Briefing

Biodiversity; Food and agriculture

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Policy pointers

A successful Global Biodiversity Framework (GBF) must recognise the critical role of Indigenous Peoples and local communities (IPLCs) in the conservation and sustainable use of biodiversity.

As biodiversity policymakers prepare for the CBD COP15, they must ensure traditional knowledge and the rights of IPLCs are integrated across all post-2020 targets.

Target 3 — on conserving 30% of land and sea through protected areas — must be revised to ensure IPLC rights and self-governed conservation areas are fully recognised and protected.

Target 14 — on integrating biodiversity values into policies — must also require the integration of Indigenous knowledge and languages across policies to prevent the loss of traditional knowledge related to biodiversity conservation.

Indigenous knowledge and values: key for nature conservation

Most of the Earth's biodiversity is located in the territories of Indigenous Peoples — around half a billion people who collectively manage about a quarter of the world's land. Policymakers can no longer ignore the vast body of evidence showing that the traditional knowledge and rights of Indigenous Peoples and local communities are critical for addressing the crisis of biodiversity loss. Recent research with Indigenous Peoples in Peru, Kenya, India and China shows that Indigenous values and worldviews promote balance with nature and social equity. Strengthening Indigenous knowledge and values can lead to effective, locally owned, equitable and cost-effective conservation outcomes and contribute to global development goals. However, Indigenous knowledge and values face multiple threats. In advance of the Convention on Biodiversity (CBD) COP15 in China, policymakers must fully integrate Indigenous knowledge and values across the new Global Biodiversity Framework (GBF).

The traditional knowledge (TK) and ways of life of Indigenous Peoples and local communities (IPLCs) are critical in sustaining biological and cultural diversity. A 2019 global assessment found that biodiversity is generally declining least rapidly on Indigenous lands.[1] New research shows that many lands characterised as 'natural', 'intact' or 'wild' have long histories of human use, and that recognising traditional societies' deep cultural connection with biodiversity is essential in resolving the crisis of biodiversity loss.[2]

Across the world, human cultural practices have produced sustained ecological benefits by expanding species habitats, enhancing plant diversity, increasing hunting sustainability, aiding seed dispersal and improving soil nutrients. Hunter-gatherers, subsistence farmers and pastoralists have created biodiversity-rich cultural landscapes and sustained them for millennia.[2]

Policies for wildlife management and ecological restoration based on the assumption that human use of nature is inherently destructive have often failed.[2] They have resulted in the repression and removal of Indigenous Peoples from traditional lands and the extinction of their ecological knowledge. Evidence shows that respecting IPLC rights and knowledge leads to effective, locally owned, equitable and cost-effective conservation outcomes.[3] The importance of doing this has long been expressed in the Convention on Biological Diversity, although action has lagged behind words (see Box 1).

Targets must protect biocultural heritage

As well as in-depth knowledge of local ecosystems and conservation practices, TK includes cultural values, beliefs, worldviews and

customary laws relating to nature. These provide normative principles for conservation and sustainable development that can be strengthened for community-owned and -governed conservation initiatives.

Evidence shows that respecting local rights and knowledge leads to effective, locally owned, equitable and cost-effective conservation outcomes

Cultural values are also vital in maintaining TK for community livelihoods, food security, identity and wellbeing, and provide flexible frameworks for addressing new challenges and adapting to change. They can be used to shape market linkages that strengthen rather than erode Indigenous culture and knowledge.

Research has shown that many Indigenous cultures emphasise core values of reciprocity, balance and solidarity with nature and in society,[4] seeking harmony between man, nature and the spiritual world.[5] It has also shown that Indigenous knowledge, biodiversity, landscapes, cultural and spiritual values, customary lawsand languages are inextricably linked, interdependent components of biocultural heritage.[6]

This briefing further explores Indigenous Peoples' cultural values, worldviews and wellbeing concepts and their role in biodiversity conservation and sustainable development in Peru, Kenya, India and China. These case studies[7] exemplify why, at COP15, policymakers must integrate TK across the post-2020 GBF targets.

Andean Quechua values ensure a nature-based economy

The Quechua people of Lares (Peru's Urumbamba province) are descended from an ancient matriarchal society. Their identity comes from their connections with the mountains and belief in sacred *Pacha Mama* (Mother Earth). Traditional ecological knowledge is central to all productive and economic activities. Women dominate barter markets, the main form of economic exchange. The markets are vital for sustaining biodiversity and TK and ensuring nutritional balance through women's access to diverse foods from different altitudes.

Through Indigenous agro-ecological, ritualistic farming systems, the Chalakuy (Barter) Maize Park communities sustain very rich Andean agrobiodiversity, with about 90 maize and 400 potato varieties. They also protect rich Andean wildlife by guarding sacred mountains, lakes, forests and rivers. Agricultural activities are guided by wild plant and animal signs provided by male and female mountain gods (*Apus*), which play a role in community governance.

This strong relationship with the land has nurtured a holistic worldview where everything and everyone is related. Spiritual values, customary laws and institutions reinforce this connectedness. The Quechua worldview is encapsulated in the notion of the *Ayllu*, a traditional concept that seeks to balance the needs of three closely connected *Ayllus* or communities:

- People and domesticated crops and animals (*Runa Ayllu*)
- Wild species and spaces (*Sallqa Ayllu*)
- The sacred, including mountains, sacred sites, customary laws and ethics (*Auki Ayllu*)

Achieving holistic wellbeing (*Sumaq Kausay*) requires balance and reciprocity (*Ayni*) among these three *Ayllus*. The concept of *Sumaq Kausay* thus enshrines the economic, environmental and social goals of sustainable development.

These pre-colonial concepts and values, along with values of solidarity and collectiveness. remain deep in the Andean mindset. They provide the basis for the successful, self-sustaining Potato Park biocultural heritage territory, which conserves exceptional agrobiodiversity and Andean wildlife.

China's Naxi-Moso peoples protect forests and water sources

In Yunnan, south-west China, four Naxi-Moso communities settled along the Jinsha river over 1,000 years ago. Their worldviews, cultural values and identity are closely connected to nature, as per their saying, "Humans and nature are half-brothers." Their traditional Dongba religion and spiritual connection to nature (sacred forests, mountains and water sources) provide values that guide their interaction with nature and with other

Box 1. Existing recognition of traditional knowledge

The 1992 Convention on Biological Diversity (CBD) recognises the importance of TK for biodiversity conservation and sustainable use. It requires countries to take action to:

- "Respect, preserve and maintain knowledge, innovations and practices of Indigenous and local communities" (article 8j), and
- "Protect and encourage customary use of biological resources in accordance with traditional cultural practices" (article 10c).

But 30 years on, there has been little action on these issues. Global Biodiversity Outlook 5 showed that most countries failed to achieve Aichi Target 18 on traditional knowledge.[9] With more than 20 Indigenous languages lost each year, TK is rapidly declining worldwide.[10] Yet national policies rarely integrate TK due to colonial legacies and racism against Indigenous Peoples.[3]

communities. They are to respect every living being and interact with nature through customary laws promoting conservation and equity. Traditional regulations protect forests and water sources, ensure equitable water allocation and promote agrobiodiversity conservation.

Like the Andean *Ayllu* concept, the main aspects of the Naxi-Moso worldview are the spiritual world, ecosystems and human communities. Balance between the three is important for wellbeing and adapting to change. Traditionally, many natural resources like seeds, crops and trees are not regarded as commodities, but as gifts for sharing and reciprocity. Customary law still applies in all four villages — Stone Village, Wumu, Labo and Youmi. Customary water management has been critical for coping with recurrent spring droughts in the last decade.

Himalayan peoples live in harmony with nature

In India, the Lepcha and Limbu are the largest Indigenous groups in Lingsey and Lingseykha communities bordering Sikkim and Neora Valley National Park, in the Himalayan global biodiversity hotspot. Their worldview and belief systems are closely tied with the Khangchendzonga mountain range, worshipped and regarded by the Lepchas as their brother. The Lepchas, hunter-gatherers until about 200 years ago, have particularly extensive TK. Hence the saying, "A Lepcha will never die of hunger."

The Lepcha and Limbu practice shamanism, worshipping several nature-related deities including Mother Earth, and a female deity of seeds and ancestors. Their priests conduct rituals in sacred natural sites, such as mountains, forests, rivers and caves, and mediate the relationship between the human, natural and spiritual worlds (good and evil spirits). Nature is protected through sacred sites and customary laws that regulate when, how and how much of different plants and animals may be harvested. Lepcha and Limbu wisdom is based on 'wholeness', where human actions are accountable to the natural world, ancestors and spirits. They still practice many agricultural rituals, use natural signs (such as those of birds) to time farming activities, and sustain high levels of agrobiodiversity in kitchen gardens for cultural use.

Their core cultural values include ensuring balance and harmony with nature. Solidarity and reciprocity in society and with nature are expressed through seed sharing, tree planting, stocking rivers with fingerling fish and offering cereal crops such as traditional millets or rice to deities, birds, animals and fish. There are deep-seated values of equity and resource sharing in the communities, such as the practice of *Perma* for sharing farm labour.

Kenya's Mijikenda people protect *Kaya* forests

The Bantu-speaking Mijikenda people settled in the 1600s on Kenya's coast in fortified hill villages, now sacred *Kaya* forests. Rabai sub-county (Kilifi county) forms part of a global biodiversity hotspot. Protecting *Kaya* forests is deeply entrenched in traditional Mijikenda culture. Rabai's *Kaya* Elders' Council protects the forests through a system of taboos and traditional rules that restrict access to specific areas and prohibit grazing and tree cutting. The elders pray and conduct rituals in *Kaya* forests. These values also apply outside the *Kayas*, where, for example, cutting of coconut trees is forbidden and agro-ecological practices are encouraged.

The *Kaya* elders' worldview and understanding of wellbeing is founded on the *Mudzini* concept, which emphasises the harmonious relationship between humans and nature. It recognises sacred elements and symbols representing spirits, wild plants, humans, and domesticated plants and animals, and their interactions within the landscape. This concept has guided their interaction with Mother Nature for generations. *Kaya* elders believe the elements of the *Mudzini* concept should be balanced to promote holistic wellbeing and sustainable development in the Rabai community.

Mijikenda cultural values include reciprocity (*Kufaana*) and equilibrium (*Soyosoyo*) between people and nature, solidarity (*Umwenga*) among people with a common interest, and collectiveness (*Kushirikiana*) among community members. These values support sustainable natural resource management, social cohesion and preservation of TK and practices. Traditionally, ancestral land is considered sacred and cannot be sold to outsiders.

Ensuring food security and resilience to shocks

In all the communities studied, cultural values underpin the conservation of traditional crops and wild foods for subsistence and cultural practices. This contributes to SDG Goal 2 (Zero Hunger) by maintaining genetic diversity, nutritious diets and resilient, sustainable production practices. For example, in Rabai, cultivating diverse traditional crops that tolerate drought, pests and disease has ensured substantial yields despite climate change.

In all four cases, biocultural systems also played a key role in ensuring food security despite COVID-19 lockdowns. The Potato Park and Chalakuy Park communities responded to the pandemic by reinforcing local values of solidarity,

reciprocity and balance. This ensured health protocols were strict, with not a single case of COVID-19 in the communities. It also ensured food security and surplus food — the Potato Park donated a tonne of potatoes to people in need in Cusco, based on the principle of solidarity.

Across the studies, Indigenous cultures require balance between the human, the wild and the sacred worlds to achieve wellbeing. But these values are weakening, particularly outside the Andes and in less remote communities. The key drivers eroding TK are:

1) Promotion of industrial agriculture and the influx of cheap foods such as rice and noodles, contributing to malnutrition and declining traditional farming

2) Lack of integration of TK and IPLC rights across policies, schemes, and education systems that promote economic development and western science

3) Youth outmigration and adoption of western lifestyles (for example, in Rabai, Kenya, TK transmission has almost halted, putting *Kaya* forests at risk, and elders have been accused of witchcraft and murdered for their land).[7]

In India, the Lepcha and Limbu sustainable forest management systems have long been under pressure from state ownership of forests, initiated under British colonial rule. A forest reserve and national park seriously restrict forest access. This has undermined livelihoods, reduced forest quality and promoted a shift to cash crops.

TK must be integrated across the post-2020 GBF

This research shows that, across different Indigenous cultures, TK enshrines core values of balance, reciprocity and solidarity with nature and in society that provide flexible principles for sustainable and equitable development. These can be strengthened as the basis for community-owned, equitable and self-sustaining conservation and development initiatives, such as biocultural heritage territories.

No evidence was found of cultural values or practices that hinder biodiversity conservation or social equity, except in relation to gender. In Rabai, Kenya, women cannot inherit land and so have little influence over farming decisions. In China's Naxi Stone Village, women may not participate in some rituals. Indigenous core values such as equilibrium and solidarity can be used to re-evaluate such norms to enhance gender equity.

The success of the new post-2020 GBF,[8] to be agreed at the CBD COP15, will largely depend on recognising the traditional knowledge and rights of the world's 476 million Indigenous Peoples. In particular, CBD decision makers must focus on:

- Effectively implementing TK targets. Target 20 requires TK integration in biodiversity decision making; Target 21 requires respect for IPLC rights to lands, territories and resources
- Integrating TK and IPLC rights across all targets. These are essential 'enabling conditions' for effective, sustainable and equitable conservation outcomes, along with elimination of racial discrimination
- Revising Target 3 on conserving 30% of land and sea through protected areas. This must ensure IPLC rights, territories and self-governed conservation areas are fully respected and protected
- Revising Target 14 on integrating biodiversity values into policies. This must also require integration of TK across national policies to address the crisis of TK loss.

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Notes

[1] IPBES (2019) Global Assessment Report on Biodiversity and Ecosystem Services. https://ipbes.net/global-assessment / [2] Ellis, E, Gauthier, N, Goldewijk, KK, Bird, RB, Boivin, N, Diaz, S, Fuller, DQ, Gill, JL, Kaplan, JO, Kingston, N, Locke, H, McMichael, CNH, Ranco, D, Rick, TC, Shaw, MR, Stephens, L, Svenning, J-C and Watson, JEM (2021) People have shaped most of terrestrial nature for at least 12,000 years. *PNAS* 118(17) e2023483118. / [3] UNEP-WCMC (2021) Safeguarding Traditional Knowledge: How to better recognise and include traditional knowledge in biodiversity conservation. / [4] Swiderska, K, Argumedo, A, Song, Y, Rastogi, A, Gurung, N and Wekesa, C (2018) Biocultural innovation: the key to global food security? IIED, London. https://pubs.iied.org/17465iied / [5] UNEP (1999) Cultural and spiritual values of biodiversity: A complementary contribution to the Global Biodiversity Assessment. / [6] Swiderska, K, Argumedo, A and Pimbert, M (2020). Biocultural heritage territories: key to halting biodiversity loss. IIED, London. https://pubs.iied.org/17760iied / [7] See the forthcoming 'Indigenous biocultural heritage for sustainable development' project case studies, IIED. / [8] CBD (2021) First draft of the post-2020 Global Biodiversity Framework. www.cbd.int/conferences/post2020/wg2020-03/documents / [9] "By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels." www.cbd.int/aichi-targets/target/18 / [10] UN Permanent Forum on Indigenous Issues (undated) Indigenous Languages. UN Department of Public Information. www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/04/Indigenous-Languages.pdf

Knowledge Products

The International Institute for Environment and Development (IIED) promotes sustainable development, linking local priorities to global challenges.

FSN is a pioneering organisation in applying participatory research methods on agrobiodiversity and natural resource management in China.

The Association for Nature and Sustainable Development (ANDES), is an international NGO involved in poverty alleviation, biodiversity management and strengthening traditional resource rights.

The UNEP-IEMP is the first UNEP Collaborative Centre in the South and for the South. It is a joint venture between UNEP and the Chinese Academy of Sciences, supported by the Government of China.

The vision of Lok Chetna Manch is to transform the conditions and opportunities for communities in the Indian Himalayas.

KEFRI is a centre of excellence in forestry whose mission is to conduct research and provide information and technologies for sustainable development in Kenya.

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