslides and flooding, which are often exacerbated by deforestation.

- **Renew:** Establishing seedling nurseries is a forward-thinking approach that ensures young trees are available to replace those that have been harvested. By planting a diverse array of species, communities can foster a resilient and robust forest structure. This works best if trees are from the local area rather than brought into the area, as this ensures that local genetic diversity is preserved. This practice not only secures timber supplies for future generations but also contributes to the overall health of the ecosystem.

Non-woody plants: Non-woody plants, including an array of herbs, grasses, ferns, , fungi and aquatic plants, play a crucial role in the livelihoods and cultures of Indigenous Peoples and local communities. These plants are not only a source of food, medicine, and materials for construction and crafts but can also hold significant cultural and spiritual value. They contribute to dietary diversity, traditional healthcare practices, and are integral to many rituals and ceremonies. Unsustainable use of these resources is indicated by a noticeable decline in plant populations, reduced availability of key species, and habitat degradation, which can lead to a loss of traditional knowledge and biodiversity. To safeguard the sustainability of these resources, several practices can be adopted:

- **Refrain:** Limiting trade, especially of rare or endangered medicinal herbs, to within the community or under strict permissions can prevent overharvesting and ensures that they are harvested to benefit the community directly.

- **Reduce:** Sustainable harvesting techniques such as avoiding uprooting the entire plant when it's not necessary ensure the plant's survival and continued growth. Further, cutting above a bamboo node to allow for new growth limits the harvest of shoots and avoiding harvesting during growth seasons. When bark is used for medicinal purposes, techniques include peeling bark only in sections, and not all around the tree, using appropriate tools to minimize damage, and covering the exposed area with wet soil to promote healing and prevent disease.

- **Restore:** Trees and shrubs that provide fruits should be protected from destruction where possible. These species not only supply food but also play a role in the ecosystem by providing habitat and serving as a food source for wildlife. For example, the Mauritia flexuosa, commonly known as the moriche palm or aguaje, holds a vital role in sustainable use within the Amazon rainforest. As a keystone species, it significantly shapes the structure and function of its ecosystem, providing habitat and sustenance for various wildlife species. It also holds immense economic importance for local communities throughout the Amazon region. The sustainable harvesting and management of Mauritia flexuosa not only support the livelihoods of Indigenous Peoples and local communities but also contribute to the conservation of the Amazon rainforest by promoting the responsible use of its resources.

- **Renew:** Establish community gardens or nurseries to cultivate medicinal and cultural plants, offsetting impacts of wild harvesting.

CASE STUDY 6:

Sustainable harvest techniques: The Brazil nut

A Brazil nut broken open in the Zoró Indigenous Territory, Mato Grosso state.
Credit: Fred Rahal Mauro

Harvesting Brazil nuts, the seeds of Bertholletia excelsa, from the wild has been instrumental in promoting a "conservation through use" strategy across vast Amazonian forests, benefiting numerous rural families. According to Guaiguata et al (2017), brazil nuts are the only globally traded edible seed currently collected from the wild by forest-based harvesters. This practice not only supports local and national economic development but also conserves millions of hectares of forest in Bolivia, Brazil, and Peru, generating significant export revenues annually.

Sources and further links:

- *Guariguata, M et al. (2017). Revisiting the 'cornerstone of Amazonian conservation': a socioecological assessment of Brazil nut exploitation. Biodiversity and Conservation, 26: 2007– 2027.* Available here.

Use of animals (e.g. wild meat, fishing, etc) The use of animals for wild meat and fish is a critical component of subsistence for many Indigenous and local communities. However, signs of unsustainable use include declining animal populations, changes in species composition, animals being found further and further away from settlements, and reduced body sizes of hunted or fished animals (or not seeing as many young animals), indicating overexploitation and potential ecosystem imbalance. To ensure the sustainability of wildlife resources, communities can implement a variety of positive measures and restrictions:

- **Refrain:** Creating designated areas where animals are protected from human interference serves as a critical step in biodiversity conservation. These zones act as safe havens for breeding and wildlife populations to thrive without disturbance, contributing to overall ecosystem health and resilience.

- **Reduce:** Implementing practices to avoid hunting or fishing of vulnerable individuals, such as pregnant females or species with long gestation periods, helps reduce the impact on population dynamics. By targeting specific individuals, communities can maintain reproductive capacity and ensure sustainable harvesting over time. Enforcing seasonal closures during critical breeding or spawning periods minimizes disruptions to the life cycles of key species. This reduction in hunting and fishing activities allows for undisturbed reproduction, contributing to the preservation of population levels and genetic diversity. Implementing temporary moratoriums on hunting in areas experiencing high pressure can effectively reduce overexploitation and allow populations to recover. These pauses, informed by both traditional and scientific knowledge, provide essential respite for wildlife populations, preventing long-term depletion.

- **Restore:** Restoring native food plant species enhances sustainability and food security within communities. By planting food crops alongside native trees and shrubs, communities contribute to biodiversity conservation and maintain traditional knowledge of plant uses. Seed saving and exchanges further support genetic diversity and adaptation to local conditions. Additionally, restoring and preserving natural habitats that serve as nesting grounds for bees and other pollinators is crucial for ecosystem health. Constructing artificial nesting sites tailored to specific species' needs aids in their conservation. For example, the Ogiek community of Mount Elgon practices traditional beekeeping, demonstrating a sustainable approach that supports pollinator populations and reinforces the community's connection to their environment and heritage.

- **Renew:** Communities can engage in habitat restoration projects to renew degraded habitats that support wildlife populations. This could involve activities such as reforestation, wetland restoration, or creating wildlife corridors to reconnect fragmented habitats. Engaging in wildlife monitoring and research initiatives enables communities to renew their understanding of local animal populations and their ecological roles. This information can inform sustainable management practices and conservation strategies.

Agriculture and grazing: Agriculture and grazing are fundamental activities for many indigenous and local communities, providing food security and forming a significant part of local livelihoods. Traditional knowledge often helps to identify and respond to signs of unsustainable use, such as soil degradation, reduced crop yields, overgrazing, loss of biodiversity, and water scarcity. To ensure the sustainability of agriculture and grazing, several strategies can be employed:

- **Refrain:** Designated livestock and wildlife areas: By separating livestock from wildlife, particularly during vulnerable periods, communities can mitigate disease transmission and reduce competition for resources like water. Implementing measures such as providing separate watering points for livestock helps ensure the needs of both livestock and wildlife are met without compromising ecosystem health.

- **Reduce:** Controlled grazing: Limiting the number of animals allowed in specific areas helps prevent overgrazing, reducing the risk of soil erosion and loss of vegetation cover. By regulating grazing intensity, communities can minimize the ecological impacts associated with livestock management and maintain the long-term sustainability of grazing lands.

- **Restore:** Rotational grazing and agriculture: Implementing rotational grazing and agriculture practices allows for the periodic rest and recovery of grazing lands. By rotating the areas used for grazing and agriculture, communities can restore soil health, reduce soil exhaustion, and maintain fertility. This approach mimics natural grazing patterns, promoting ecological balance and enhancing the resilience of grazing ecosystems (see case study 6).

- **Renew:** Establishing agreements on the use of grazing areas fosters responsible resource sharing and reduces the risk of overuse. Through communal agreements, communities can renew their commitment to sustainable land management, ensuring that grazing activities are conducted in a manner that supports long-term ecosystem health and resilience. Allocating specific areas for grazing helps in managing the land more effectively. By designating grazing areas, communities can renew their focus on protecting sensitive ecosystems and ensuring sustainable land use practices. Concentrating grazing activities in designated zones allows for better monitoring and management of grazing impacts, contributing to the renewal of ecosystem health and vitality.

CASE STUDY 7:

Traditional grazing management in Mongolia

Sunset over Mongolian valley **Credit:** Christian Kornacker, Adobe Stock

In Mongolia, traditional grazing management plays a crucial role in sustaining the use of pastoral landscapes. These practices, embedded within the nomadic lifestyle, are critical for the sustainability of pastoral landscapes. Seasonal livestock movement, guided by a deep understanding of local ecosystems, prevents overgrazing and fosters pasture recovery. Such a system, refined over centuries, not only underpins biodiversity and grassland health but also safeguards rural livelihoods. Mongolian herders, by embracing environmental changes and incorporating modern conservation strategies, enhance the resilience and sustainability of their age-old practices.

Furthermore, the broad ecological knowledge shared among herders is integral to traditional rangeland management institutions in Mongolia. This collective wisdom underscores a well-defined connection between local environmental conditions and nomadic resource management strategies, illustrating how traditional practices are informed by and responsive to the surrounding natural environment. This synergy between traditional knowledge and ecological stewardship ensures the continued vitality of Mongolia's pastoral landscapes.

Sources and further links:

- *Fernandez-Gimenez, M. E. (2000). The Role of Mongolian Nomadic Pastoralists' Ecological Knowledge in Rangeland Management. Ecological Applications, 10(5), 1318–1326.* Available here.

Firewood, charcoal and resin tapping: Firewood, charcoal, and resin tapping provide essential energy for cooking, heating, and various traditional practices. However, unsustainable harvesting of these resources can lead to deforestation, habitat destruction, and a decline in biodiversity. Key signs of unsustainable use include a noticeable decrease in forest cover, scarcity of mature trees, scarcity of deadwood and associated reduced biodiversity. To ensure the sustainability of these resources, communities can adopt the following practices:

- **Refrain:** To mitigate the negative impacts of resin tapping on forest ecosystems, communities can adopt sustainable techniques that minimize harm to trees. Controlled tapping methods, guided by traditional wisdom, help preserve tree health and ensure a continuous resin supply without causing excessive damage to the bark. By refraining from destructive tapping practices, communities can safeguard tree populations and maintain the ecological integrity of the forest (see case study 7).

- **Reduce:** Utilizing dead wood: Instead of harvesting live trees for firewood and charcoal, communities can reduce their impact on forest ecosystems by prioritizing the use of dead wood found on the forest floor. By utilizing dead wood, communities can minimize deforestation and habitat destruction associated with live tree harvesting. This reduction in live tree harvesting helps maintain forest cover, preserves mature trees, and sustains biodiversity levels.

- **Restore:** Recognizing the ecological importance of dead wood, communities can engage in restoration efforts to replenish this resource within forest ecosystems. By restoring dead wood habitats, communities promote natural regeneration processes, support biodiversity, and enhance ecosystem resilience. Restoring dead wood contributes to the recovery of forest ecosystems and ensures their long-term sustainability.

- **Renew:** Embracing Indigenous forest management practices, including sustainable resin tapping and dead wood utilization, enables communities to renew their relationship with forests while promoting ecological balance. By integrating traditional knowledge and practices into forest management, communities can renew their stewardship of forest resources, ensuring their sustainable use for future generations. Renewing Indigenous forest management practices strengthens cultural connections to the land and fosters resilient, biodiverse ecosystems.

CASE STUDY 8:

Sustainable resin tapping in the Brazilian Amazon

Breu Branco - Protium Pallidun **Credit:** Pulsar Imagens, Adobe Stock

The sustainable harvesting of breu resin from Protium species in the Brazilian Amazon demonstrates the effective integration of traditional practices with modern management to benefit both local communities and forest conservation. Traditionally used for its medicinal properties and as incense, breu resin faced overharvesting risks due to increased demand, threatening the health of the forest. To address this, local communities, supported by researchers and NGOs, implemented a sustainable management plan. Harvesters were trained in techniques that avoid harming the trees, such as careful tapping methods and rotating harvesting areas to allow trees to recover.

This participatory approach ensured that traditional knowledge was respected and incorporated into the management plan. Regular monitoring of resin yields and tree health, along with set quotas, helped maintain sustainable yields. The project yielded significant environmental benefits by maintaining biodiversity and forest health, economic benefits through a steady income for local communities, and cultural benefits by preserving traditional practices. The success of the breu resin project in the Brazilian Amazon serves as a model for other non-timber forest product (NTFP) management initiatives worldwide.

Sources and further links:

- *Shanley, P., et al (Eds.). (2002). Tapping the Green Market: Certification and Management of Non-timber Forest Products. Earthscan Publications Ltd. Researched by the Center for International Forestry Research (CIFOR).* Available here.

Water: In many indigenous and local communities, water is not just a physical resource but also holds cultural and spiritual significance. Signs of unsustainable water use include reduced water levels in rivers and lakes, contamination of water sources, and the disruption of aquatic ecosystems. These changes can lead to a decline in water quality, affecting both human health and the environment. To ensure the sustainability of water resources, several strategies can be implemented:

- **Refrain:** Maintaining clean water collection sites is crucial to preventing contamination and ensuring water safety for domestic use. By segregating activities such as washing and grazing from water sources, communities can minimize the risk of pollution and maintain water quality for drinking and other essential purposes.

- **Reduce:** Implementing forest corridors along rivers serves as a proactive measure to reduce the risk of water source contamination. Preserving these natural buffers helps stabilize riverbanks, filter pollutants, and regulate the flow of rivers. By reducing human encroachment and land degradation near water bodies, communities can safeguard water quality and support biodiversity.

- **Restore:** Addressing the responsible disposal of waste and chemicals contributes to the restoration of water ecosystems. Proper management of litter and agricultural chemicals prevents water pollution, while targeted interventions tackle regional issues such as mercury contamination from gold panning. Through restoration efforts, communities can revitalize aquatic habitats, protect wildlife, and uphold the integrity of water resources.

- **Renew:** Embracing sustainable practices for water management renews the vitality of local water sources. By adopting innovative solutions and traditional knowledge, communities can renew water availability and quality. Strategies may include rainwater harvesting, watershed management, and the revitalization of traditional water systems. By renewing water resources, communities ensure resilience against environmental challenges and secure water access for future generations.

CASE STUDY 9:

Addressing decline of fisheries and mangroves by promoting community-based silvo-aquaculture in the Bangladesh Sundarbans

Agro-silvo-aquaculture in villages adjoining the Sundarbans **Credit:** Unnayan Onnesha

The communities around the Sundarbans mangrove ecosystem are facing significant challenges in sustaining their livelihoods. These challenges stem from forest degradation due to heavy resource use, recurring cyclones, salinity intrusion, and floods. These factors have increased the vulnerability of traditional resource users, such as honey collectors, fishermen, and collectors of golpata (Nypa palm fronds). With support from the NGO Unnayan Onneshan, a local research team and community members collaborated to identify vulnerable areas and map current and potential threats. Elders and experienced resource collectors helped pinpoint the most vulnerable areas. Resource collection zones were categorized into three areas: a green zone with abundant resources, a blue zone where resources are declining, and a red zone where resources have significantly decreased. The research identified the drivers of resource degradation, and the data were used to create vulnerability maps. These maps indicate areas needing special conservation efforts and those suitable for resource collection, detailing the extent of sustainable use. The maps are used for advocacy with forest departments, aiming to align conservation efforts and resource management policies more effectively.

Sources and further links:

- Onneshan, U. (2018). Community-based vulnerability and resilience mapping and adaptation practices in the mangrove forests of the Sundarbans, Bangladesh. Local Biodiversity Outlooks. Available here.

Banana Plantation, Cameroon
Credit: *Stephanie Brittain*

Stage 5: Customary sustainable use in national and international policy

Drawing on the lessons from Stage 4, how can action at these international and national levels refrain from causing harm or reduce their impacts at the community level, and how can they help restore and renew the ecosystem? How can communities engage in these levels in a way that does not cause themselves harm but helps restore and renew their capacity for self-determined socio-ecological sustainability and resilience?

Community engagement in national policy

What are NBSAPs? An NBSAP, or National Biodiversity Strategy and Action Plan, is a country-specific framework designed to protect, restore and enhance biological diversity. Developed by countries in order to implement their commitments under the Convention on Biological Diversity (CBD), an NBSAP outlines strategies, actions, and measures that a country intends to implement to conserve its biological resources, promote sustainable use, and equitably share the benefits arising from the utilization of genetic resources. These plans are crucial for guiding national policies and priorities on biodiversity, integrating biodiversity considerations into various sectors, and mobilizing resources for conservation and sustainable management efforts, helping to guide the ***reduction of impacts*** and the ***restoration of damaged socio-ecological environments.*** They should be developed in reference to and have relationships with other national planning frameworks, including economic development strategies, trade, and climate change response.

Why should communities contribute to NBSAPs?

Effective participation by Indigenous Peoples and local communities in the development and implementation of NBSAPs can help to ensure that the rights and interests of these communities are represented and respected, and can ensure their contributions to biodiversity conservation are recognized and supported. This is crucial in improving policy making to incorporate and support these often-under recognized contributions, and in reducing the marginalization of these peoples and ultimately, in promoting equitable access and sustainable use of natural resources. Indigenous knowledge is invaluable in creating effective biodiversity strategies that are both practical and culturally appropriate. Integrating customary sustainable use into National Biodiversity Strategies and Action Plans (NBSAPs) presents a unique opportunity to blend traditional ecological knowledge with modern conservation practices.

How can communities contribute to NBSAPs?

Communities can contribute knowledge to NBSAPs through participation in public consultations and workshops that governments often hold, either directly or through representative organisations. Non-governmental organizations (NGOs) and civil society groups that focus on environmental and Indigenous rights can be allies in ensuring community voices are heard in the NBSAP process. Communities can also share their contributions to be included in the National Reports (on implementation of the NBSAPs) that governments submit to the CBD. Collaborating with academic and other research institutions can help communities in gathering data and evidence to support their contributions to NBSAPs, and they can use media and advocacy campaigns to raise awareness of their perspectives, and influence public opinion and policy decisions (see case study 9). Customary sustainable use are then more likely to be recognized and protected within the legal and policy frameworks, ensuring that traditional practices are respected and promoted in national biodiversity strategies. NBSAPs can even call for support and funding for community-led initiatives that are based on customary sustainable use, ensuring that conservation efforts are locally relevant and effective.

CASE STUDY 10:

Community participation in national policy

A Térraba leader at a NBSAP workshop in Costa Rica.
Credit: *Alejandra Loría Martínez, Focal Point for Article 8(j), Costa Rica*

In Costa Rica, the official adoption of the National Biodiversity Policy 2015–2030 and the second National Biodiversity Strategy for 2016–2025 marked significant milestones in inclusive conservation efforts. These policies, underpinned by the Biodiversity Law No. 7788, incorporated indigenous participation through extensive advocacy and collaboration with government bodies. Diverse indigenous communities actively contributed to shaping the policy and strategy via workshops that embraced cultural, environmental, and economic perspectives. This participatory approach enriched the biodiversity strategy with 38 goals influenced by indigenous proposals, facilitating a comprehensive vision for biodiversity use, governance, and traditional knowledge protection.

Sources and further links:

- Maroto, DR., Brunca Indigenous People and President of the National Indigenous Bureau, Costa Rica (2021). Indigenous peoples participate in NBSAP processes in Costa Rica. Local Biodiversity Outlooks 2. Available here.

Collecting salt, Hon-khoi-viêt-nam
Credit: *Quang Nguyen Vinh*

Community engagement in international policy

What is the Global Biodiversity Framework?

The Global Biodiversity Framework (GBF) is a strategic plan adopted in 2022 aimed at guiding international and national efforts to protect and sustainably use biodiversity across the globe. The GBF seeks to address the urgent need to halt biodiversity loss and put nature on a path to recovery by the end of the decade, in line with the 2050 Vision of "Living in harmony with nature". It sets targets for conserving, restoring and sustainably using nature, addressing drivers of biodiversity loss, and integrating biodiversity considerations across all sectors of the economy and society. Importantly, the knowledge, values, rights and participation of IPs and LCs are stated in several of the targets of the GBF, and governments are urged to use a human rights-based approach in implementing and monitoring the GBF.

International Indigenous Forum on Biodiversity (IIFB) Indigenous caucus at COP15 in Montréal participating in the Kunming- Montréal Global Biodiversity Framework participating where the Kunming-Montreal Global Biodiversity Framework was established in 2022.
Credit: Tom Dixon, FPP

Why should communities contribute to the Global Biodiversity Framework?

The participation of Indigenous Peoples and local communities is crucial for the success of the Kunming-Montreal Global Biodiversity Framework. Their involvement brings invaluable indigenous knowledge and perspectives, draws on lessons from community-led environmental stewardship, and provides practical examples of sustainable use. Moreover, their engagement ensures the framework is comprehensive, allowing these communities to contribute to the monitoring and reporting of biodiversity targets, influence international biodiversity policies and actions, uphold human rights, and base conservation efforts on practical, effective strategies for sustainable use.

The framework uses Targets to measure progress, and while all are important for Indigenous Peoples and local communities, some of those Targets directly relate to and reference their rights (e.g. Targets 1, 3, 5, 9, 21, 22 and 23, available here). Traditional Knowledge is also being considered across Targets. Knowing which targets relate to IP & LCs can provide communities with an entry point.

How can communities contribute to the Global Biodiversity Framework?

Communities can contribute to implementing the Global Biodiversity Framework (GBF), as well as to monitor its implementation from the local to the global level, by actively engaging in a variety of participatory processes. Involvement can range from being part of national delegations or of indigenous and local community organisations and networks at Convention on Biological Diversity (CBD) meetings, contributing insights through national and regional workshops, and submitting position papers that highlight the importance of traditional ecological knowledge and of their collective actions related to biodiversity. Collaborations with trusted external partners can help to amplify voices, while community-based monitoring can offer ground-level data crucial for the GBF's success. Participation in expert groups, building alliances, and advocacy in international forums extends their influence beyond the CBD, ensures that the GBF is informed by the rich biodiversity knowledge and sustainable practices of local communities.

Karen women at a workshop, Thailand.
Credit: *Stephanie Brittain*

CASE STUDY 11:

Indigenous Influence on the Global Biodiversity Framework

Indigenous Peoples and local communities (IP & LCs) significantly shaped the Kunming-Montreal Global Biodiversity Framework (GBF), particularly in the establishment of the ambitious 30% conservation target by 2030. The International Indigenous Forum on Biodiversity (IIFB) played a pivotal role by facilitating IP & LC participation in the CBD negotiations. Representatives from diverse indigenous groups engaged through formal submissions, workshops, and direct negotiations, advocating for the recognition of their traditional knowledge and conservation practices.

Their involvement led to the inclusion of important language in Target 3, which emphasizes not just the expansion of protected and conserved areas but also the respect for the rights and contributions of IP & LCs and recognition of indigenous and traditional territories as part of conservation actions. The target calls for at least 30% of the planet to be under effective conservation by 2030, ensuring that conservation efforts are socially equitable and respect IP & LC rights. This was achieved through strategic alliances with NGOs, international bodies, and consistent advocacy showcasing the effectiveness of indigenous-led conservation initiatives.

By building alliances and consistently advocating for their rights, IP & LCs ensured that the Global Biodiversity Framework not only aims for ecological sustainability but also upholds social justice and the recognition of traditional knowledge.

Sources and further links:

- *Tugendhat, H & Farhan Ferrari, M. (2023). Unpacking the Kunming-Montreal Biodiversity Agreement, Forest Peoples Programme. Available here.*
- *IUCN (2023). Indigenous peoples and local communities at the heart of CBD negotiations in Geneva. Available here.*
- *Forest Peoples Programme (2023). Indigenous Peoples and the Kunming-Montreal Biodiversity Agreement. Transformative Pathways. Available here.*

Overcoming obstacles and challenges to local participation in national and international policy.

Several challenges need to be overcome to facilitate this exchange and participation in national and international policy processes by IP & LCs. Firstly, existing legal frameworks may not recognize or protect customary practices, requiring significant policy reforms. There are often conflicts between traditional practices and modern conservation goals or wider economic interests. Documenting traditional practices can be challenging, especially in the absence of written records. And there may be a need for capacity building within communities to ensure effective engagement, and for authorities to better understand the value and contributions of indigenous and local knowledge and practices.

The integration of customary sustainable use into national and international policy processes has already been achieved; customary sustainable use is stated in Targets 5 and 9 of the Global Biodiversity Framework and the Global Plan of Action on customary sustainable use was adopted at COP-12 and is now stated in the binary indicator for Target 9. To build on this successful integration of customary sustainable use in policy, and ensure that IP & LCs can continue to feed into such policy processes in practice, dialogue and partnership between governments, indigenous and local communities, and other stakeholders is key. This requires effective, inclusive platforms for sharing knowledge, building trust, and developing policies that are both culturally sensitive and ecologically sound.

Conclusion

The guidance document aimed to provide some tools and strategies for IP & LCs to assess and promote sustainable resource use on their lands, with case studies to exemplify how these strategies have been successfully implemented in reality. This guide outlined methods to balance resource extraction with conservation, integrating traditional knowledge with scientific approaches. Through participatory mapping, adaptive management, and clear indicators, communities can monitor and manage their natural resources effectively, ensuring ecological health and cultural preservation. By engaging in both national and international policy processes, IP & LCs can assert their rights and demonstrate their contributions to biodiversity conservation.

Catch of the day, Nosy Hara MP, Madagascar
Credit: *Harriet Ibbett*

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