Principles for Inclusive Nature Action: Background Briefing Papers

Principle 6

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FCDO NATURE FACILITY

About this paper

The Principles for Inclusive Nature Action were developed during a Wilton Park conference on 'Transformative change for global biodiversity: the role of gender equality and social inclusion' hosted by the UK Department for Environment, Food and Rural Affairs in September 2024.

They draw on the principles for locally led adaptation and on the Shandia Principles (PDF), developed by the Global Alliance of Territorial Communities, as well as the outcomes of discussions during the conference. They are also in line with the United Nations Convention on Biological Diversity Gender Plan of Action.

About the Nature Facility

The Nature Facility provides advice to help FCDO staff and partners put nature at the heart of their work. It aligns with the UK's international climate and environment commitments and aims to make FCDO's work more effective and sustainable.

About the REDAA programme

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Principle no 6. Recognise the equal importance of scientific and local and traditional knowledge

Build a robust understanding of biodiversity risks, opportunities, uncertainties and definitions of success through a combination of different forms and sources of knowledge.

Recognise and protect the leadership of women from Indigenous Peoples and local communities and people of African descent in safeguarding intergenerational traditional or ancestral knowledge that sustains biodiversity.

Prioritise the protection, intergenerational transfer and application of this knowledge for future use to enable societal and ecological resilience under a planetary crisis.

This brief aims to support uptake of the Principles for Inclusive Nature Action, offering insights into the relevance of Principle 6, with evidence that its implementation can support nature action that also respects and empowers local and marginalised actors highlighting challenges and means for implementation. Together with a separate brief for Principle 5, this serves as a pilot for briefings on the remainder of the principles to ensure they are implemented in an integrated way.

Why is the equal recognition of both scientific and local and traditional knowledge important for effective biodiversity action?

What knowledge systems are we talking about?

Knowledge about the status and trends in species and habitats is often based on *Western scientific knowledge*, which dominates the formation of environmental goals and policy responses. Western scientific knowledge can be characterised as the explicit knowledge an independent observer may derive and replicate through applying formal methods of scientific enquiry (IPBES 2022).

However, there are many other ways of knowing, living and relating to nature, which are integral to the world's cultural diversity and have profound implications for environmental sustainability (Pascual et al. 2022). These knowledge systems are commonly grouped through shared characteristics as *Indigenous knowledge systems* and *local knowledge systems* (Agrawal 1995, Hill et al. 2020) or Indigenous and local knowledge (ILK). Over 5,000 groups globally self identify as Indigenous, and other groups with traditional knowledge systems include some Afro-descendant communities, particularly in Latin America and the Caribbean, and some Dalit, lower caste communities in south Asia as well as autochthonous communities (IPBES 2022), meaning many distinct ILK systems exist. Moreover, ILK systems are commonly rooted in particular worldviews, spiritual values, teachings, stories and Indigenous language related to ancestral territories, which have been passed down through many generations (Aikenhead

and Michell 2011). An ethic of care for, or reciprocity towards, nature is commonly integral (Ferguson and Weaselboy 2020). Many non-Indigenous, traditional and local communities also hold inter-generational connections to place which have developed their customary values, institutions, skills and practices, which form local knowledge systems.

In some cases, ILK can be specific to *livelihood groups* and associated with particular holders, places or resources, and referred to as fisher knowledge, farmer or smallholder knowledge, pastoralist or herder knowledge, hunter or harvester knowledge, and so on. Within Indigenous Peoples and local communities (IPLCs), there are also *gender-differentiated* roles for knowledge holders, decision making, activities and knowledge transfer. For example, women may lead specific livelihood activities in forest gardens, seeds, medicinal plants, food production, resource processing, water management or production of tools and household or cultural items. In many societies women act as authorities or elders with certain roles and responsibilities, for using knowledge, taking decisions or transferring knowledge to youth (Secretariat of the Convention on Biological Diversity 2022).

Why is ILK important for conservation and inclusion?

ILK is often misconceived to be old, focused on spirituality and ritual, or to be romanticised and removed from contemporary livelihoods. On the contrary, ILK is consistently shown to be dynamic, widely and actively applied, and both innovative and remarkably resilient in the face of long-term political pressures and environmental change (Nelson and Shilling 2018) if the enabling conditions are right (hence this Principle 6). ILK is held and practiced by a large proportion of the 1.8bn people who live in the world's biodiversity hotspots (RRI 2020), including over 400 million Indigenous Peoples, who have customary tenure rights over more than 25% of land globally (Garnett et al. 2018). It is applied in all types of ecosystem across the world through very diverse norms and customs: eg pastoralist grazing systems across the world's rangelands and montane pastures; marine resource management from tropical atolls to the Arctic; customary fire management across grasslands and forest ecosystems; diverse traditional food production systems; and wetlands and river management and sustainable use (Vijaykumar 2019).

Diverse ILK must be recognised for several reasons: to avoid further cultural harms; to foster respect and collaboration across knowledge systems for potential complementarity; and because ILK itself represents highly developed governance and management systems and deep local ecological knowledge. ILK has been impacted by a long history of colonisation, violent repression and discrimination, which continues widely in tandem with political agendas supporting industrial resource extraction, causing displacement, disruption to livelihoods and cultural practice (Boyd and Keene 2021, Youdelis et al. 2021). Conservation interventions can and still do also inflict such harms, knowingly or not. The forced displacement of Maasai communities in Ngorongoro, Tanzania and violence against IPLCs around Chitwan National Park in Nepal are just two recent prominent examples of discrimination against diverse knowledge systems (Knox 2025). Less conspicuously, cultural erosion and epistemic harm are also driven through the globalisation and industrialisation of local economies, and even through conservation and development initiatives aiming to enhance IPs' or LCs' wellbeing or landscapes, for instance by promoting externally-prioritised alternative livelihoods or non-customary decision-making structures (Indigenous Peoples Rights International 2021, Rani et al. 2025). In a time of unprecedented plans for conservation and restoration action, which will affect high numbers of traditional territories and livelihoods, the risks are high of reproducing further harms through limited or misrecognition (Gurney et al. 2023).

How should ILK be better recognised and embraced?

ILK comprises not only beliefs and pieces of know-how but many interconnected values, institutions and practices, meaning they are best viewed as complete knowledge systems, or indivisible cultural complexes, rather than separated into individual ideas and practices (Kimmerer 2013).[1] Yet, when environmental NGOs engage with ILK, it can be tokenistic (Simpson 2014). There is a common tendency to selectively take individual pieces of information and attempt to 'integrate' them into solutions dominated by Western scientific knowledge, which does not represent recognition of the identity and culture connected to the complete knowledge system (Orlove et al. 2022). Deeper

[1] The complexity and completeness of Indigenous and local knowledge systems is demonstrated through numerous documented classification systems, e.g. Xwi7xwa Library https://xwi7xwa.library.ubc.ca/.

collaboration across knowledge systems generally involves processes to build intercultural understanding and enable bridging or weaving of scientific and traditional knowledge systems, while still respecting them as distinct wholes — described as 'two-eyed seeing' by some Indigenous scholars (Bartlett et al. 2012). **Intercultural dialogues** are therefore important for a wide range of actions for nature. For example, bridging knowledge systems is fundamental to project design when establishing the objectives, rights, responsibilities, governance structures and processes relating to conserved areas or to landscape restoration programmes and to species assessments and sustainable use plans (Kadykalo et al. 2021). Such processes require listening and sensitivity to culture, particularly as much ILK is spoken or drawn rather than documented. They require taking into account social differences regarding who holds knowledge and should be included, such as the roles of women. Embracing ILK holistically also involves attention to historical experiences, potential reconciliation of past injustices, addressing power asymmetries, as well as the flexibility to envision radically different priorities, roles and actions (Strand et al. 2022, Campion et al. 2024). Many practitioners and non-traditional communities with knowledge systems based on Western science also perceive a duty of care or relational values for nature, and collaboration can therefore reveal shared interests and opportunities rather than incompatible differences (IPBES 2022).

The importance of enabling conditions for recognition of ILK

From the perspective of many IPLCs, more complete recognition of ILK would involve support from external organisations for the strengthening, revitalisation and application of ILK at the local level — including through supporting partially or entirely autonomous forms of environmental governance and management, and building external capacities for recognising and using ILK.

More broadly, the institutions comprising these knowledge systems require recognition not only through respectful interactions and processes, but through changes in laws and policies which often work against complex collective tenure and knowledge systems. Some actions to value knowledge may require regional or national rules and policies to be passed or adapted, such as recognising tenure, supporting Indigenous or traditional education in schools, or reviving traditional land use practices that are often prohibited, such as shifting agriculture or fire management (Gilbert and Sena 2018). In Greenland, laws covering wildlife protection and hunting require management to take local knowledge as well as scientific advice into account, but in most countries no such provision exists.

Relevant initiatives

Recognition by international policy

For the reasons described, ILK and its role in effective conservation has gained increasing acknowledgement in international environmental policy, from the 1992 Rio Earth Summit (Agenda 21: Principle 22[2]), to the Kunming-Montreal Global Biodiversity Framework (GBF), which states that "*the Framework's implementation must ensure that the rights, knowledge, including traditional knowledge associated with biodiversity, innovations, worldviews, values and practices of indigenous peoples and local communities are respected, and documented and preserved*" (CBD 2022; Section C). This is supported as a cross-cutting priority across many Targets of the GBF, from protected and conserved areas to financing to trade in species. In 2024, Parties also committed to a new Programme of Work and permanent Subsidiary Body on Article 8(j): Traditional Knowledge, Innovations and Practices. The objective to recognise ILK also cuts across other international policy initiatives, eg the UN Decade on Indigenous Languages (2022-2032) connects the loss of Indigenous language to the loss of biodiversity, and promotes language revitalisation as a means of transmitting knowledge and conserving nature (Global Network on Indigenous-Led Education 2022).

International tools and resources

Numerous tools and resources have been developed through international organisations and initiatives to enhance capacities for understanding and respecting diverse knowledge systems and ensuring their

[2] Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

influence in decision-making. Notably, since 2002 the UNESCO programme Local and Indigenous Knowledge Systems (LINKS) has collaborated with IPLCs to articulate the importance of diverse knowledge systems, and how to foster collaboration across them in different contexts (eg Nakashima et al. 2017). The Global Environmental Outlook 7, funded primarily by the United Nations Environment Programme, comprises dialogues across knowledge systems to highlight in great detail and from multiple perspectives the relevance, contribution and means of engaging with ILK (IK & LK Dialogues 2025). The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) has made notable advances in the inclusion of ILK by documenting an approach to recognising and working with ILK, establishing a 'participatory mechanism' to include IPLCs in IPBES assessments and other activities, and publishing methodological guidance for bridging diverse knowledge systems (Hill et al. 2020, Tengo et al. 2017). Among numerous other resources published through international NGOs, specific guidance relating to conservation, restoration and sustainable use has been developed, including recognition of fisher knowledge (Cowie et al. 2020), embracing ILK in marine spatial planning (UNESCO-IOC and UNESCO-LINKS 2024), including local knowledge in mangrove conservation (Grimm et al. 2024) and applying ILK in red list assessments of species (IUCN 2022).

Case study: IPBES - key international biodiversity processes, protocols and experiences of bridging diverse knowledge systems

The first IPBES Global Assessment sought to include diverse knowledge systems to enhance its quality, completeness and legitimacy with different stakeholders. To do so, an innovative approach was taken, involving the inclusion of IPLCs stakeholders, contributors and authors, including questions with a focus on ILK and bringing ILK inputs into every chapter. The process to promote this level of inclusion involved issuing open calls to identify relevant knowledge and knowledge systems, and then holding dialogue workshops through which relevant diverse knowledge could be mobilised, translated into mutually understood forms, negotiated to ensure respectful representation, synthesised and applied. A key lesson highlighted for other science-policy platforms was to develop clear protocols to be enacted from the outset to recognise and weave in diverse knowledge systems. Although this raised challenges, numerous benefits were realised, including: enriched understanding of nature, its contributions to people and nature-culture connections; more comprehensive assessment of changes in nature and biocultural indicators to track them; and the generation of more inclusive and socially integrated policy options for sustainable development (McElwee et al. 2020, Tengo et al. 2017).

IPLCs and civil society initiatives

IPLCs and civil society organisations (CSOs) undertake numerous initiatives to assert their own knowledge systems, in part as guides for external actors. These include biocultural community protocols to outline customary laws, traditional authorities and cultural practice. In addition to asserting local values and knowledge, they help to establish a code of conduct for external stakeholders to respect and use knowledge, e.g. when entering into access and benefit sharing, emphasising local conservation actions or asserting the rights of nature in customary law (Bavikatte et al. 2015).[3] Community Life Plans (or Planes de Vida, initially emerging in Colombia in the 1990s) have also been applied to document cultures and present robust long-term plans for IPLCs, based on their own knowledge systems, to both forge their own self-determined, culturally appropriate paths for development but also to challenge externally-conceived development. Resources have also been developed for mapping, assessing and monitoring knowledge systems, customary institutions and impacts upon them.[4] The application, collaboration and study of knowledge systems generate different kinds of 'data', from stories to quantitative observations, raising important questions about the ownership and use of data. These issues of data sovereignty and justice regarding their ethical and responsible use for collective benefit have received increasing attention, eg through The CARE Principles for Indigenous Data Governance (Research Data Alliance International Indigenous Data Sovereignty Interest Group 2019).

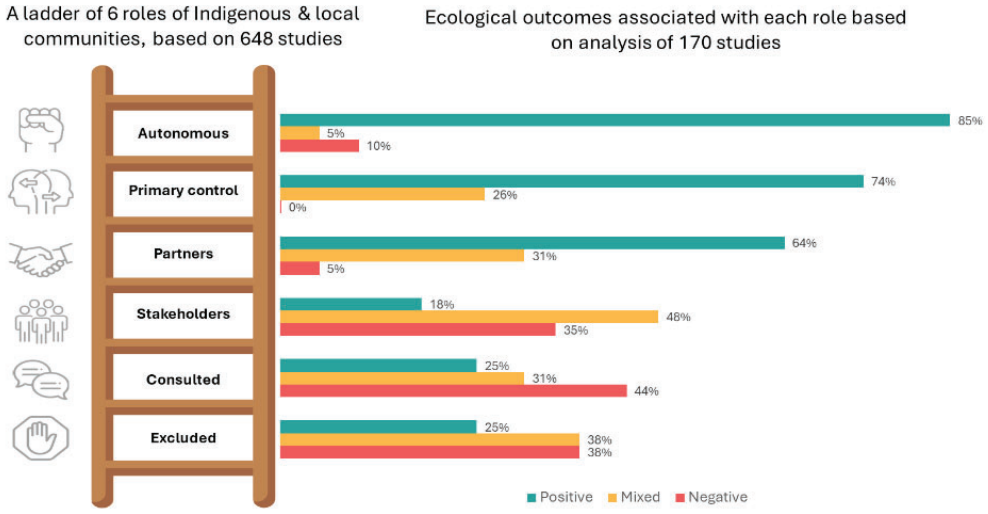
[3] A river – the Whanganui River in New Zealand being one example -, forest or other natural feature may be declared as a distinct entity with 'personhood', with documented justification based on Indigenous knowledge systems, which may then be used to advocate for formal legal recognition of the rights of nature. Such processes are now established in some National Constitutions such as Ecuador from 2008.

[4] See for example the International Land Coalition, The Indigenous Navigator led by IWGIA and Mapeo by Digital Democracy.

Key evidence for effectiveness

The contribution of IPLCs to the effective conservation of nature has been increasingly evidenced (Pascual et al. 2023), though most large-scale analyses focus on governance types rather than knowledge per se. Linked to knowledge, however, global syntheses of published case studies reveal dramatically better outcomes for nature when IPs' & LCs' tenure, institutions and custodianship are central to a conservation initiative, relative to where they are merely participants or stakeholders in external projects dominated by Western scientific knowledge (Wood et al. 2025, Dawson et al. 2024, Figure 1, Dawson et al. 2021). This relationship has been validated through reviews targeted on specific regions, ecosystems and initiative types, eg rangeland restoration in southern Africa (Slayi et al. 2024). The time and resources contributed by IPLCs applying ILK to their stewardship of nature ILK is often overlooked but equates to approximately US$5 billion per annum or the equivalent of about a quarter of annual global conservation spending, representing a key input for effective nature conservation (AIPP et al. 2022).

Figure 1: Ecological outcomes associated with different roles of IPLCs in conservation (Dawson et al. 2024).



The recognition of ILK leads to positive outcomes for nature through several main pathways. Foremost, the recognition, strengthening or revitalising of ILK enables the expression and application of traditional knowledge and customary practices oriented toward **long-term sustainability** (Artelle et al. 2019, Reyes-Garcia et al. 2019). Empowering the application of ILK also tends to **enhance resilience to external extractive commercial or development pressures** driving ecological and cultural degradation (RRI 2020). Finally, recognition of ILK in actions for nature can also engender perceptions of legitimacy among IPLCs and therefore foster better cooperation rather than mistrust or conflict (Indigenous Circle of Experts 2018) as well as delivering **more robust outcomes for nature**. For example, species assessments can benefit from both scientific data and ILK, and when they are brought together through collaborative and inclusive interactions, can lead to more robust and supported management plans and sustainable use regulations (IUCN 2022).

Case study: Kabukuri Marsh, Japan - Wetland scheme that embraces ILK to ensure balance of biodiversity and food security

At Kabukuri Marsh in Northern Honshu, Japan, local farmers and conservationists pursued seemingly conflicting aims for wetland management, being rice production and protection of wild geese who inhabit the winter-flooded rice fields (*Fuyumizu-tambo*) in winter. However, a process was initiated by an organisation with strong social capacities, The Japanese Association for Wild Geese Protection, to bridge the local farmers' knowledge with scientific knowledge of the conservationists to explore potential to reconcile them through innovative land use. The dialogues involved trust-building including with non-governmental organisations, local and national government authorities, and researchers, who

developed mutual understanding and began to co-produce innovative solutions bringing elements of — and safeguarding — both knowledge systems. It was agreed that the bird droppings could be harnessed as a good fertiliser for rice, and along with water management techniques, weeds and insects arising (negative aspects of the geese's presence) could be managed. Through this solution farmers were able to produce high-quality rice without chemicals and obtain a premium price for their harvest. Due to the conservation value and enhanced governance capacity of and relationships between the various local stakeholders, the marsh has been designated as a Ramsar Site, a Wetland of International Importance (IPBES 2022).

The understanding that recognition of ILK supports effective action for nature has important implications, suggesting a need to broaden the objectives of interventions beyond an ecological focus (with some participation or integration of pieces of ILK) towards more holistic social-ecological or biocultural aims. Targeting the support and revitalisation of impacted knowledge systems can more directly address commercial and wealth-associated drivers of ecosystem degradation and biodiversity loss, and aligns more broadly with longer term goals of the GBF to live in harmony with nature (Fisk et al. 2025). Restoration initiatives are more socially and ecologically effective when revitalising knowledge systems through long-term social-ecological restoration or restorative justice rather than ecological repair alone (Reyes Garcia et al. 2019).

Case study: Fandriana Marolambo Forest Landscape Restoration Project - local farm and forest knowledge and institutions essential to drive effective restoration in Madagascar

In Madagascar, The Fandriana Marolambo Forest Landscape Restoration Project led by WWF was significantly reshaped to centre on local knowledge systems after the realisation that the aspired reforestation could only be achieved through meaningful collaboration with local communities, aligning with their local swidden agricultural practices and including their land use decision making systems. As in many parts of the tropics, shifting agriculture was prohibited in national policy and this required negotiation through regional government to find a mutually agreeable, locally grounded pathway to restoration with informal agreements to support application of their local knowledge by ensuring tenure security. As a result, communities were more assured of future benefits from their inclusion and tailored restoration to their local knowledge for forest management. Through establishing over 50 tree nurseries, they planted almost a million native trees of 100 species on over 50,000 ha, with a survival rate as high as 75%. The project was eventually handed over in 2017 to communities to lead themselves (Ranjatson and Razafimahatratra 2023).

For this reason, many advocate for Indigenous and traditional territories to be implemented as a main pathway to achieve GBF target 3 for 30% global coverage of protected and conserved areas by 2030, because the design, governance and management of protected areas and Other Effective Conservation Measures fails in many cases to appropriately recognise ILK (Gurney et al. 2023, Townsend and Roth 2023). At the 1st Africa Protected Areas Congress (APAC) in 2022, a coalition of African IPLCs issued 'The Kigali Declaration: We are Nature' demanding recognition of ILK, and emphasising the need to "*promote Indigenous Peoples and local communities good practices and train actors and duty bearers in the knowledge and skills of Indigenous Peoples and local communities"*. This highlights that the capacities, or 'expertise', guiding the funding and design of initiatives are dominated by Western scientific knowledge, with change required to meaningfully engage with ILK and the associated strategies of IPLCs to conserve nature. The politics of knowledge systems, the way in which they (and knowledge holders) come together, interact and collaborate, is crucial for the ecological effectiveness of actions for nature (Hill et al. 2020).

Case study: Ulithi Atoll, Yap - revitalising Indigenous knowledge to drive research and practice and forge an alternative to top-down marine MPAs

In Ulithi Atoll, Yap, one of the Federated States of Micronesia, global influences on education and livelihoods had caused erosion of Indigenous culture, including institutions governing marine areas and resources. This had led to use of non-traditional catch methods, unsustainable management and decreases in key fish populations. To help understand trends in marine species, a collaboration was established with Western scientists, but rather than deferring to Western science approaches, the Indigenous Ulithian community seized the moment to assert their knowledge systems to guide the research questions and methods, and alongside this determined to reflect on and revitalise their own

knowledge systems, which include a rich set of traditional management regulations, methods and decision-making structures, adapted to area, habitat and resource. They also developed a specific process to restore transfer of knowledge to the youth. As a result, fish biomass increased at all managed sites, reefs are in recovery, with corals now increasing rather than degrading (Rulmal et al. 2023). Scientific data has merely played a supporting role to the strengthening and future resilience of an Indigenous knowledge system fitted to contemporary circumstances, and this example is being used across Yap and FSM as an alternative model to the otherwise prevalent application of marine protected areas and management plans founded on Western scientific knowledge.

Gaps, challenges and enabling conditions

Recognising diverse knowledge systems would, on the whole, represent a transformative change for conservation (Tauli-Corpuz et al. 2020). The majority of actions for nature involve consultation or a degree of local participation, yet recognition of knowledge systems is often lacking (Dawson et al. 2024, Elias et al. 2021), particularly for incentive schemes and market-based approaches. Once initiatives such as protected areas or landscape restoration have been established without inclusion of ILK, it can then be challenging to alter the approach. Such shifts cannot be achieved through superficial amendments but require a suite of mutually reinforcing changes, in capacities, implementation, interactions and political structures (Martin et al. 2016, IPBES 2024). By implication, governments, conservation NGOs, funders and other duty bearers should advocate for and rebalance priorities to enact change through all areas concurrently, though the burden commonly falls on IPLCs and their networks, who lack time and resources.

Ever more lessons and experiences are being shared but case studies are often incomplete, inconsistent and biased towards regions where reconciliation processes between settler and Indigenous populations are prominent in national politics, such as Canada and New Zealand. International and national monitoring of governance and inclusion, eg through National Biodiversity Strategies and Action Plans (NBSAPs) or the CBD, are mostly inadequate to track change and fall far short of capturing the extent of recognition of ILK. Processes for bridging knowledge occur in many places for the management of species, areas and projects and in response to threats to nature. However, those processes are often ad hoc, unfacilitated and without protocols, guidance or documentation to provide lessons. Increased attention, and direction of resources, to the collaboration processes for bringing together diverse knowledge systems will support improved capacity building and practice.

The laws, policies and funding structures determining conservation objectives and strategies must underpin and ensure accountability for the recognition of ILK, but structural changes can be slow and then take time to implement. Progress may be possible at a project level or through local government, but where change is needed to national structures, this often demands support from CSOs or coalitions to advocate at national level. Conservation organisations, state officials and other actors can play an influential supportive role, through their own reflection, capacity building and adaptation, solidarity with IPLCs, and through their political advocacy for ILK. However, even organisations advocating for ILK may support private or state proposals contrary to it, based on their working relationships or other organisational interests.

Differentiated roles of women and specific social groups may play a part in how knowledge is applied. Respecting knowledge involves not only recognising a system but inclusively working with or supporting different knowledge holders and their roles. For example, reconnecting youth with customary practices may depend on the women who hold stories and traditions about their ancestral territory. However, suitable data (nationally and internationally), and tools for mapping socially disaggregated cultural institutions, knowledge and roles are severely lacking (Secretariat of CBD 2022).

Case study: Gumbu community seedbank, South Africa - women-led initiative asserts and improves on ILK for biodiversity and for inclusion

In Gumbu, South Africa, a community seedbank was established in response to the connected problems of food insecurity and loss of biodiversity in farm lands. Biodiversity International and The Department of Agriculture, Forestry and Fisheries were involved in initiating the project, but in Gumbu, women farmers asserted their influence as central to the design and implementation, due to their traditional role in and knowledge of seed management, and used the opportunity to revive and improve

their traditional seed management practices rather than move towards modern varieties. A process was established to ensure all community members had opportunities to express views, and by 2017, 40 women farmers managed the community seedbank. They prioritised those seeds resistant to drought, pests and disease, but also with complementary short growing cycles, minimal input demands, their storage potential and use in maintaining traditional dishes — the diverse types selected included Bambara groundnut, bean, calabash, cowpea, finger millet, maize (red, yellow and white), melon, mung beans, pearl millet, pumpkin, sorghum and sweet sorghum and watermelon. The women determined the structure of the all-women community organisation as appropriate to their local knowledge, rather than it being determined by the funders, which was important to generate co-benefits such as reviving spaces for women to meet and interact about village matters beyond seeds (See Secretariat of the Convention on Biological Diversity 2022 and https://www.bioversityinternational.org/seedbanks/).

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