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OUTLOOKS ON BIODIVERSITY: INDIGENOUS PEOPLES AND LOCAL COMMUNITIES' CONTRIBUTIONS TO THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020 - A COMPLEMENT TO THE FOURTH EDITION OF THE *GLOBAL BIODIVERSITY OUTLOOK*

Note by the Executive Secretary

1. In decision XII/1 the Conference of the Parties to the Convention on Biological Diversity encouraged Parties, other Governments and relevant organizations, as appropriate, to take steps to disseminate widely the fourth edition of the *Global Biodiversity Outlook* and its findings, including by translating the report into local languages and producing other appropriate communication products for different stakeholders and making them publicly available. In the same decision the Conference of the Parties requested the Executive Secretary to implement in collaboration with relevant partners, as appropriate, and in cooperation with relevant stakeholders such as other sectors and youth, the communication strategy for the fourth edition of the *Global Biodiversity Outlook* with a focus on key audiences.

2. In response to the above decision, the Forest Peoples Programme, together with members of the International Indigenous Forum on Biodiversity, and in collaboration with the Secretariat of the Convention on Biological Diversity, has prepared the document "Outlooks on Biodiversity: Indigenous Peoples and Local Communities' contributions to the implementation of the Strategic Plan for Biodiversity 2011-2020 - A complement to the Fourth edition of the *Global Biodiversity Outlook*". The document is a draft and is being made available for the information of participants in the first meeting of the Subsidiary Body on Implementation.

3. The report is presented in the form and language in which it was received by the Secretariat.

* UNEP/CBD/SBI/1/1/Rev.1.

OUTLOOKS ON BIODIVERSITY: Indigenous Peoples and Local Communities' contributions to the implementation of the Strategic Plan for Biodiversity 2011-2020.

A complement to the Fourth edition of the Global Biodiversity Outlook

PARTIAL DRAFT FOR SHARING, 20.4.2016

Note: A selected number of target chapters (13) are included in this draft. The whole publication will be made available for peer review in May/June 2016 and is expected to be launched at COP13 in December 2016. An online version is also being developed, which will be able to host a wider range of materials (including case studies).

For comments and questions, please contact:
Joji Carino: joji@forestpeoples.org

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Key messages (2-3 pp.) ➢ Key messages related to attaining the Strategic Goals (A to E) of the Strategic Plan for Biodiversity 2011-2020
Analysis of progress towards the Aichi Biodiversity Targets (± 60-80 pp. including photos) ➢ One chapter for each of the 20 Targets: o Key message o Implications of global trends for indigenous peoples and local communities. o Contributions by indigenous peoples and local communities towards the target. o Actions to enhance progress. o Further reading (max. 5 key resources/documents). Each chapter contains one or more central case study(ies), but uses other cases and additional materials to develop stories, using quotes and relevant data.
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2. OVERVIEW OF KEY MESSAGES FOR EACH OF THE STRATEGIC GOALS (A-E) UNDER THE STRATEGIC PLAN FOR BIODIVERSITY

Strategic Goal A:

Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

The implementation of the 2030 Agenda for Sustainable Development presents a unique opportunity to mainstream biodiversity and cultural values into national economic planning and poverty reduction strategies and to address the underlying causes for the losses of biological and cultural diversity. Recognition of alternative economic models of indigenous peoples and local communities can play an important role towards this goal. Continued incentives for unsustainable patterns of consumption and production are imposing harmful impacts and heightening vulnerabilities of indigenous peoples and local communities, whereas directly rewarding them for their conservation and sustainable use of biodiversity through increased security of tenure and respect for their rights will bring multiple benefits for peoples and planet. Supporting communication, education and public awareness programmes for and by indigenous peoples and local communities will be critical for giving impetus to and enhancing the national and local implementation of the Strategic Plan for Biodiversity in the coming years.

Strategic Goal B:

Reduce the direct pressures on biodiversity and promote sustainable use

Global efforts to address the direct drivers of biodiversity loss are failing. Forests are being cleared faster than ever for agribusiness, timber and other land development schemes. Indigenous peoples and local communities are actively addressing these direct pressures by confronting threats to their lands, territories and resources, whilst protecting and restoring the natural world by practising customary sustainable agriculture, forestry, aquaculture and fishing. These actions have proven to be effective but continue to be marginalised and sometimes criminalised. Furthermore, where direct drivers of biodiversity loss have caused harm to indigenous peoples and local communities, there is often little recognition or implementation of compensation measures. A change in policy is needed to put rights and justice at the centre of efforts to address the drivers of biodiversity loss and to provide essential support for indigenous peoples and local communities to continue to practise their customary sustainable resource governance and management.

Strategic Goal C:

Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Customary governance systems of indigenous peoples and local communities encompass knowledge, laws, mechanisms and practices that have been safeguarding ecosystems, species and in many cases have been improving genetic diversity, especially of cultivated plants and farmed and domesticated animals and of wild relatives. Women have been playing a

particularly important role as collectors, savers and managers of seeds. Global and national targets and efforts should recognise and promote indigenous peoples' and local communities' roles towards this goal by securing their rights to land and resources, stopping land grabbing and supporting traditional agricultural and livestock practices, the appropriate the recognition of territories and areas conserved by indigenous peoples and local communities (ICCAs), and community on-the-ground monitoring of species. Equity and justice in protected areas should be urgently addressed to ensure that indigenous peoples' and local communities' rights and wellbeing go hand in hand with conservation.

Strategic Goal D:

Enhance the benefits to all from biodiversity and ecosystem services

Customary lands, territories and resources serve the multiple needs of indigenous peoples and local communities in relation to livelihoods and food supply, health, spirituality, identity and culture. Indigenous peoples and local communities significantly contribute to the identification, restoration, safeguarding and monitoring of those lands, territories and resources that are particularly important in providing essential benefits. Policy-level action is needed to ensure that indigenous peoples and local communities fully benefit from their lands, territories and resources, in particular by securing land tenure, and the application of free, prior and informed consent (FPIC). Consistent with the CBD ecosystem approach, which integrates social and ecological systems, biodiversity should not be separated from people and their institutions, as working together they underpin socio-ecological resilience. Implementation of the CBD Plan of Action on Customary Sustainable Use should be prioritized as a key practical action to enhance progress towards Goal D.

Strategic Goal E:

Enhance implementation through participatory planning, knowledge management and capacity building

Participatory approaches are key enabling factors for achieving the Strategic Plan across government and society. The full and effective participation and engagement of indigenous peoples and local communities need to be enhanced in the implementation of the Convention, including in NBSAPs and national reporting processes. Traditional knowledge and customary sustainable use are cross-cutting dimensions for the implementation of all the Aichi Biodiversity Targets at national and local levels, and further efforts are needed to ensure their implementation throughout the Targets. Community-based monitoring, data and information provide important contributions to monitoring progress under the Strategic Plan for Biodiversity, related environmental conventions and the 2030 Sustainable Development Goals. Successful implementation of these global commitments will require effective knowledge-policy-society interfaces and partnerships across knowledge systems to address priority issues at appropriate scales. Institutional and financial support for collective actions of indigenous peoples and local communities aimed at the achievement of the Aichi Biodiversity Targets should be an integral part of the resource mobilisation strategies for implementing the Strategic Plan.

3. SELECTED TARGET CHAPTERS

TARGET 2

By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Key message: The adoption of the 2030 Sustainable Development Agenda opens up a unique opportunity to align biological and cultural diversity values with national economic strategies and planning for sustainable development, including tackling persistent poverty and marginalisation of indigenous peoples and local communities. Joint implementation of the Aichi Biodiversity Targets, particularly Targets 14 and 18 alongside SDG goals and targets of special relevance for indigenous peoples and local communities, constitutes an important and viable approach towards making practical progress on national implementation of the Strategic Plan for Biodiversity, the Sustainable Development Goals, together with outcomes under the Universal Climate Agreement and the World Conference on Indigenous Peoples.

Such an approach values culture as a foundation and dynamic dimension of sustainable development, underlining that effective implementation of universal goals requires being mindful of national contexts whilst respecting cultural diversity. Inasmuch as biological diversity underpins the resilience of ecosystems, likewise, cultural diversity underpins social resilience for sustainable development. This includes legal pluralism including respect and recognition of customary law; diverse health traditions including traditional healing and medicines; diverse educational institutions including transmission of cultural traditions; as well as diverse local economies and traditional livelihoods as viable alternatives to economic globalization[1]. This holistic approach underlines the important provisioning and cultural ecosystem services and values of biodiversity for indigenous peoples and local communities, reciprocated by their ecological and spiritual responsibilities to care for their land[2–4].

Implications of the global trends for indigenous peoples

GBO4 has highlighted insufficient progress being made in Targets 2, 14 and 18 and that advances made in Targets 2, 17 and 20 could make significant contributions to the over-all achievement of the Strategic Plan for Biodiversity[5]. It further concluded that meeting the Aichi Biodiversity Targets would contribute significantly to broader global priorities addressed by the post-2015 development agenda: namely, reducing hunger and poverty, improving human health, ensuring a sustainable supply of energy, food and clean water, contributing to climate-change mitigation and adaptation, combating desertification and land degradation, and reducing vulnerability to disasters.

Target 18 as a cross-cutting and enabling theme under the CBD, similarly bridges actions towards fulfilling all other Aichi Biodiversity Targets, alongside the broader global priorities addressed by the post-2015 development agenda, by enhancing the contributions of indigenous peoples and local communities. Target 14 with its focus on safeguarding and restoring ecosystems that fulfil the physical, material, cultural and spiritual needs of the poor, women, indigenous peoples and local communities is strongly aligned with the poverty reduction goals of the SDGs.

Multiple high-level political summits in recent years[i] have affirmed Indigenous Peoples and local communities (IPLCs) as central actors in the transformative agenda for global change (see Box 1 on WCIP). Aligning implementation of the Aichi Biodiversity Targets with the outcomes of these global processes will create coherence in national implementation, while building on the full range of State commitments and obligations agreed to at these meeting. In many countries, there are laws and policies specifically addressing the status and rights of indigenous peoples and local communities and their inclusion in national development. Ensuring their full and effective participation in planning and decision-making about economic development, environmental governance and human well-being, through robust participatory mechanisms remains a major challenge in all countries, posing a political obstacle in the consideration of diverse ecological and cultural values in national strategies, planning and accounting called for in the global agenda for change.

Securing the inclusion of indigenous peoples' and local communities' (IPLCs) rights, values and contributions in sustainable development planning, decision-making and implementation processes will contribute to holistic, culturally sensitive and socially acceptable approaches in the mainstreaming of biodiversity across government and society, towards better outcomes for all.

Sustainable Development Goals and Indigenous Peoples

An assessment of the post-2015 development agenda by Indigenous Peoples concluded that the SDGs are a significant improvement over the Millennium Development Goals (MDGs) which were experienced as too narrowly focused on economic and quantitative measures of development and weak on non-monetary but highly relevant cultural and social dimensions. It is positive that the SDGs are truly global, making these relevant for indigenous peoples in all global regions[6].

There are six mentions of indigenous peoples in the 2030 Agenda, including two targets: Target 2.3 on promoting food security through, inter alia, support to small-scale producers, including indigenous peoples; and target 4.5 on ensuring equal access to education and vocational training for the vulnerable, including indigenous peoples. Significantly, the Agenda's overarching commitment to promoting equal access to development, and making special efforts to reach the most vulnerable first, provides an important framework for addressing indigenous peoples and local communities. Inasmuch as all biodiversity-relevant SDG goals apply to indigenous peoples and local communities, the SDG goals which seek to realize human rights for all equally, also apply to indigenous peoples and local communities, including those related to achieving gender equality and the empowerment of all women and girls. Goal 10 on reducing inequality, with the associated target 10.3 on elimination of discriminatory laws, policies and practices, is particularly important[ii]. The pledge to *"Leave no one behind"* explicitly seeks to promote equity between different population groups and end discrimination and this can be monitored and reported on, based on international human rights instruments and through disaggregated data for groups facing discrimination on prohibited grounds[iii]. For indigenous peoples to become visible and specifically targeted in international and national development programming under the SDG agenda, the availability of reliable data that documents their situation based on relevant indicators is essential.

[i] Rio + 20, World Conference on Indigenous Peoples, NY and Paris Summits

[ii] The Danish Institute for Human Rights finds that 92% (or 117 out of 169 targets) are linked to international human rights instruments and labour standards and that the monitoring systems built into each of these instruments are well-suited to contribute to the monitoring of the progress in implementation of the SDGs.

[iii] General Assembly resolution 68/261 Sustainable Development Goal indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics, in accordance with the Fundamental Principles of Official Statistics.

Community-based monitoring and information systems (See Chapter 19) serve multiple uses of documenting local sustainable development and biodiversity action plans, and complementing national monitoring and reporting of progress in the implementation of international obligations and ensuring accountability of States for delivering outcomes for the most vulnerable groups in society.

BOX X - Outcomes the World Conference on Indigenous Peoples (WCIP)

The World Conference on Indigenous Peoples (WCIP), a high-level plenary of the UN General Assembly which focused on implementation of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) affirmed that "indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development" and underlined the importance of generating disaggregated data in this regard.[i] States further committed "to consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them" and " to establish at the national level, in conjunction with the indigenous peoples concerned, fair, independent, impartial, open and transparent processes to acknowledge, advance and adjudicate the rights of indigenous peoples pertaining to lands, territories and resources.

Contributions by indigenous peoples and local communities towards the target

Indigenous Peoples and local communities have engaged with governments in all regions and in their countries to adopt constitutional, legal and policy reforms and measures to address their rights and well-being, including the creation of policy spaces and mechanisms for their full and effective participation in planning and decision-making on matters affecting them. While the potential to address human development needs of indigenous peoples is strongly supported by global policy frameworks, including emerging regional and national laws and policies, there is also a high risk that states and major development actors will overlook or disregard indigenous peoples' needs when carrying out their policy and planning processes. In this regard, laws and policies to uphold free, prior and informed consent of indigenous peoples as a critical safeguard in the development process, become an important enabling condition.

The Arctic Council has also been a leader for its inclusion of indigenous peoples in it mandate, structure and activities in strategic planning for sustainable development. Governments in Latin America, many through their adoption of ILO Convention 169 have accepted international obligations to uphold the rights of indigenous and tribal peoples in national development processes. Governments in the Pacific have defined a process towards the development of indicators on the well-being of Melanasians, including consideration of: access to and availability of customary land, strength of social relationships and Melanesian values; and understanding of, and ability to participate in, customary practices[7].

In the Pluri-national State of Bolivia, *plurinationality*, as a state policy recognizes indigenous peoples as distinct historical and political entities (authority, territory, institutions, cognitive and spiritual) that make up the State and intercultural society. Changes to the structure of the State have also led to the formation of indigenous governments in most of the country's municipalities[8]. In Russia, where reindeer herding practised by 16 officially recognized indigenous nations is the only agricultural activity of the circumpolar Arctic region and reindeer pastures accounting for more than 20% of the total area of the country, the programme **"**Development of reindeer husbandry in Yamal**",** implemented in the Yamalo-Nenets Autonomous District aims to balance the potential of reindeer pastures, improve the quality of life the indigenous peoples, increase productivity of customary sustainable use and expand markets for indigenous products[9].

The United States- Canada Joint Statement on Climate, Energy, and Arctic Leadership committed to defining new approaches and exchanging best practices to strengthen the resilience of Arctic communities and continuing to support the well-being of Arctic residents, in particular respecting the rights and territory of Indigenous peoples.

These are only a few of the positive experiences and best practices which can inform the implementation of Aichi Biodiversity Target 2.

CASE STUDY 1[8]

Guaranteeing indigenous people's rights in Latin America

Progress in the past decade and remaining challenges

Important steps have taken by governments in Latin America and the Caribbean to take into account indigenous peoples and local communities in national planning processes, including through the collection of data about demographic, social and economic status of indigenous peoples[8]. A report by the Economic Commission of Latin America and the Caribbean (ECLAC) which was prepared for the WCIP, acknowledges that "Indigenous peoples are the most disadvantaged groups" and that "one of the major challenges facing the region in the search for equality is to make the rights of indigenous peoples a policy priority." The region has more than 800 distinct indigenous peoples, with a total population close to 45 million, encompassing peoples living in voluntary isolation to large urban settlements. Economic growth in the region remains highly dependent on natural resources and international markets, putting considerable pressures on indigenous peoples' territories and generating numerous land and resource conflicts.

CASE STUDY 2[10]

Sustainable Development Working Group of the Arctic Council

The Arctic Council has also been a leader for its inclusion of indigenous peoples in its mandate, structure and activities in strategic planning for sustainable development. The guiding tenet for its Sustainable Development (SDWG) is to pursue initiatives that provide practical knowledge and contribute to building the capacity of indigenous peoples and Arctic communities to respond to the challenges and benefits from the opportunities in the Arctic region. In addition, the SDWG contributes to Arctic Council priority areas being carried out by other working groups and subsidiary bodies including on the following themes: Arctic human health, Arctic socio-economic issues, Arctic cultures and languages, adaptation to climate change, energy and Arctic communities, management of natural resources (a holistic perspective on increases in shipping, petroleum activities, fishing, mining as well as external influences such as climate change and variability).

Permanent Participants

Out of a total of 4 million inhabitants of the Arctic, approximately 500,000 belong to indigenous peoples. Indigenous peoples' organizations have been granted Permanent Participants status in the Arctic Council. The Permanent Participants have full consultation rights in connection with the Council's negotiations and decisions. The Permanent Participants represent a unique feature of the Arctic Council, and they make valuable contributions to its activities in all areas. The following organizations are Permanent Participants of the Arctic Council: Aleut International Association (AIA), Arctic Athabaskan Council (AAC), Gwich'in Council International (GCI),
Inuit Circumpolar Council (ICC), Russian Association of Indigenous Peoples of the North (RAIPON), and the Saami Council (SC).

Actions to enhance progress

In order to make the global change agenda operational, Member States, the United Nations system, indigenous peoples and other actors must pursue a wide range of measures at all levels.

- The UN System to harmonise technical support to "deliver as one" the outcomes of 2030 SD Agenda, Universal Climate Agreement, Strategic Plan on Biodiversity, WCIP and UNDAF and consistent with UN System Wide Action Plan.
- Governments, in collaboration with IPLCs, to establish inclusive and robust participatory mechanisms, for sustainable development planning and decision-making at all levels, with a focus on national level and sub-national levels
- NBSAPs to consider synergies between Strategic Goals A and E, and Target 18 as a cross-cutting theme, with attention given to planning, data and knowledge, and resource mobilisation.
- Governments, in collaboration with IPLCs to adjudicate legal recognition of lands, territories and resources of IPs and Local Communities, and respecting free, prior, informed consent (FPIC) in policies, programmes and projects affecting their lands, territories and resources, human rights and well-being .
- UN and government statistical offices, in collaboration with IPLCs, to adopt relevant indicators under Target 18, and collect disaggregated data, including self- identifiers for ethnicity / indigenous origin in national census and surveys to measure for equality and non-discrimination, and identification of "traditional occupations" in standard classification of occupations in labour force surveys.
- Indigenous Peoples and Local Communities to step up their efforts to establish and use Community-based Monitoring and Information Systems (CBMIS) as multi-use tools for community development planning and resource management, and to complement national data collection and reporting

Key resources

1. Indigenous Peoples' Major Group Position Paper on SDG Indicators available at http://www.iwgia.org/publications/search-pubs?publication_id=724
2. ECLAC 2014, Latin American and Caribbean Demographic Centre (CELADE)-Population Division Guaranteeing indigenous people's rights in Latin America, Progress in the last decade and remaining challenges
3. A/69/L.1 Outcome document of the high-level plenary meeting of the General Assembly known as the World Conference on Indigenous Peoples
4. Transforming Our World: The 2030 Agenda for Sustainable Development

TARGET 5

Target 5 - By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Key message: Wide-spread habitat loss pushes many indigenous peoples and local communities to the limits of their endurance to survive. Communities have underscored that when their rights are secured then deforestation can be halted and even reversed. Regulatory and voluntary approaches to conserve habitats need to work together and accommodate communities' livelihoods and secure their rights.

Implications of the global trends for indigenous peoples and local communities

Habitat loss is the single most important driver of biodiversity loss. While rates of forest loss are declining globally, they are still alarmingly high and no overall significant progress has been made to halve or bring to zero the loss of all habitats (e.g. forests, grasslands, wetlands, river systems). In terms of habitat degradation and fragmentation, the situation has actually gotten worse rather than better[5].

Around the world, indigenous and local community activists have been at the forefront of habitat conservation and many of them have put their lives at risk protesting against and challenging major land conversion projects. In 2015, 45% of human rights defenders assassinations were linked to the defence of environmental, land and indigenous peoples' rights[11]. Widespread habitat loss and degradation has affected indigenous peoples and local communities across the world, as many of them depend on forests and other ecosystems for their cultural, social and economic wellbeing. Among the 1.5 billion forest-dependent people that obtain direct and indirect livelihood and environmental benefits from the world's forests, 370 million are estimated to be indigenous and tribal peoples. Their cultures, identities and physical survival as distinct peoples are sustained by their forest lands and territories; shrinking forests and reduced access to resources has led to scarcity of livelihood materials, decreasing food security, poor nutrition, ill health and severe hardship. Rooted in long-standing discrimination and contradicting available empirical evidence, customary practices of indigenous and local communities often continue to be blamed for habitat loss and degradation (e.g. rotational farming; see also Target 15)[12].

Weak state regulations to protect habitats have increased the importance of voluntary standards developed by private sector stakeholders. The "High Carbon Stock" (HCS) approach has been adopted by many of the largest producers as part of their "zero deforestation" pledges. This approach involves the deployment of land use planning methods to set aside forests identified as HCS forests in concession areas. A recent review of the HCS approach and pilots in Indonesia and Cameroon has revealed that many HCS forests can be found on community lands, allowing HCS zoning to be imposed on community lands without their Free Prior Informed Consent (FPIC) and the risk of further "green land grabs" and escalation of land conflicts[13] (see also Box XX on Kapuas Hulu).

Contributions by indigenous peoples and local communities towards the target

Indigenous peoples and local communities have been on the forefront of conserving many of the world's most threatened habitats through:

1. Community-based conservation and sustainable use of natural resources in their territories and lands
2. Activism at local, national and international level to stop habitat loss and degradation.

Various mapping and research projects have evidenced the overlap between indigenous presence and areas of exceptionally high biodiversity, with the most notable examples being found in the tropical humid forests in Latin America, the Congo Basin in Africa, and several countries of tropical Asia such as Philippines, Indonesia and New Guinea. Similar overlap maps exist for areas with temperate forests and montane areas rich in biodiversity, such as the Andes and Himalayas. Even in biomes less rich in biodiversity, such as the boreal forests of the Northern Hemisphere, the most pristine habitats tend to be occupied by native populations[14,15]. A recent global assessment evidences the exceptional effectiveness of community habitat conservation, showing that community managed tropical forests have lower and less variable annual deforestation rates than protected areas[16].

The Kayapo in Brazil have had outstanding successes in halting habitat loss and degradation. Through decades of fighting against encroachment by gold miners, mahogany loggers and ranchers, the Kayapo have successfully conserved 105,000 km^2 of tropical forests in a frontier zone characterised by heavy deforestation (see **Error! Reference source not found.**). They also mobilized an environmental movement to pressure the World Bank to stop their loans for the construction of a mega-dam project on the Rio Xingu, which would have flooded and destroyed parts of their territory[17].

Figure 1: This MODIS satellite image from 2004 shows how deforestation (light brown) stops at the boundaries of the Kayapo's indigenous territory, located in the South-eastern Amazon of Brazil (taken from Zimmerman 2011[17])

In the island of Palawan, the last ecological frontier of the Philippines, the Coalition Against Land Grabbing (CALG), a network of indigenous peoples and farmers, successfully mobilized 4,200 affected persons to call for a province-wide moratorium on palm oil expansion. This appeal has been backed by the Philippines' Commission on Human Rights, triggering a Commission-led investigation into legally binding standards for agribusiness in the Philippines[18].

Across the world, indigenous peoples and local communities have linked up their efforts to conserve the world's habitats. In support of the New York Declaration on Forests, a global coalition of indigenous peoples from the Amazon, Central America, the Congo Basin and Indonesia have pledged to protect 400 million hectares of forests in these regions[19]. The Palangka Raya Declaration on Deforestation and Rights of Forest Peoples is another example of how indigenous peoples' and community-based organisations across the globe are working together to curb deforestation and provide concrete policy recommendations to address the underlying drivers of habitat loss and degradation. In the face of intensifying forest loss and

growing harm affecting forest communities, more than 60 representatives of forest peoples from nine countries came together in March 2014 for an international workshop in Palangka Raya, Indonesia to evaluate the impacts of deforestation on their communities and to assess local, national and global trends in deforestation and efforts to address the forest crisis (for more information see workshop report including detailed case studies[12]). At the close of the workshop, participants issued a call to action in the Palangka Raya Declaration on Deforestation and the Rights of Forest Peoples[20] (see Box XX Palangka Raya).

Box XX: The Palangka Raya Declaration

"Global efforts to curb deforestation are failing as forests are cleared faster than ever for agribusiness, timber and other land development schemes. We, forest peoples, are being pushed to the limits of our endurance just to survive. Checking deforestation requires respect for our basic rights, which are the rights of all peoples and all human beings. Deforestation is unleashed when our rights are not protected and our lands and forests are taken over by industrial interests without our consent. The evidence is compelling that when our peoples' rights are secured then deforestation can be halted and even reversed. We call for a change in policy to put rights and justice at the centre of deforestation efforts. The world cannot afford further delays. […] We will work in solidarity together to form a global grassroots accountability network to independently monitor, document, challenge and denounce forest destruction and associated violations of forest peoples' rights". (p5[20])

BOX XX: **Kapuas Hulu, West Kalimantan, Indonesia**: **indigenous Dayak Suhaid try to save forest, river and lake habitats under threat from palm oil expansion**
Lead author: Dico Luckyharto

Protecting forests and food resources from degradation due to land use change is an important issue in Kapuas Hulu district, West Kalimantan. Although it is home to two big national parks (Danau Sentarum and Betung Kerihun National Parks) at least five plantation companies exist and are active in the area. Due to oil palm expansion, the area has lost several significant ecosystems such as forest, river or lake ecosystems. These ecosystems are customarily managed by indigenous peoples (Dayak) or Malay descendants that have lived in the area for centuries.

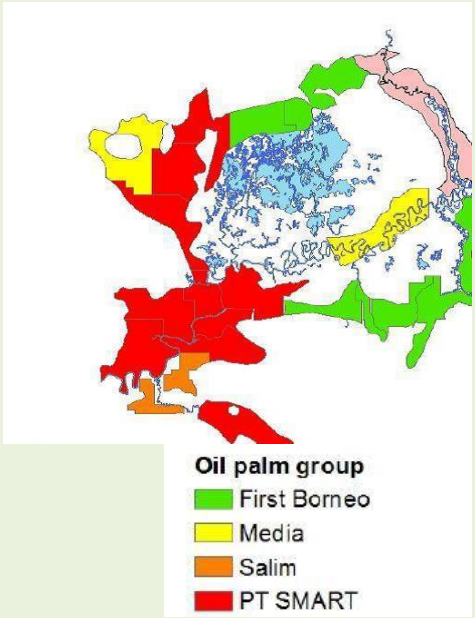


Figure 2: Palm oil concessions are issued in a ring around Danau Sentarum National Park[21]

Many villages in Seberuang sub-district have rejected palm oil expansion plans

Seberuang sub-district has the biggest intact forest in the area (some of it protected) and is therefore key to prevent further degradation caused by oil palm plantations, which are growing significantly in this district. Local government officials have given survey permits for oil palm plantations, despite knowing that the forest areas in question are protected and customarily owned by communities. This has threatened the communities because for them the forest is their supermarket and more, providing them with fresh air, clean water, cover/canopy, food, firewood, medicine, timber and livelihood sources.

Forest and riverine ecosystems are the two major ecosystems that are very important for the Dayaks in Seberuang. The Dayaks see, study and gather information on the impacts of oil palm plantations on the land and people. The village head of Bati explains: ”We learn from our fellows in sub-district Semitau and Suhaid; it will be hard for them to plant food or get food as before. We want to be a source for food for our villagers and them, and also several villages in Seberuang think the same as us. For that, we need to keep our forest intact as source for water and climate keeper and also because we have *jernang* that can help the livelihoods of the people.” *Jernang* is an important natural dye and it grows in Seberuang, especially in Bati village. In Bati, the Dayak Suhaid people consider *jernang* an important species to support them economically and environmentally. Economically, because *jernang* is an expensive natural dye and if nursed well, it can support community livelihoods. It is environmentally important because *jernang* needs good forest cover, which also protects the spring water for the village.

Picture XX: Young green *jernang* plant and fruit (© Dico Luckharto)

Alongside three other neighbouring villages, Bati village has rejected oil palm expansion plans in the area. The villagers heard about an oil palm company (PT. Sumber Inti Sentosa) seeking a survey permit in their area. Concerned that this would threaten forests vital to them, the communities found themselves in a race against time to prevent the oil palm expansion. In

March 2015, letters were sent to the District Head (Bupati) of Kapuas Hulu rejecting the proposed expansion plan. The head of Bati village's customary law explained: "In government surveys, Bati has been mapped as 25% cultivated lands and 75% forest which we know has rare species. If this land is used for oil palm then we have no land to cultivate." A young man from Bati village added: "The map has just been produced for the government's consumption; we have never been consulted by them. We have seen the impacts of oil palm in neighboring areas that are devastating. We are concerned that our culture will disappear with the arrival of oil palm plantations."

Picture XX: The forests need to be protected for future generations (© Dico Luckharto)

Community land use planning and High Carbon Stocks zoning in PT KPC

Dayak communities in other parts of Kapuas Hulu have already been affected by oil palm expansion such as the communities that were included in a provisional concession allocated to Golden Agri Resources' (GAR) subsidiary PT KPC. Since the start of operations in 2007, unclear processes of land acquisition and non-compliance with social and environmental standards have caused protests and demonstrations and resulted in major rifts in almost all the affected communities. Following an international campaign and boycott of GAR palm oil in 2009, GAR developed a Forest Conservation Policy and selected PT KPC as the first pilot area for zoning of High Carbon Stocks (HCS) forests as a tool to achieve "zero deforestation" in palm oil production.

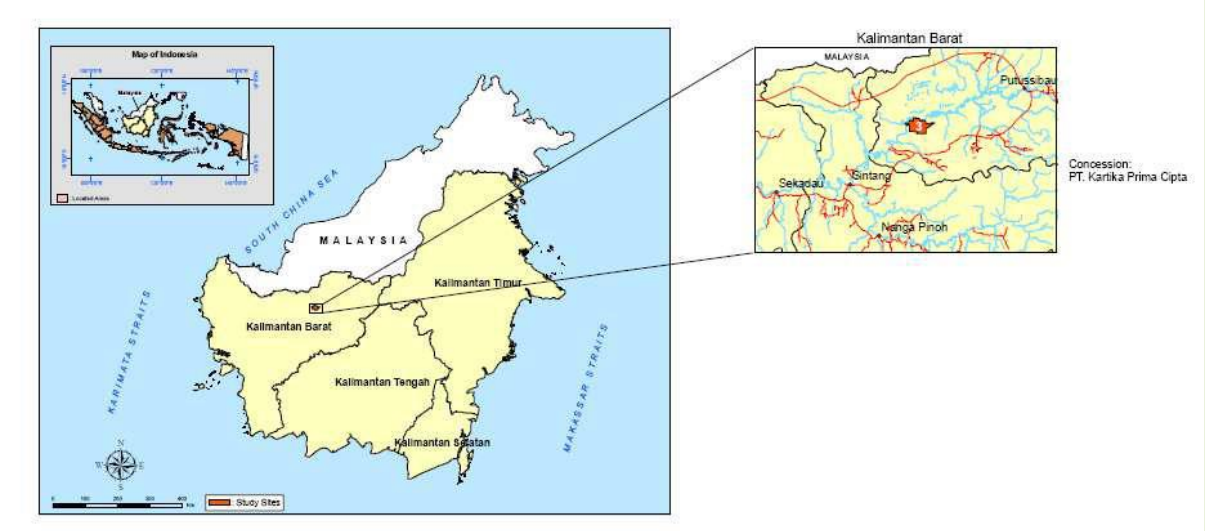


Figure 3: Location of PT KPC in Kapuas Hulu, West Kalimantan[22]

Several of the communities in PT KPC undertook participatory mapping exercises and action research to develop community land use plans that allow them to identify how much land each family will need to sustain their ways of life and take an informed decision on whether to lease or sell their land for oil palm development.

As the head of custom of the hamlet of Kenabak Hulu said:
"We need to explain where our customary lands and forests are, which are ours because of certain conditions and events of the past. For example sacred sites and untouchable areas are guarded by us and we make the decision to look after such areas collectively and make them a sacred site. When we do this we also invite the neighbouring villages to witness the agreement and make the area a customary forest. This is because it is not just our own beliefs [that matter] but these need to be transferred with our traditional knowledge and culture to the coming generations. This is how we come up with an agreement about which areas should not be used commercially or cultivated"[21]

Following several villages' rejection of the proposed palm oil expansion plans (including Kenabak Hulu) and subsequent excision of the lands of these communities from the concession area, 90% of the HCS forests identified in GAR's provisional concession ended up outside of the company's permit and jurisdiction. The communities emphasized that it has been them who have maintained these forests up to now and who value them and can look after them in the future. Nevertheless, their customary rights to these lands are still not recognised by district and national governments. As the headman of Kenabak Hulu, asked rhetorically at a workshop: "If we insist that we don't want to give up our land, can our lands then be protected?"

Actions to enhance progress

The following actions are proposed:

- Transform the colonial legacy of forest and land use planning found in many biodiversity rich areas of the world and increase support for indigenous peoples and local communities' initiatives to conserve habitats.
- Increase demarcation of community lands: Only when communities' rights to their lands and territories are fully recognised can they enforce mechanisms for sustainable natural resource governance and challenge illegal activities.
- Support community based monitoring of habitats: Aerial imagery is limited in what information it can provide on the trends in habitat degradation in particular, which need ground-truthing through community-based biodiversity monitoring, also in relation to estimating an area's carbon stocks and forest biomass (see also Target 19)[23].
- Support communities' initiatives for moratoriums on oil palm, mining, and logging to stop land grabbing and unsustainable land conversion.
- Protect community activists, environmental and human rights defenders
- Zero deforestation commitments by the private sector need to ensure livelihoods and secure rights.

TARGET 6

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Key message: Collaborating with and supporting local fishers, and learning from IPLCs' traditional fishing methods, can contribute to more sustainable, ecosystem-focused fishing practices at wider scales. However, unsustainable fishing practices not only threaten fishing stocks, threatened species and vulnerable ecosystems but also the livelihoods of many local fishers and the continuation of their customary sustainable fishing systems. Global and national assistance is needed to tackle this.

Implications of the global trends for indigenous peoples and local communities

The GBO4 noted that, while there has been some progress on the management and sustainable harvesting of aquatic species, the application of ecosystem based approaches, and the creation of recovery plans and measures for depleted species, there has been little to no progress on reducing the adverse effect of fisheries on threatened species and vulnerable ecosystems or on reducing overfishing. There is also limited information available on the management and harvest of aquatic invertebrates and plants[5].

IPLCs are among the people who are most reliant on ecosystem services, including aquatic animals and plants for food and cultural purposes. Women are particularly negatively impacted by the effects of overfishing. According to the International Collective in support of Fishworkers (ICSF), women make up nearly 90 per cent of the post-harvest sector'[24]. While many community fishers have been sustainably using aquatic resources for centuries, their ability to locate food and other marine products is impeded by the unsustainable fishing practices of large fishing companies which dominate globally and continue, for the most part, unabated.

Insecurity of land tenure also increases the vulnerability of small-scale fisherworkers. As pointed out by the ICSF, small-scale fishworkers have consistently demanded secure rights to access, use, manage and benefit from resources in the sea, intertidal zones and inland waters, as well as secure rights to coastal lands for residential, cultural and occupational purposes. However, in many fisheries these rights are not clearly established or recognized. For small-scale fishing communities safeguarding these tenure rights to fishing grounds and aquatic and fisheries resources on which they have traditionally depended, is of paramount importance as these are the very basis of their food security and their livelihoods, as well as an integral part of their culture and customs.

Contributions of indigenous peoples and local communities towards the target

Throughout the world, small-scale fisherfolk, many of them IPLCs, are using marine resources sustainably[5] and in some cases helping to restore depleted stocks, as demonstrated in the Ngati Hine History of the Foundation of the Pilot Program on eels (below). In addition, low-impact users such as the haenyeo[iv] in Jeju not only harvest marine products (including aquatic plants) in non-destructive ways,

[iv] Meaning 'sea women' in the dialect of Jeju.

they also embody respectful attitudes towards nature and participate in activities which restore and protect the ocean based on their spiritual and cultural beliefs. On a larger scale, community-based marine sanctuaries and marine protected areas in the Philippines control catchment and promote traditional fishing practices in an effort to ensure long term marine health and food security.

Traditional sustainable fishing methods offer useful lessons for more sustainable, ecosystem-focused fishing practices at wider scales. For example the haenyeo are female divers from a local community on the South Korean Island of Jeju who have been harvesting seaweed and shellfish since as early as the 17th century as a form of sustainable livelihood. In addition to providing employment and economic opportunities for women on the island, these traditional methods of collection represent a form of low-impact, sustainable marine harvesting. Haenyo typically work intermittently in spring and winter as they observe seasonal prohibitions to preserve marine stocks[25]. The divers also 'clean the sea' by collecting rubbish one day a month and help to maintain the biodiversity of the marine life through re-seeding programs and exercising controls on the quantity of marine products harvested. These methods benefit both the community and the ecosystems they depend on[26]. Respect for nature is an intrinsic part of the sui generis shamanistic religion practised on the Jeju Island and feeds into the interactions between the haenyeo and the sea they harvest.

On a larger scale, community-based marine sanctuaries and marine protected areas in the Philippines control catchment and promote traditional fishing practices in an effort to ensure long term marine health and food security. However, the experiences of this community-based coastal management have demonstrated that any achievement at the local level can be adversely affected by one single national decision[27]. In the case of small community-based marine sanctuaries on Balicasag and Pamilacan Islands in the Philippines, despite considerable success, a trend of declining fish abundance and species richness among economically valuable species immediately outside the no-take areas highlighted the limitations of small and isolated MPAs[28]. It is not realistic for scattered, small no-take areas to maintain fish abundance and diversity on surrounding reefs when intensive fishing effort immediately adjacent to no-take areas removes most fish that exit these areas. This finding emphasizes the importance of nesting individual MPAs within broader management regimes that lead to overall fishing effort reduction and networking of MPAs.

History of the Ngati Hine pilot program for the monitoring, recovery, and protection of eels
by Tui Shortland

Ngati Hine is a fishing nation in Aotearoa/New Zealand and maintains a day to day relationship with eels. Over the past ten years they have expressed concerns over the declining eel populations. In 2011 Ngati Hine completed an eel population survey with the support of the National Institute of Water and Atmospheric Research (NIWA), peer reviewed by the Ministry of Fisheries. The report confirmed the following: long fin female numbers are low in the upper catchments; there are several eel passage obstructions; significant habitats are degraded; there are lakes with the potential for stocking including Lake Owhareiti where eels mature within four years; there is potential to stock rivers in the upper catchments and there is potential to establish a nationally significant reserve area at the lower Taumarere River.

Ngati Hine maintains a high level of traditional knowledge and customary use, including how to transfer and hold eels in boxes for up to twelve months. In the 1980s a study was carried out on Ngati Hine eel harvesting that found that customary harvest practices producing approximately 30,000 kgs of food was sustainable over a seven year period.

Across the country, customary and commercial fishers have been raising concerns over the deterioration of eels. A pilot project was subsequently designed. The project vision was to enhance the relationship of local people with the eel population within Ngati Hine catchments as a pilot strategy that can be implemented in other catchments across the North Island. The name of the project is Kete Tangariki.

Objectives of the pilot project

Objective 1 - Improve eel populations, particularly long fin females, for customary and commercial interests.

There is much concern for elvers (baby eels, 'tangariki' in Maori) due to the manmade and natural obstructions within the catchments. Local kaitiaki[v] have historically helped transfer the elvers above waterfalls and continue to do so. This practice is also embodied in the local story of a taniwha[vi], Rangiriri, who saw young children using a kete (tightly woven flax basket) to help elvers up the waterfall at Otiria over 400 years ago. In the pilot project, sites were selected which required specific management for elver recruitment due to obstructions. Methodologies for elver recruitment were discussed at community meetings. An assessment was made according to ease of use, impact on local environment, cost and effectiveness. The decision was to install mussel spat ropes to assist elver recruitment. The three pictures below show young Ngati Hine fishermen being shown how to decide which culvert to place the rope through, the young men crawling through the culvert with the rope, and securing the rope upstream (photos 1-3). Both areas were monitored regularly, and some elvers were transported and transferred upstream (photo 4).

The long fin management research involved a customary catch approach by fishers who still fish during the eels migration run. The chosen six Ngati Hine monitors actively monitored their waterways during rainfall periods. In Ngati Hine, whanau still use traditional ways of catching the eel migrators, such as using eel weirs etc, as shown in the pictures below (photo 5-6). Fishers conducting the information collection will keep records of catch volumes, sub-species, sex, length, etc. (photo 7).

Objective 2 - Improve habitat appropriate for eels

On the completion of the eel migration research, a two day community meeting was held to discuss monitoring outcomes and interventions to improve habitat. The ideal eel habitat was debated and methods of improvement such as riparian planting (as a traditional method of water management) were discussed. Underground wetlands were also identified as important unique habitat which Ngati Hine must ensure the health of. An analysis of some of the vast swamp areas and some of the waterways running into and from the repo[vii] was carried out (photo 8). It was agreed that the appropriate flow of swamps are an important factor which could be measured by the keeping of eels boxes as those shown above. Eel mortality and health can also indicate the amount of food available flowing through for the eels. Impacts of farming and pine forestry were identified as having harmful effects on elvers and eels habitat, such as flora and fauna used for grazing and shelter. On completion of discussions about ideal eel habitat, sites for prioritisation for enhancement work were confirmed. Support was received from the Ngati Hine Forestry Trust, the Far North District Council (FNDC) and some landowners in the Maromaku dairy farm area.

[v] 'Kaitiaki' means environmental guardian
[vi] 'Taniwha' means supernatural creature
[vii] 'Repo' means swamp

Objective 3 - Support local, established and new, customary and commercial fishermen

The pilot project brought together customary and commercial fishers from around the country who built stronger relationships amongst one another through improved respect and understanding. This has been an invaluable contribution of the pilot project. The feasibility of promoting young fishers into commercial fishing has been an ongoing discussion during this project. In essence Ngati Hine believes that eels should be left to sustain the livelihoods of the people in the first instance. And there is a strong desire amongst young and old to continue this journey of assessing the on-going health and management of eels.

Objective 4 - Advocate for law, policy and eel management to local and central government, industry and the public

From the outset of the pilot project, advocacy was seen as a key component to assist in changing eels management for the better. Support was gained from the Northland Regional Council for the Kete Tangariki project as well as ongoing support for the eel and water management. The Taumarere Catchment has been identified now as a fifth priority catchment and the council will be assigning funding to it to collaborate with Ngati Hine in its management in the near future. Ngati Hine also provided information to the international panel reviewing the state of eels which assessed its monitoring information. Since the review, the Ministry for Primary Industries has contracted Ngati Hine to carry out a national inventory of indigenous communities monitoring of eel stocks and to discuss with them whether they are interested in adapting a common methodology so that Maori can contribute to national reports on the status of eels. The results and future work in relation to this inventory will assist in influencing regulations around the sustainability of fishing in Aotearoa. As described by Mike Holmes of the Eel Enhancement Group, "change has been subtle within the commercial scene as Maori further assert themselves". John Jamieson, a working party member for this project from Aotearoa Fisheries Limited stated that "the relationship was developed with a focus on environmental habitat rather than redevelopment of commercial management, but that could be a next step".

Photos

Credit: Doug Jones 1

Credit: Cilla Brown 1

Credit: Cilla Brown 3

Credit: Tohe Ashby 2

Actions to enhance progress

- **Increased participation for IPLCs and support at the national and international levels**
  Giving IPLCs a greater stake or role in management of fisheries and coastal resources is essential and requires outside linkages and support at national, regional and international levels especially in situations where IPLCs livelihoods are adversely affected by the interests of large fishing organisations.
- **Rights to resources and secure land tenure and access rights for IPLC fisherfolk**
  While increased participation in decision-making and management can be a useful approach it may be too narrow. Right to resources remain a key priority for many small-scale and traditional fishing communities, including rights to riparian and coastal resources and to fisheries resources. At the same time, there are numerous important challenges related to tenure issues and food security for local fishing communities, including legal recognition of IPLCs and competing national interests.

Key resources

1. The International Collective in Support of Fishworkers (ICSF) http://www.icsf.net/index.php
2. On the FAO's Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the context of Food Security and Poverty Eradication (SSF Guidelines): http://igssf.icsf.net/
3. Kete Tangariki - Pilot Tuna Enhancement Project
4. Nga Tikanga mo te Taiao - Ngati Hine Environmental Management Plan
5. Ko Ngati Hine Pukepukerau - Ngati Hine Catchment Management Plan
6. Tuna population survey with NIWA

TARGET 8

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Key message: Around the world community-based monitoring of land and sea pollution has been carried out by indigenous peoples and local communities to bring these under control. Communities have also made important contributions to reduce nutrient pollution by promoting traditional, sustainable agricultural practices. Urgent action is required to protect communities from pollution, prioritise communities' health and wellbeing and support their initiatives for pollution monitoring and sustainable agricultural production.

Implications of the global trends for indigenous peoples and local communities

GBO 4 reports that pollution from excess nutrients (e.g. nitrogen from agricultural fertilizer) has levelled off in Europe and North America, but remains at harmful levels and continues to increase in many other regions of the world. Trends in other pollutants (e.g. mercury, heavy metals) are highly variable and no clear evaluation was possible at the time of GBO4[5].

Environmental pollution directly affects many indigenous peoples and local communities around the world who rely on water from natural streams and/or directly depend on hunting, fishing and gathering for their diets. Increased Achuar mortality has been linked to oil exploitation in Peru[29] and further evidence of impacts of pollution is shown in the case study below. Many indigenous and local communities have filed legal cases to hold polluters accountable for their practices but protracted legal battles and delayed payments have meant that many communities are still waiting for urgent actions to protect their health and well-being. The siting of highly polluting land uses (e.g. landfills, chemical plants) close to politically disempowered and economically poor ethnic communities has been widely documented, raising charges of "environmental racism" [30].

Contributions by indigenous peoples and local communities towards the target

As the examples below will illustrate, communities have made important contributions to achieving Aichi Target 8 by:

1. Avoiding pollution through the promotion of traditional agricultural practices and demonstrating against environmentally harmful projects
2. Identifying polluted areas through community-based monitoring and raising awareness of pollution through national and international advocacy
3. Fighting for environmental justice and enforcement of the "polluters' pay" principle through legal cases

Fighting against oil pollution in the Peruvian Amazon – FECONACO's Territorial Vigilance Programme

Author: Wilson Sandi Hualinga, Coordinator of the Indigenous Vigilance Programme (in Spanish: Programa de Vigilancia Territorial) of the Federation of Native Communities of the Corrientes River (FECONACO) , Peru

Note: this article reflects the situation as of November 2015

FECONACO Team of Monitors (© FECONACO)

Oil pollution in the Corrientes river basin

Loreto Province, Northern Peru: Oil exploitation in the Corrientes river basin was started by Oxy [Occidental Petroleum Corporation] *and Petroperu* [Petróleos del Perú S.A.] *more than 40 years ago, in an area that is part of the territory of the Achuar and Urarina indigenous peoples. None of the communities gave their consent but companies took advantage of their fear and started extracting oil. High pollution levels have affected the health of native communities, animals and fisheries. There are, for example, lakes that are totally contaminated and all the fish are dead. Contamination occurs because the pipe valves or pipes themselves break, or the waste water wells overflow because of rain. We have presented several demands to the company to improve the wells and change the old pipes, but very little has changed. Previously, the company used to dump all the dirty produced water*[viii] *directly into the river and in 2006 we demanded the suspension of all these activities. Communities suffered from many illnesses but did not know what was going on. State authorities took some samples that showed contamination but the State never informed the communities. It was only in September 2013*[31] *that the situation was declared an environmental emergency, thanks to the advocacy of FECONACO (political representation of the native communities in the Corrientes river) and our environmental monitoring programme. Today, we still continue our fight against oil pollution.*

[viii] Oil wells sometimes produce a lot of water along with the oil, which is classified as industrial waste due to often substantial degrees of contamination.

Spill (© FECONACO)

Background and activities of the Territorial Vigilance Programme

Pollution directly affects all communities located within the lots [oil concessions]*: 12 communities in Lot 8 and 5 communities in Lot 192. The decision to launch a territorial vigilance programme was taken at a meeting with the affected communities in 2006. Previously there had been State monitoring programs, but there was lack of trust and transparency because there were efforts to hide the reality of pollution. The territorial vigilance program was created in order for the communities to be informed and to advocate for territorial autonomy. Communities are suffering the social and environmental impacts of oil exploitation and the territorial vigilance programme documents the environmental incidents and reports the responsible companies to the State.*

Environmental monitoring got under way with 14 indigenous monitors, but they were too few to reach all the affected areas. Now there are 19 monitors in total: 12 monitors in Lot 8 and 7 monitors in Lot 192. In each community there are one or two environmental monitors who have been elected by the communities themselves. I am myself an Achuar, from a community located in Lot 8. As Coordinator of the Territorial Vigilance Programme, I am responsible for planning the work in both lots. I have to coordinate which areas are to be visited each month. As the lots are very large, this work is quite difficult. Indigenous monitors identify contaminated sites (e.g. lagoons, ravines) and write down the GPS coordinates. With this information we produce a report that we submit to the OEFA (Peruvian government's Agency for Environmental Assessment and Enforcement). OEFA sends investigators, which are guided to the contaminated areas by the environmental monitors in order for them to take samples for laboratory analysis.

Community members participating in the territorial vigilance programme identify polluted areas (© FECONACO)

Challenges and successes of the programme

Since 2004, we have managed to identify at least 12 spills in the two lots. But there have been hundreds of incidents [e.g. pipeline spills, leakage from storage wells, dumping of waste produced water] *since the oil extraction began. The situation has been declared an environmental emergency, partly due to the support of our territorial vigilance programme. FECONACO is happy because the programme has helped considerably to identify contamination sites and report them to the State. Now, the State is in the process of sending team of investigators to the affected areas to take soil and water samples.*

A big challenge has been the lack of resources for training of environmental monitors; many times the budget has not been sufficient. We want the indigenous environmental monitors themselves to collect soil and water samples. The plan is that the territorial vigilance programme will have its own office with internet access so that it is easier to report contamination issues to the media. The oil company has its environmental engineers but they are never going to report themselves. Currently the State does not provide financial support to our territorial vigilance programme. Before there was a NGO that supported the programme but now FECONACO is responsible for continuing the territorial vigilance programme. Currently, the federation is having meetings in Lima with the aim of obtaining the State's official recognition of the territorial vigilance programme so that it can also receive financial support.

Demands and political advocacy

The territorial vigilance programme collects information on environmental pollution and communicates

this information directly to FECONACO so that they can engage in political advocacy.
Indigenous environmental monitoring has been essential in generating evidence and highlighting our demands, which are:

- *Safe water for communities: If communities do not have wells with treated water they are forced to continue drinking contaminated water and they will continue dying.*
- *Implement the best standards to prevent environmental pollution, e.g.: change the old pipes (many sections are from the 70's), improve waste water wells, etc.*
- *Restore contaminated sites: The State is committed to do so but so far there has been no restoration.*
- *Make compensation payments to FECONACO for all damages and for using the land.*

Similar cases can be found around the world as unsustainable mining practices and development projects continue to pollute communities' lands. In Guyana, mining encroachment on Amerindian customary lands, forests and waters and the uncontrolled use of mercury and other toxic chemicals has resulted in violation of community rights, severe environmental pollution, land degradation and declines in game and fish abundance. The indigenous Kako villagers in the Upper Mazaruni District (Region 7) have taken action to stop the on-going environmental destruction by blocking miners from accessing mining permits on their traditional lands and river corridors (which are the subject of a long-standing land claim in the High Court of Guyana). However, in response to a law suit brought against Kako Village by a miner, local courts in Guyana initially ruled against the village in favour of the miner (this judgement was overturned on a technicality in 2014 and the case was still pending resolution as of January 2016). This case is indicative of a growing number of cases where local forest and environmental defenders are being criminalised for actions to safeguard and protect resources owned under customary law and communal systems of tenure[32].

Many communities have filed legal cases to ensure that polluters are held accountable, such as the legal battles against Chevron's (then Texaco) environmental contamination in the Oriente region of Ecuador, one of the worst oil-related environmental disasters. Texaco's pollution of the rainforests and rivers in Ecuador and Peru has caused significant environmental damage which has been linked to increased rates of cancer and other serious health problems in the communities. Ecuador's National Court of Justice ruled in 2012 that Chevron had to pay $ 19 billion in damages and clean-up costs[33]. To this day, Chevron has not made this payment and has been implicated in the intimidation of judges in Ecuador, bribing of others and falsification of evidence[34]. While the legal battles continue, communities are still waiting for justice and continue to live in a wasteland of contaminated streams and forests.

Indigenous peoples and local communities around the world are making important contributions to reduce nutrient pollution by promoting traditional, sustainable agricultural practices. The Maori of Aotearoa/New Zealand, have initiated and driven the development of Hua Parakore, an indigenous verification and validation system for food and product production. Food, meat, wool and traditional medicines are produced according to cultural practices in a closed system of production with zero or minimal inputs, free from industrial fertilizers, pesticides and genetic modification[35]. The Andean Project for Peasant Technologies (PRATEC), likewise promotes traditional, sustainable agricultural practices and agrobiodiversity in the Andean region[36]. Kalanguya communities in Tinoc, Philippines, are also contributing towards achieving this target by revitalising traditional agricultural practices in order to move away from harmful chemical-based commercial vegetable production introduced in the mid 1990ies[37] (see also chapter 19).

Actions to enhance progress

Recognising and supporting indigenous and local communities' contributions towards reducing environmental pollution will be essential in enhancing progress towards achieving this target. More specifically, the following actions are recommended:

- **Reduce nutrient pollution through promotion of traditional, sustainable agricultural practices.** : In many cases, community projects for sustainable agriculture are carried out without any external financial support and therefore have lacked the resources to expand. Growth of traditional agricultural practices will also increase agrobiodiversity and contribute towards achieving Targets 7 and 13.
- **Governments to adopt and enforce robust and legally binding environmental standards.**: It is the State's responsibility to protect indigenous and local communities from harmful environmental pollution. Therefore, States should raise legally required environmental standards to ensure that companies adopt cleaner technologies. Such standards would then need to be updated regularly following latest technological developments.
- **Address land zoning and carry out strategic environmental impact assessments** (or similar assessments) to stop activities likely to cause environmental pollution in environmentally fragile areas or on community lands.
- **Community-based monitoring systems of pollution should be officially recognised and financially supported by States** as they collect vital information on trends relevant for achieving Target 8 and play an important role in identifying polluted areas.
- **Take urgent actions to restore polluted areas**, including adoption of an indicator measuring trends in restoration of polluted areas. Communities with their in-depth knowledge of local ecosystems can play an important role in restoring polluted areas (see also Target 15); their involvement will also ensure that remediation results will be socially acceptable.
- **Enforce the "polluters' pay" principle** as a major deterrent against polluting practices and strengthen mechanisms to hold polluters accountable and compensate affected communities for damages suffered from environmental contamination.

TARGET 9

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Key message: Invasive alien species (IASs) pose serious threats to indigenous peoples and local communities' cultural, environmental and food systems. Based on the deep knowledge of their ecosystems, IPLCs play a significant role in identification, assessing impacts, monitoring, and control or eradication of these species. Their inputs complement conventional/scientific solutions by taking a more holistic, ecosystem-based, approach.

Implications of the global trends for indigenous peoples and local communities

The number of IASs continue to increase globally as do their impacts on biodiversity[5]. This trend has wider jeopardising impacts on IPLCs' wellbeing and livelihoods, for instance because of the impediment of vital water sources (e.g. plant IASs which 'choke off' rivers or lakes), threatening food security because of soil degradation or loss of pasture land, time and resource loss due to fighting IASs, damage to sacred areas, disrupting burning patterns, and the extinction of culturally significant species[38].

However, some examples exist where IASs are valued by IPLCs, especially as conventional concepts of 'weeds' or 'pests' don't necessarily exist in IPLC cultural lexicons. In such situations recognising the cultural or subsistence value of such IASs to IPLCs is an important aspect of dealing with IASs and their long term negative effect on ecosystems[39].

Contributions of indigenous peoples and local communities towards the target

The connection many IPLCs have with their lands and territories engenders them with the ability to notice small changes in the ecosystem very rapidly, which is why their on-the-ground monitoring for new IASs and potential in preventing the establishment of new alien species is significant[40].

The examples below demonstrate how IPLCs in different parts of the world are engaging with and contributing to specific IAS situations.

Indigenous Rangers involved in controlling invasive pond apple infestations in World Heritage Area in north east Queensland, Australia.

Chrissy Grant, Member of Jabalbina Yalanji Aboriginal Corporation[ix]

In 1988 most of the Eastern Kuku Yalanji (EKY) *Bubu* (Land or Country) in Far North Queensland was declared to be within the 'Wet Tropics World Heritage Area'. In 2007 the Federal Court determined Native Title over EKY traditional lands. Subsequent to this determination Eastern Kuku Yalanji people established the Jabalbina Yalanji Aboriginal Corporation and the Jabalbina Land Trust to represent the interests of the native title holders[41].

In 2009, EKY Traditional Owners agreed to establish a clan-based Indigenous Protected Area (IPA). Since 2013 the Jabalbina Yalanji Rangers manage over 200,000 ha of Bubu either solely or cooperatively with the Queensland Parks and Wildlife Service and local governments. One of the challenges Jabalbina Rangers face to implement the IPA management plans agreed by Traditional

[ix] The author acknowledges the assistance received from the Jabalbina staff in producing this case study.

Owners, is the fact that there are over 125 species of introduced weeds now present on EKY Bubu, many of which are widespread.

One of these is the Pond Apple (*Annona glabra*), a 'weed of National Significance'. Originally a native from the tropical forests of America and West Africa, it was introduced to Australia around 1912 as a grafting stock for the custard apple. It behaves like a mangrove, thriving in brackish and fresh water, so is salt tolerant and the fruit and seed will survive in full strength saltwater for long periods. Pond Apple produces dense growth and crowds out other natural species of vegetation. It now extends along the coastline from far northern New South Wales, along nearly the entire Queensland coastline and most of the Northern Territory coastline. It transforms coastal wetlands, replacing native mangrove forest, paperbark tree swamp and nationally-endangered coastal littoral forest vegetation types, forming mono-cultural thickets.

Since 2014 Jabalbina have collaborated with non-profit groups[42,43] and local Government to do pond apple surveys and carry out control and follow-up monitoring of pond apple infestations in different parts of the EKY territory. Jabalbina rangers, Traditional Owners and Indigenous students have followed various trainings to identify/detect and control pond apple. Control includes hand pulling very small seedlings and using the basal barking technique for larger trees (spraying a small amount of herbicide directly onto the bark at the base of the tree). Indigenous communities are generally not in favour of using chemical control on weeds, but, after seeing the successful effects of using glyphosate on pond apple, there is now a greater acceptance of herbicide use.

In 2015, Jabalbina Rangers have controlled a number of small pond apple infestations and begun controlling others. With many of the smaller infestations along rivers and creeks now under control, there is still a major challenge of eradicating pond apple from low-lying areas which are restricted by tides and these melaleuca (tea tree) and mangrove swamps are home to saltwater crocodiles. Pond apple in swampy places can only be accessed in the late dry season and some can only be accessed by boat. Jabalbina Rangers will conduct follow-up monitoring and control trips during 2016 and 2017 and possibly beyond with the hope to remove pond apple from EKY Bubu all together.

> "None of us really saw the pond apple work as a hard thing to do. It was enjoyable, really, camping out on our Bubu and getting rid of this weed. We're excited to get rid of pond apple from our Bubu".
> Jabalbina Ranger Team Leader Bradley Creek following a recent pond apple control trip.

An invader in our waters: actions of Guna People (Panama) in relation to the Lion Fish
By Jorge Luis Andreve. [x]

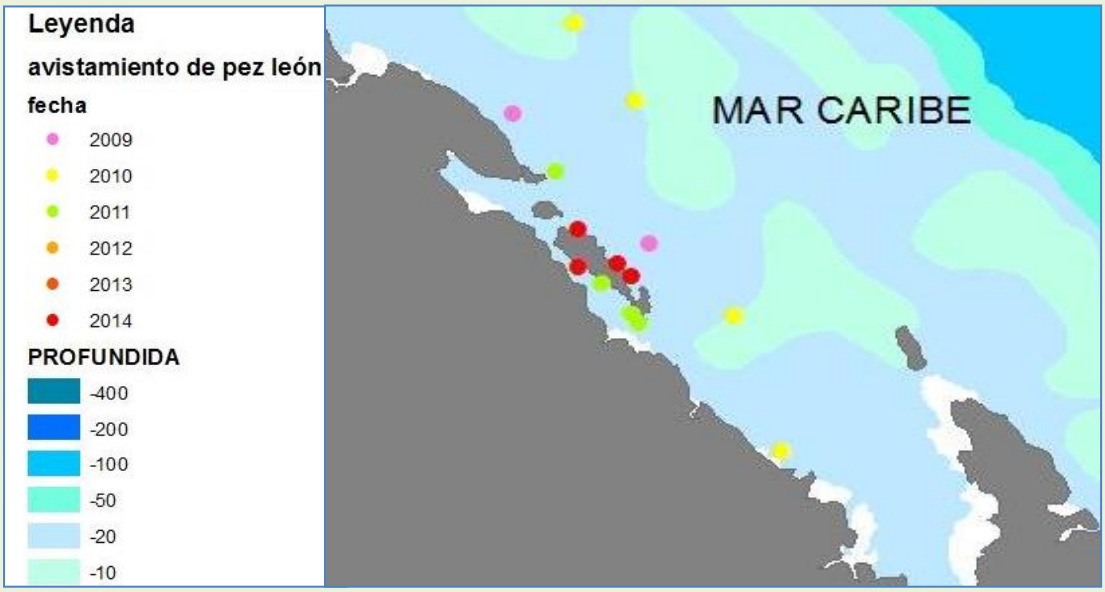
Lionfish is an invasive species that started its journey on the East Coast of the United States, specifically in Biscayne Bay, Florida in 1992. According to the literature, since 2000 this species has migrated to the North of the East coast of the United States and Bermuda. Since then, its growth and spread has being exponential. In the summer of 2001 the species was seen in Long Island, New York and the Caribbean.

[x] PhD student at the Seville University, Spain. Research Associate at the Fundación para la Promoción del Conocimiento Indígena (FPCI). Regional Director of the Ministry of the Environment in the Gunayala region, Panama

At present there are records of populations established in the Atlantic Coast of the US, from Florida to Cape Hatteras, North Carolina, Bermuda, Columbia, Cuba, Dominican Republic, Jamaica, Puerto Rico, Turks and Caicos and the Cayman Islands. Some have been reported in Belize, Haiti, Virgin Islands, Mexico, Costa Rica and Panama.

In the Gunayala region, Panama, these lionfish have been spotted since 2009. However it was only in the beginning of 2010 that the communities became aware of the danger posed by the species, and in particular when several of its fishermen and divers were stung by the fish. Among the people stung were three young children. All the victims have been transferred from Gunayala to Panama city, due to lack of medication and knowledge how to mitigate the pain and injuries caused by this fish.

As the Guna were facing a lack of information regarding this fish they initiated a project to investigate the possible effects that the presence of this fish could have in the natural dynamic of communities and their culture. One of the first objectives that were pursued was to develop a participatory map that include the places where this fish has been seen (focused on the Usdub community), count them and collect information on attributes of the fish (e.g. length) during field trips. All sightings of the lionfish, all of them belonging to the *Pterois volitans* species, were recorded. In addition, interviews were held with community members, lobstermen and fishermen and a review of the literature took place to gather knowledge and information about the lion fish.



Map showing the distribution of different sightings of lionfish in the sea of Usdub, Gunayala region

Until now, very little is known about the possible cultural, gastronomic and spiritual impacts that this fish could have in an indigenous territory. It is important to seek viable ways for the Gunayala indigenous region to manage the lionfish in the region. There is a need for effective actions which do not undermine cultural, environmental and food systems for indigenous communities. It is not possible to duplicate management models from other countries, given that this region has some elements that make it different from the others. A big part of the Guna livelihood depends on the sea, and especially on the coral reefs systems. A change in the population dynamics of herbivores like the parrot fish (*Scarus sp*) could undermine the culture of the indigenous inhabitants, considering that this fish is of vital importance in the diet and culture among the Gunas.

Photos: 1. Field trip to count species of lionfish; 2) Lionfish captured with a fishing line; 3) Filet cut for human consumption and for stomach analysis and 4) Participation in the Usdub Congress, explaining the topic of the lionfish (2011). All photos © Jorge Andreve/FPCI

Development of cultural indicators to monitor Kauri dieback disease, Aotearoa/New Zealand[44,45]

Kauri dieback (or PTA) is a deadly, fungus-like disease that was formally identified in 2008. It is specific to New Zealand and has killed thousands of kauri trees in New Zealand in the past 10 years. No known treatment exists yet. Kauri is considered a*taonga* species by many Māori: valued as a connection to the spiritual beliefs and way of life of their ancestors. A collective of representatives from Maori entities with kauri forests are forming the Tangata Whenua Roopu (TWR) which is part of a joint Kauri Dieback Programme that covers research on detection and spread of kauri dieback (KD), methods to control it and public awareness campaigns to help arrest its spread.

This work sets out to develop a culturally based monitoring methodology framework for Kauri Ngahere (Forest) Health. Key applications of the methodology will be to determine whether there are Cultural Health Indicators (that are measurable, repeatable and duplicable [quantitative or qualitative]) that can:

- Determine the state of health of kauri forests in different parts of the kauri catchment
- Anticipate or predict the presence of PTA; and
- Indicate resilient kauri trees or forests that resist the impact of or susceptibility to PTA.

The TWR have championed the design of a framework which utilises cultural indicators for the

surveillance and monitoring of KD. The focus of this framework is the assessment of kauri health and building resilience to the disease. This scientifically complementary framework aims to ascertain the health of kauri utilising a kauri ecosystem approach ('ngahere') and holistic approach which takes into account factors beyond the kauri alone, including indicators on coexisting species within the forest.

Cultural health indicators were formulated to inform the management of KD. These indicators were creating using a mātauranga Māori approach and focus on assessing the health of the environment as it relates to kauri forests. Extensive interviews with experts in ngahere kauri were held to develop the values which guide the indicators and recommendations for the monitoring programme.

Species and indicators were selected according to four categories:
1) species found living on kauri (approximately 60 species)
2) species identified living near kauri (approx. 30 species)
3) species from the ngahere known to be vulnerable to environmental change (e.g. frogs)
4) an examination of approximately 100 species for knowledge of their cultural value and value as a cultural health indicator.

The framework is flexible and customisable across mana whenua groups (DEFINE) in an effort to incorporate the variable meanings of these terms and allows for an overall measure of the mauri of ngahere health. A site record form and mobile data collection app template have been developed to populate with the indicators and attributes selected by mana whenua to enable data collection in the field.

The methodology involves a step by step process outlining options and recommendations for community engagement, site selection, team selection, an initial wananga to customize the framework and confirm sampling strategy, monitoring frequency, logistics, equipment and training requirements, fieldwork and data collection, data analysis and suggestions around reporting and evaluation.

A research project based on how Matauranga Maori rongoa (medicinal use of plants) may be useful for either individual kauri tree or kauri ngahere health is also being developed. If successful it will provide aspects of knowledge and /or tools which could be utilised in future research. Rongoa (medicinal use of plants) has potential in the fight against KD: either as a bio-control or to assist in building the resilience and enhancing the health of kauri ngahere. Future research will involve a desktop review of known rongoa related to kauri ngahere and then wananga options with experts for bio-controls and ngahere enhancement and document the outcomes.

Actions to enhance progress

- Governments and relevant national and international institutions to:
  -work with traditional authorities of IPLCs and community organisations to initiate and carry out programmes to identify and monitor IAS affecting their lands and territories.
  -Integrate traditional knowledge, and holistic ecosystem approaches, in existing and emerging "culturally sensitive" efforts to identify and control IASs
  -Provide support (financial, technical, educational) for community-based actions on IASs and solutions for negative impacts on community livelihoods, health and well-being

-Facilitate a collaborative assessment of extent and social, environmental, economic and cultural impacts of IAS on lands and waters of IPLCS

- The CBD to:
  -initiate awareness-raising programmes on cultural, environmental and food impacts from IASs for IPLCs
  -Develop guidance on principles and approaches when working with IPLCs in IAS control programmes.

TARGET 11

By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape.

Key message: The vital role of indigenous peoples and local communities in protecting biodiversity and valuable ecosystems and the potential of the territories and areas they conserve (ICCAs) to contribute to both quantity and quality of protected areas and other area based conservation measures should be fully and appropriately recognised and supported. Equity in protected areas - including the recognition of the rights of indigenous peoples and local communities as well as mechanisms to address conflicts or unfair outcomes - is currently poorly addressed and immediate action is needed to develop and implement this attribute of the Target.

Implications of the global trends for indigenous peoples and local communities

GBO-4 highlighted that the terrestrial area protected for biodiversity is increasing steadily, while marine areas continue to be under-protected. Initiatives exist to develop protected area corridors or transboundary parks but connectivity between protected areas, particularly freshwater protected areas, remains an issue. Ecological representativeness of protected areas continues to be insufficiently addressed in national biodiversity strategies. According to GBO4, there is some evidence that effectiveness of protected area management has improved, but still only a minority of protected areas are enjoying effective management and further actions are needed to ensure effective and equitable management, including enhancing cooperation with indigenous and local communities[5].

There is increasing evidence that community area-based conservation is more effective than conventional protected area management. A meta-analysis of forest conservation effectiveness in the tropics found that community managed forests present lower and less variable annual deforestation rates than protected areas[16] (see also Chapter 5). A recent global assessment of 165 protected areas concludes that positive conservation outcomes are more likely to occur when protected areas adopt co-management regimes, empower local people, reduce economic inequalities, and maintain cultural and livelihood benefits[46]. This has been reflected in an increasing trend towards community involvement in protected area management over the last years[5].

Nevertheless, many protected areas around the world in practice continue to follow the “conventional model” of conservation developed in the USA and exported during the colonial era: a system that seeks to preserve nature as ‘wilderness’ and to exclude or severely limit human activities in biodiversity-rich areas. Over the past several decades, this has led to wide-spread criminalization of customary practices, forced relocations, community impoverishment, cultural erosion (or destruction), and the undermining of traditional resource governance and management practices[47]. While some of the more recent IUCN protected area guidelines (e.g. No. 11[48] and No. 20[49]) recognise and embrace ICCAs, most IUCN guidelines and their national implementations continue to mirror a nature-culture dualism, which does not encompass other worldviews and consequently is unable to recognise the relational values of Indigenous Peoples to land[50]. To this date, the transition to the “new paradigm” for protected areas

emphasized at the World Parks Congresses in Durban (2003) and Sydney (2014) and reflected in the 2004 CBD Programme of Work on Protected Areas and subsequent CBD Decisions has remained substantially incomplete. Many indigenous peoples' territories and local communities' lands continue to be impacted by protected areas. A recent review of new legislation since Durban shows that only around a third of analysed countries had enacted or reformed their protected-area legislation related to community lands and resource rights. Where such reforms had occurred, the focus was merely on including legally recognised community owned lands in national protected-area systems or enabling co-management regimes.[51] The urgent demand for respect for indigenous and local communities' rights and addressing on-going and in some cases escalating rights violations in protected area management has led to the development of protected area equity frameworks[52] and an IUCN mechanism to address protected area conflicts, the Whakatane Mechanism[53] (see case study below).

Contributions by indigenous peoples and local communities towards the target

Indigenous and local communities conserve many of the most critical habitats and biodiversity hotspots[15] and they support attainment of this target by:

- Significantly increasing the geographical coverage, diversity and connectedness of areas being protected or conserved through community conservation of sacred groves or sites (many of which are high biodiversity areas that are not under any formal protection)[54] or through or ICCAs[55,56]. ICCAs[xi] are estimated to cover as much land as government-designated protected areas or about 12% of terrestrial surface[57]. They can count towards this target as "protected areas" or "other effective area-based conservation measures" (more recently referred to as "conserved areas").
- Increasing effectiveness of protected area governance and management through: community-based conservation actions that in many cases have proven to be more effective than governmental interventions[16]; community participation in co-management regimes that support local empowerment[58];
- Promoting landscape approaches to area based conservation through promotion of sustainable community based agriculture, aquaculture and forestry schemes (see Chapter 7);
- Highlighting cases where action is needed to address equity and justice in protected areas (see box on Ogiek in Mt Elgon) thereby contributing to the development of policies and tools to promote equitable governance and management.

Kawanana in Casamance (Senegal) is a concrete example of the important contributions of community conserved areas towards conserved area coverage and quality. Kawanana meaning "Our patrimony, for us all to conserve" is a registered ICCA. The indigenous Djola villagers have successfully conserved 9,665 ha of coastal and marine resources by returning to a traditional governance and management system for the local marine resources and preventing unsustainable practices by outside fishermen. Within a few years after the creation of the ICCA, biological habitats were significantly improved leading to a return of most fish species that had locally disappeared, more than doubling of catches, and marked improvement in communities' food security[59].

Numerous examples of community conservation of biodiversity rich sacred groves can be found in the state of Meghalaya, India. Megahalaya is a mega-biodiversity centre, where more than 90% of the total forest area is under the control of indigenous tribes, who have a long tradition of conserving virgin

[xi] For more information see ICCA registry, an online platform where communities themselves provide data and case studies of registered ICCAs: http://www.iccaregistry.org/

forest patches as sacred groves based on traditional knowledge. Most of the sacred groves are located on the catchment areas of important rivers and streams, thus playing a crucial role in soil and water conservation. Traditionally, it is sacrilege to touch even leaves of trees in these sacred groves as they are believed to be the abode of deities and bestow welfare for the people and lands. Such a belief underpins a powerful conservation ethic[60].

Regarding experiences with addressing justice and equity in government protected areas, across the world there have been some - but so far insufficient – efforts. One positive experience is the Thaidene Nëné National Park in Canada. 40 years' after the establishment of the national park on customary lands, the Lutsel K'e Dene Band First Nation people have made major progress towards a new reserve proposal that recognises the important role of the First Nation people in planning, implementation and management of the park, setting an example of true partnership-building in protected area management[61].

Author: Peter Kitelo; Ogiek community member, Strategic Director Chepkitale Indigenous Peoples' Development Project (CIPDP) and convener of Kenya Forest Indigenous Peoples Network (FIPN)

The Ogiek's experience with protected areas in Mount Elgon, Kenya: Ways towards rights-based conservation

The population of the Ogiek of Mt. Elgon is about 18,000 and over the years they have been forced to cluster in three areas: about 10,000 live in Chepyuk, 3,000 are scattered in Trans Nzoia and about 3,000 Ogiek still live in our ancestral lands on Chepkitale in Mount Elgon, which supports a rich variety of vegetation ranging from montane forest to high open moorland. As hunter gatherers indigenous to this area, Article 63(2)(d)(ii) of the Kenyan Constitution recognises our rights to our lands. But the fact is that the Government has not put this into practice and this is the bone of contention for all forest communities in Kenya, not just for the Ogiek.

The Ogiek's struggle and impacts of evictions

In the 1930s the effects of land dispossession and colonialism really started to be felt by the Ogiek. The communities were first evicted from their lower lands and restricted to the higher mountain forest areas, while the lower lands were taken by colonialists for farming. From 2000 onwards, the community's struggles have become more urgent and visible as, with the imposition of Chepkitale game reserve, the final part of the community lands have been gazetted as protected areas, following on from the imposition of Mt. Elgon National Park in 1968, followed by the forest reserves.

Communities have been evicted from all of these areas except Chepkitale where the community has kept on returning after every eviction. Each community member has been at one time or another a victim of evictions; I doubt that there is a single Ogiek family that has not faced evictions. I have experienced evictions three times myself; others have been evicted many more times.

These evictions have broken communities and families. Many acts of violence have been committed against communities such as burning of our houses and confiscating or burning of our belongings. We have had cases where community members have been shot dead by the forest guards or where our livestock has been shot. Because of these violent experiences, community members do not resist evictions but hide in the forests or flee and then come back. The community has also been taking legal options and pushing for change to existing laws which have been used to justify their land dispossession.

For the community, impacts of these evictions have included restrictions on harvesting of forest resources, which has threatened communities' food security. This was very much pronounced in the

50ies and 70ies, where it exposed the community to unimaginable hunger. Another negative impact is the lack of access to medicinal plants. Others who have been completely evicted from the forests were forced to change their livelihoods and become farmers.

These evictions have not only had negative impacts on communities' livelihoods but also on the forest itself. In some of the areas from which the communities had been completely evicted, the Government established timber plantations and there has been significant forest degradation partly through forest conservation policies (e.g. the "Shamba system") that encourage degradation. This is because here at Mt Elgon, a system which in theory should be used to move farmers into degraded forest areas to plant trees among their crops and so help restore the forest, is instead used to move famers into indigenous forest lands (Ogiek ancestral lands). The farmers gradually expand their fields into the forest, destroying the forest, and replacing it with farmland which the Kenya Forest Service can then – after a number of years – use to plant exotic species that are cash rich for those in control, in place of the indigenous forest that was rich in biodiversity and in cultural importance for the Ogiek. Corruption among government officials has therefore had a negative impact in many of these supposedly protected areas, not only in this way but also through encouraging charcoal burning, elephant poaching, etc., all of which the Ogiek community opposes.

Whakatane assessment as a way to facilitate conflict resolution

In 2011, IUCN agreed to pilot rights-based assessments of protected areas called the "Whakatane Mechanism" to address the injustices that have been inflicted on indigenous peoples through the creation of protected areas. One of the pilot assessments took place at Mt. Elgon, including Mt Elgon National Park, but focused especially on Ogiek land that had been turned into Chepkitale Game Reserve in 2000 without our consent.

The assessment took place in three stages: a first roundtable, a scoping study and another roundtable

discussion. Stakeholder roundtable discussions took place in Nairobi between the Ogiek communities, Kenya Forestry Service (KFS), Kenya Wildlife Service (KWS), the Ministry of Environment, the IUCN country office and the local government.
The Whakatane Mechanism really helped us to have amicable discussions with the different actors and it became clear that the different interests could indeed be consolidated and that a win-win situation could be achieved. It became clear to all stakeholders that the communities were not interested in destroying the forest; if they were, they would have already done so.

One outcome of the assessment was the recommendation that the land should be reverted back to the Ogiek community The County Council declared in a resolution that they would not oppose this and since 2012 we have had amicable discussions to achieve an out-of-court settlement. Since then, at least up until today – March 2016 - the Ogiek from Mt. Elgon have never faced any evictions and we have had slightly better relations with the KFS and the KWS. But from the community level we can only accept that the attitudes have indeed changed if laws are changed and the communities finally get their land titles. Interacting with other indigenous communities in Kenya like the Sengwer shows me that attitudes have not yet changed, as the Sengwer continue to be evicted.

Rights-based conservation as a way forward
If we want sustainability in protected areas, they should be based on rights. When you look at the areas inhabited by forest peoples in Kenya, these are the areas where you still have forest. Lands that indigenous peoples have been using and have not been evicted from are equally protected but by the

rules of indigenous peoples. Through discussions, these traditional by-laws can be written down as laws that are socially acceptable and serve as conservation conditions of community land titles, which is something that some Governments have been pushing for. However, when these conditions are being created, it gives the impression that it is the communities who are destroying the forest. My experience in Mt. Elgon is that the Ogiek community protects the indigenous forest and the animals like the elephants. Instead, the biggest driver of deforestation are the Government agencies and we need to ensure that conservation conditions prevent destruction by the Government (e.g. some of the commercial farming is very destructive, but continues to be promoted by the KFS as a way of getting rid of ecologically rich indigenous forests and establishing commercial timber plantations in their place). One condition should also be that when communities ask for support for conservation actions, the Government should be ready to provide it. As an example, we will need Government support to deal with elephant poaching which is done by armed poachers coming in from the lowlands and Uganda.

My recommendation is that we need to remove this idea from our heads that protected areas can only be taken care off by governments and recognise the rights of communities to own and protect their lands. Issues of land tenure, sustainability and biodiversity are connected and very important for communities. Secure land tenure makes communities look at their lands on the long-term and gives them rights to act against those who want to extract for the short term. When you look at the long-term, then communities look at using their lands and natural resources sustainably. Instead of fighting communities, we should encourage their conservation efforts and support them.

Actions to enhance progress

The examples above illustrate that indigenous and local communities can be strong allies in biodiversity protection and the following actions are recommended to enhance progress on this target:

- Support for CCAs, ICCAs and sacred sites: Community conserved areas should be fully respected by all stakeholders and any overlaps with protected areas need to be resolved before including them in national protected area networks, IUCN's Green List of Protected and Conserved Areas or recommending World Heritage status. ICCAs can be fully recognised and thrive within protected areas.
- Move away from the exclusionary approach to conservation and stop evictions from protected areas: The exclusionary approach to protected areas has been proven in many cases less effective than community conserved areas and is from a conservation point of view entirely counter-productive[16,62], but has also caused unimaginable suffering to indigenous peoples and local communities.
- Formal recognition of customary rights under national law: Customary lands need to be fully titled to empower communities to enforce their conserved areas. Community members are well placed to challenge and stop illegal activities such as overexploitation (see Kawanana case above), logging (see also Target 5) and poaching (see also Target 12).
- Urgently address equity by prioritising justice in order to address rights and resolve conflicts in protected areas: Actions to expand the global protected area network must go hand in hand with addressing equity and justice and the implementation of rights assessments and equity frameworks[52] should be part of all protected area establishment and management. The Whakatane Mechanism[53] has proven to be a useful tool for resolving protected area conflicts and support for assessments is recommended where requested by affected communities.

Where land has unlawfully been taken, these lands need to be reverted back to the communities.

- Review of national frameworks for protected area management: Quality of protected area governance needs to be improved by evaluating legal and institutional frameworks to ensure that protected areas are governed as legitimately, purposefully, effectively, accountably, fairly and respectful of rights as possible[63].
- Adopt a global headline indicator on to measure equity in protected area governance and management (as there is currently no indicator for this important component of Target 11).
- Promote and take action to implement the 2004 CBD Programme of Work on Protected Areas (especially Element 2 on Participation, Governance, Equity and Benefit Sharing) and the 2014 Plan of Action on Customary Sustainable Use (priority task 3 on customary sustainable use and protected areas).

TARGET 12

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Key message: Many endangered species have been actively conserved by communities through hunting/harvest taboos, sacred groves or use restrictions. Indigenous and local communities' conservation efforts and expertise on the status and trends in abundance of endangered species will be invaluable for achieving this target, in particular through the use of community-based monitoring for early identification and signalling of problems or threats. The ability of communities to continue conserving endangered species (e.g. through prevention of habitat loss, poaching) is closely related to decisions at the governmental and global levels, in particular relating to land tenure and control of protected areas

Implications of the global trends for indigenous peoples and local communities

While dedicated conservation efforts have prevented the extinction of several species, extinction rates are projected to further increase under scenarios of on-going habitat loss, and GBO4 reported that things were getting worse rather than better concerning the conservation status of species most in decline[5].

Globally, many endangered species can be found on the lands of indigenous peoples and local communities[15], many of whom have been fighting to halt habitat loss (see Target 5) and have developed traditional systems and institutions to sustainably manage their lands and resources (see Target 7). Some threatened species have strong cultural and/or spiritual significance ("sacred species") or are very important for communities' wellbeing (e.g. medicinal plants) and thus are actively conserved by communities[64].

In practice, many top-down initiatives to conserve threatened species have been imposed on communities and have frequently had negative impacts on them through: the exclusion or eviction of communities from their traditional lands, criminalisation of traditional hunting/harvesting practices or protection from predators. In particular, the conservation of endangered large and/or dangerous mammals (e.g. tigers, elephants) has been problematic given their complex relationship with people[65]. Compensation payments for crop damage, loss of livestock, injury or fatalities have been part of a widespread mitigation strategy to reduce the economic impacts of conservation of "problem species", but they fail to address all of the impacts on communities' wellbeing and have sometimes promoted social inequity due to their high transaction costs[66].

The conservation of certain endangered flagship species - such as India's national animal, the tiger - has also been highly political, positioning the subsistence interests of local communities against those of wilderness lovers and urban pleasure seekers who wish to keep reserves free of interferences from other humans. In India, many tribal people have co-existed with tigers for centuries but nevertheless were evicted from tiger reserves, while inside these supposedly human-free reserves hotels were being built to welcome tourists[67].

In some cases, the creation of reserves for certain endangered animals has exacerbated conflicts between humans and threatened animals. An indigenous person from the Maasai tribe commented:

> *"Due to the concept of conservation where you have particular set aside areas for conservation, you feel like all the animals should be in that area because it is a protected area. But the animals do not understand that this point is the end of the protected area. For example, elephants have*

migratory routes across agricultural lands and settlements so you still have conflicts between humans and animals because you cannot tell the animals where to go. We are now grappling with protected areas outside of the protected areas because that is where the animals use land for breeding." (Interview 2015)

Contributions by indigenous peoples and local communities towards the target

The main contribution of communities to the conservation of endangered species is through security of land and customary resource management. As extinctions can directly affect communities' cultures and livelihoods, amongst many communities there is a strong desire to conserve endangered species. Not only are communities often the first to notice when a species is in decline, but they are also capable of implementing urgent conservation actions through their customary governance institutions[68]. More specifically, indigenous and local communities' contributions towards achieving Aichi Target 12 include:

- Identification and monitoring of endangered species
- Protection of endangered species through traditional systems of hunting/harvest taboos or use restrictions
- Safeguarding of sacred groves or other community-conserved areas that are the habitat of many endangered species (see Target 11)

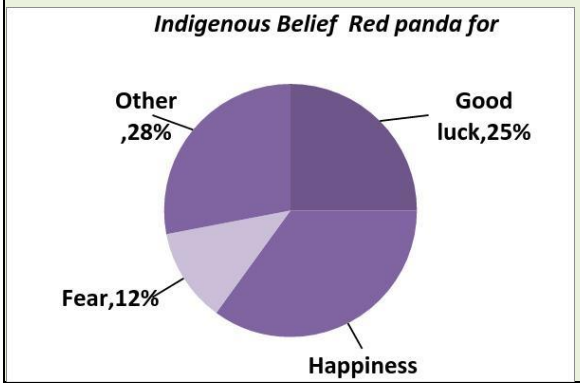
Box XX: Traditional Knowledge and Customary Sustainable Practices to Conserve the Endangered Red Panda in Ilam Nepal

Background

The indigenous peoples of Ilam, East Nepal include: Kirant (encompassing the Rai and Limbu peoples), Lepcha, Tamang, Sherpa, Sunuwar, Gurung, Magar and Thangmi. East Nepal is the historical domain of Kirant, with Kirant kingship running from 600 BC in Kathmandu with over 1000 years of Kirant Kings (32 in all) ruling using customary practices.

The overall objective of this case study was to identify the traditional knowledge and customary sustainable practices of indigenous peoples in Ilam which help conserve the Red panda (*Ailurious Fulgens*) in the wild.

Under the Nepal National Parks and Wildlife Conservation Act (1973), the Red Panda is recognized as a protected priority species. The Red panda was designated as vulnerable in 1994 and as an endangered species in 2004 (IUCN 2011) because of habitat loss.



The case study used participatory surveys, group discussions and interviews, an ecological transect study and observation of conservation practices in Red panda habitats. Religious priests, user groups, women, local leaders and pastoralists were involved.

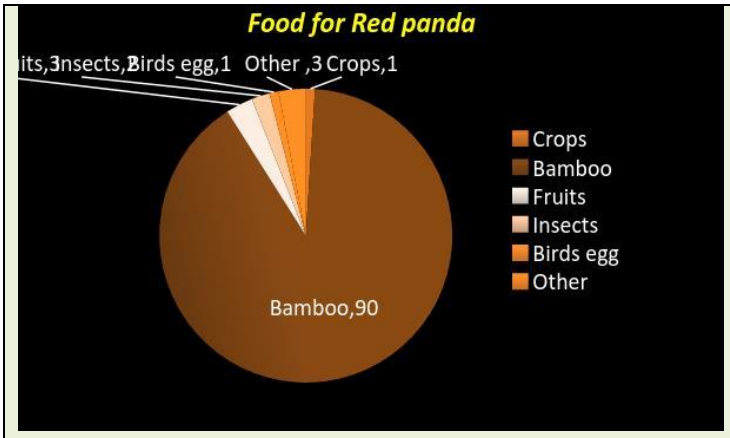
Results of the Focal Group Discussion:

The focus group discussions covered national and community issues, Kipatiya Partha and religious

forest ecosystem viewpoints on the Red panda, which inhabits Mabu and Jamana, Ilam.
Ms Dhana Maya Limbu 96, said, "Since my childhood, I have seen the beautiful Red pandas in bamboo forest. We call the Red panda 'Pude Kudo'. Pude Kudo have a few spreading beards, short, white-coloured noses with a reddish to brownish belt on the face, a long black-brownish furry tail, peaceful eyes, it looks like a beautiful wild creature. If we observe Pude Kudo in the morning it is the symbol for good luck (Figure 3). Some people call the Red panda 'Hoprakpa', because of the barking sound it makes which we call 'Hoprak.'"

On 'Kipatiya Pratha' of Kirant and the Red pandas

Mr Bal Bahadur Limbu 75 said, "*Kipatiya' represents the forest, land or natural resources that have been historically owned by Kirant (Rai and Limbu) peoples, 'Pratha' means the traditional system that is used. The Kipatiya Pratha' is the customary system of Kirant, it is the local authorized body which uses traditional governing practices for conservation and sustainable management, the use of natural resources and protection of the habitats of Red pandas and the biodiversity of Mabu and Jamuna*".
Mr Bal Bahadur Limbu said, " Kirat priests (Phedangba and Nuwagire), elders, women and traditional healers play important roles in decision-making such as village meetings for collective decisions to declare the forest patches that should be protected, deciding that they are under threat and ensuring that good water sources and bamboo forests provide a good habitat for Red pandas. The meeting prepares the work plan and also decides on the division of work to conserve the Red panda's habitat. In the Kipatiya Pratha, the individual obeys the collective decision to care for the Red panda's habitat (Pudekudo ko Basthan) and natural resources. If any member of the society tries to disobey the decision or misuse it, he or she will be punished. Kipatiya Partha maintains a good governance system for Red panda habitat conservation, controlling poaching, hunting, fire control, use of resources, and it has its own punishment tradition. If somebody acts in a way that disobeys tradition or hunts the Red panda, then they call him or her into a meeting and inform the person not to do this because it is important for society. If the person continues hunting or disobeying or ignores the decision then they will receive further punishment, such as a fine or becoming a social outcast (the person will not be allowed in any kinds of social functions). Also no member of the society will join in any social gathering with the outcast family. If the person didn't know about the decision then s/he will only be accused once. It is these social norms and values that create a good governance system".
Birkha Tamang 45, said, "Tamang culture has a 'Choho' Traditional institution of Tamang, to help take care of the forest, Red panda habitat, historical areas and resources, and the head Lama (Buddhist) plays a valuable role in the decision-making for the use and protection of Red panda habitats. The Red pandas were not hunted because it looks like a nice animal and did no harm to domestic animals and crops".



Traditional knowledge, traditions and customary practices of indigenous peoples associated with the Red panda's ecosystem and genetic background have not yet been documented.

Indigenous peoples figured out that Red pandas in the wild rely mostly (90 percent) on bamboo for food, followed by 3 percent on fruits, 2 percent on insects, 1 percent on crops and 3 percent on other **(source:** Focus group discussion).
Respondents said, "The existing bamboo forest in the areas are experiencing poor growth, they are damaged by wildfire, flowers dying, drought and disappearance of water sources in the boreal forest and other anthropogenic disturbances such as over-collection of non-timber forest products, local development like road construction, human encroachment, local tourism because of Red panda researchers and documentary makers from foreign countries". Therefore, indigenous communities are protecting the bamboo forest ecosystem inside the boreal forest with controlled wild fire, and restoration of water sources,
Mr Budhi limbu 56 and Bir Tamang 46 said, "We make a fire break line and check it for further burning, people keep a rotation to watch the fire and inform everyone to control the fire. They are also protecting water sources with planting and restoring natural ponds that can help to preserve the bamboo forest for Red pandas.
Traditions, myths, beliefs and customary practices associated with Red Pandas were analyzed and broken down in this graph (Figure-3).

Peoples do not hunt Red pandas because they think they look nice, calm and beautiful, also religion and customary systems have prohibited them from killing or hunting them since before they knew they were endangered.
However, indigenous peoples of the areas, despite the importance of their traditional knowledge and CSU, have no knowledge of the Aichi Biodiversity Targets or national strategies.

Source: *Bantawa, Krishna and Sherpa, Finju*

Another example is the White Eared-Pheasant, which is actively conserved by communities in China through a strict hunting prohibition and conservation of its habitat in the form of sacred sites that are protected by nearby villages and Buddhist monasteries[69].
In Namibia, community-based conservancies have proved to be the vital link to re-establish thriving wildlife numbers and ensuring the safe passage of migrating animals throughout the year. The Equator

Prize winning Torra Conservancy has successfully improved the conservation status of endangered species such as the black rhino and Hartmann's mountain zebra through a wildlife guard system that conferred authority to combat poaching and monitor endemic animals to Riemvasmaak community members appointed by traditional elders. At the same time a successful community-private sector partnership for ecotourism, sustainable hunting quotas and live game sales created sustainable livelihood opportunities for local communities[70]. The Kinabatagan Orang-utan conservation project in Borneo and the Tree Kangaroo Conservation Program in Papua New Guinea are other examples of inclusive community-based conservation approaches that highlight the importance of involving local communities[71].

Actions to enhance progress

The lack of progress on reducing extinction rates documented in GBO4 illustrates that there is a need for changing and diversifying strategies for conserving endangered species, which should entail moving away from exclusionary "reserves" approaches towards biocultural conservation[72]. As the examples above illustrate, indigenous and local communities can be strong allies in the conservation of threatened species and should be recognised as equal partners and their expertise respected.

Specific actions that are recommended are:

- Recognize communities' customary lands and support community initiatives for endangered species conservation: Many endangered species can still be found on communities' lands as they have been successfully conserved by them.
- Train communities to identify and monitor threatened species (e.g. training in IUCN red lists, collecting of GIS data points and mapping) as communities may not be aware that species on their lands cannot be found elsewhere.
- Provide financial support for community-based monitoring activities to identify priority areas as well as gather information on trends in endangered species and effectiveness of conservation initiatives: communities are well placed to monitor threatened species due to their deep understanding of the local flora and fauna.
- Enable full community ownership and engagement in conservation actions on their lands.
- Support communities' initiatives to address direct causes of the decline of threatened species, such as: initiatives to stop land conversion (see Target 5), challenge over-exploitation (see Target 6 and 7), reduce invasive alien species (see Target 9) and environmental pollution (T8).
- Support community in-situ conservation projects where possible such as community breeding projects: while sometimes the only solution, ex situ conservation projects can be disempowering for communities and can fail due to insufficient understanding of species' requirements (e.g. several specimen of the critically endangered Sumatran rhinoceros slowly starved to death in zoos because they received unsuitable food[73]).
- Promote the cultural and spiritual values of threatened species where applicable.

TARGET 13

By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Key message: Indigenous peoples and local communities' knowledge, practices and food production systems contribute significantly to genetic diversity by helping to maintain a wide variety of crops, wild relatives and animals. Women play a particularly important role as collectors, savers and managers of seeds. Many of these genetic species are integral to IPLCs cultural and social well-being. These practices must be respected and supported and not undermined.

Implications of the global trends for indigenous peoples and local communities

The 5th national reports to the CBD that were assessed for GBO4 have focused primarily on conserving the genetic diversity of cultivated plants, with few reports providing information on measures to conserve the genetic diversity of livestock or crop wild relatives[xii]. Insufficient data was available to evaluate progress in maintaining the genetic diversity of socio-economically and culturally valuable species[5]. The GBO4 conclusions suggest that on global and national levels there is not enough knowledge and data about genetic diversity initiatives on the ground by local farmers and livestock keepers like pastoralists, in particular regarding species that have significant cultural or socio-economical values such as traditional medicines and non-timber forest products.

GBO4 also noted that, despite their importance, there is limited support to ensure long term conservation of traditional crop varieties in the face of "changes in agricultural practices and market preferences". Small scale and traditional farmers are experiencing increasing pressure to move towards monoculture/cash cropping and 'settled' farming instead of traditional farming, and suppression of or lack of support for alternative forms of agriculture, such as shifting cultivation (see chapter 15). Similarly pastoralists are confronted with attempts to settle them down (see chapter 14/15)[74]. Threats to the long-term conservation of local varieties of crops also exist in the form of commercial seed sector activities and privatization of plant breeding and seed sterilization technologies resulting in restricted farmers' right to save and replant seeds, leading to loss of genetic diversity.

Wild relatives of domesticated crops are increasingly threatened by habitat loss, fragmentation, climate change; and genetic diversity of domesticated livestock is eroding - a trend which is projected to increase[5]. These circumstances also negatively affect many communities' continued food and dietary sustenance and cultural and social well-being.

[xii] Crop wild relatives (CWR) are wild plant species that are genetically related to cultivated crops. Untended by humans, they continue to evolve in the wild, developing traits – such as drought tolerance or pest resistance – that farmers and breeders can cross with domesticated crops to produce new varieties. CWR have been used to improve the yields and nutritional quality of crops since the beginnings of agriculture.'
http://www.bioversityinternational.org/cwr/

Contributions of indigenous peoples and local communities towards the target

Around the globe, IPLCs contribute to the maintenance of genetic diversity (see the description of Terra Madre in Target 1), including plants, animals and wild relatives, with a focus on species that have a special cultural or socio-economic significance.

The story of the Potato Park in Peru (below) showcases a specific example of a group of indigenous communities working together to preserve many hundreds of varieties of potatoes as well as wild relatives and other crops. This holistically managed biocultural territory is helping to ensure that both traditional knowledge and genetic diversity are preserved for future generations.

The story of the Potato Park
By Walter Quispe Huilcca[xiii],
Paru-Paru Community, Potato park, Cusco; Peru

We are potato farmers and papa arariwa[xiv], passionate in the conservation of our native potato diversity now and for our future generations. I live in the Community of Paru Paru. My community is one of the six communities that make up the Potato Park. Established in the year 2000 in collaboration with Asociacion ANDES.[xv] Our home is located near Pisaq, Cusco, in the heart of the Sacred Valley of the Incas.

The Potato Park is an Indigenous Biocultural Territory. We call it "Papa Ayllu" because it is modeled on the Andean Ayllu system[xvi], which is a holistic community where humans (and domesticated species), the wild, and the sacred, live together in harmonious and reciprocal co-existence. This model is key for maintaining the habitats and the evolutionary processes that have created the potato germplasm. The Ayllu model helps us to maintain potato genetic diversity along with other domesticated and wild species, and the diverse habitats where they thrive, and in turn this helps to keep healthy wildlife, pollinators, etc. and we have better decomposition of organic matter and better soil fertility. Thanks to our Ayllu system, which is part of indigenous knowledge, and to the potato diversity we keep, our communities and our mountain ecosystem are resilient, even in these times of rapid changes.

My land, Peru, is a diversely blessed territory. Our mountains have marked variations in elevation and microclimates and the efforts of our ancestors over thousands of years have made this land one of

[xiii] Walter is a Quechua farmer and Coordinator of the Potato Park's Participatory Plant Breeding Program
[xiv] In Quechua *papa arariwa* refers to "guardians of the native potato".
[xv] Association for Nature and Sustainable Development (ANDES) strives towards sustainable indigenous communities in the Peruvian Andes by building local capacity for the protection of their biocultural resources, knowledge, and rights.
[xvi] The Ayllu's three elements, auqi (the sacred), sallqa (the wild) and runa (the domesticated) are bound together through reciprocal relationships known as ayni. Ayllu and ayni celebrate ecological systems that support agricultural activity.

the world's most important centers of plant domestication: our grandfathers domesticated and diversified potatoes, maize, peppers, cotton and cassava, these are just some of the crops that Andean indigenous farmers have given to the world. We have adapted and farmed diverse crops in all altitudes[xvii]: at higher altitudes we farm roots and tubers crops like potatoes, yacon[xviii], oca[xix] and maca, and grains such as quinoa; maize and vegetables thrive at middle altitudes; and at lower ranges we farm tropical crops such as cassava and fruits. We have also been blessed with Andean animals like llamas, alpacas, guanacos[xx], and vicuñas[xxi].

For us, however, potato is the most important food crop, over 200 different varieties are known to our peoples in Southern Peru alone. At the outset of the Potato Park initiative we collected 778 varieties from our own, and surrounding communities; later we added 85 varieties through community to community exchanges and donations; 410 were incorporated through a Repatriation Agreement signed with the International Potato Center (CIP) in 2004; through all these efforts the Park has now a collection of 1,430 cultivars in total. In addition, CIP-Potato Park Repatriation agreement has not only restituted the diversity of the Park but also restituted indigenous peoples' rights relevant to the conservation and sustainable use of biodiversity.

Other crops in the collection include unique Andean tubers and grains. The Park harbours 6 of the 9 existing potato cultivated species, 2 semi-cultivated species and 6 wild relatives. We farmers recognize and name all these potatoes as distinct units. I myself farm around 150 cultivars of native potato in my community, all different in shape, color, texture and flavor. They are beautiful. My brothers and sisters do the same in their communities. Our indigenous knowledge, particularly of women, is responsible for the high number of varieties we have in the pool of potatoes varieties used in our fields and kitchens. Women ultimately make the decisions about what variety to maintain, incorporate or discard from the repertoire of varieties we keep in our households. Diversity is concentrated in the Park because it is an area of crop domestication. Here, indigenous farmers maintain not only the germplasm of local varieties of ancestral potato population, but also their wild relatives and the indigenous knowledge and cultural practices that have shaped this diversity for generations.

The Potato Park was established to take advantage of this great genetic diversity and rich traditional knowledge, which is our most precious biocultural heritage, to improve our food security, local economy, and resilience of the agro-ecosystems and thus the wellbeing of the Potato Park communities. Diversity helps us to continue to adapt our potato varieties to the heterogeneous and fast changing environment, and for making them less vulnerable to pests, diseases and to withstand the severe weather conditions we face in the Andes. For managing this great diversity, we have merged in situ and ex situ conservation strategies. Our in-situ conservation approach combines community Seed Banks (which is probably more dynamic than a conventional gene bank because it is actively used by all community members), the conservation of potatoes wild relatives in a Gene Reserve fashion, and the continued cultivation of potato genetic resources in our indigenous farms

[xvii] International Treaty on Plant Genetic Resources for Food and Agriculture
[xviii] Also known as the Peruvian Ground Apple
[xix] Grown primarily by Quechua and Aymara farmers, oca has been a staple of rural Andean diets for centuries. Of all Andean root and tuber crops, oca is considered an important local food for food security because of its role in crop rotations and its high nutritional content.
[xx] *Lama guanicoe*
[xxi] A wild relative of the llama, inhabiting mountainous regions of South America.

where they have evolved. This approach has minimized genetic erosion as well as generating endogenous plans based on traditional knowledge which ensure that genetic variation is secure for the future.

Our efforts to conserve potato diversity have been recognized by the international community. The Repatriation process and collaboration with scientists of the CIP has fostered a dynamic horizontal partnership with other scientists, creating exemplary collaborative partnerships based on written agreements and mutual respect with research centres, including with national and international universities. These collaborations focus on complementarities and on producing new ideas and innovation from the cross-fertilisation of indigenous knowledge and science that benefits the well-being of our communities.

The Potato Park is managed collectively by the Association of Communities of the Potato Park, which is the decision making body. This leadership is an inter-community institution for its collective in coordination with other local institutions that are active at various levels of its governance. These institutions have been effective in fostering local innovations based on their deep knowledge of the local environment and the application of customary rules, norms and protocols. Livelihood and income generation from crop diversity has been achieved by fostering local microenterprises; the generation of benefits through these micro-enterprises has gone hand in hand with the promotion of the maintenance of crop diversity on farms.

Role of women

Women in indigenous and local communities in all regions play a particularly important role in the maintenance of genetic diversity as collectors, savers and managers of seeds. In Guatemala, for instance, the crucial role of Maya women in the department of Huehuetenango in the selection of the types of maize (species and sub-species) illustrates the importance of their work in the conservation of the genetic resource of maize, in particular their determinant participation in the seed selection process, both as material to be sown and as grain to be used as food for its culinary properties. The women have special knowledge of the specific uses and culinary qualities of certain genetic materials and this determines the priority given to their conservation.

Women are not only responsible for selecting the seeds but in most cases they also shell the grain from the cobs in preparation for the following crop cycle. This manual harvest technique represents an intensive phase of artificial selection which allows them to maintain the characteristics of local varieties, as well as giving these women farmers the opportunity to recognize and propagate attractive mutations or new hybrids[75,76].

Recovery of native crops and varieties

Many communities contribute to reversing downward trends in genetic diversity of traditional or native crops by initiating programmes for the recovery of these crops. Examples are found in Ecuador (Puruha people: recovery of native plants), Sri Lanka (recovery of local banana varieties and knowledge and creation of seed banks for local banana varieties) and in Panama (recovery of cocoa). Cocoa has special ritual/cultural value for the Guna people of Panama, it is used for ceremonies, medicine, and food. According to the Guna worldview, the cocoa was one of the first plants the creator sent to earth with great powers. While the cocoa plant has been decreasing due to diseases and pests, the Guna people

are setting up an experimental recovery/cultivation programme for the cocoa seed in community-designated sacred sites called 'Galus'. [xxii]

Pastoralists' contributions to animal genetic diversity

Livestock keeping communities play a crucial role in the creation of breeds and safeguarding animal genetic diversity through social breeding mechanisms. Livestock keepers have developed their breeds to fit a specific set of circumstances (climate, vegetation, parasites, diseases, management system, etc.), and to fulfil certain functions (to provide food, labour, etc.). Selection can be controlled through the use of (temporary) mating control, castration and the removal of unwanted animals. Their livestock production relies on access to grazing land, feed and water sources. If those resources are removed – fenced off as private ranches, converted to cropland, overgrown by scrub, gazetted as nature reserves or made inaccessible by political boundaries – then the ability of these livestock keepers to maintain their breeds plummets. So access to grazing land and natural resources and the survival of the traditional production system are key to the survival of many breeds[74].

Actions to enhance progress

GBO4 recommends promoting public policies and incentives to maintain local varieties of crops and indigenous breeds in production systems, including through increased cooperation with, and recognition of, the role of indigenous and local communities and farmers in maintaining genetic diversity in situ. Building on this recommendation, additional specific actions to enhance progress could include:

- **Promote respect for traditional agricultural systems and methods, including livestock keeping/pastoralism, and provide international and national support** so that their practice remains a viable livelihood option. This crucially involves removing barriers and obstacles to traditional systems and promoting positive incentives such as benefit-sharing with traditional practitioners, and secure access to lands and territories. In addition to ensuring protection for agricultural biodiversity, promoting traditional agricultural systems and the human rights of indigenous peoples in accordance with UNDRIP[xxiii] will help prevent the loss of traditional knowledge and related customary sustainable use, thereby fulfilling the aims of CBD Article 10c. For example, to support pastoralism, services that cater to a mobile lifestyle should be designed or promoted.[xxiv]
- **Support (both financial and political) for on-farm/in-situ conservation by IPLCs:** for instance, for community seed banks and seed exchange networks, seed and animal fairs and other indigenous or community run systems, local microenterprises and fostering and supporting local innovations. There should be a special focus on women's efforts and contributions as primary seed collectors and selectors.
- **Increasing awareness and education on the role of IPLCs towards agricultural biodiversity** and enhance the knowledge base on genetic diversity of socio-economically and culturally valuable species, for instance through facilitated communication and knowledge-sharing between IPLCs, policy-makers, and scientists/researchers, and use of community-based data, following the example from Peru where collaborative partnerships were formed with various parties, focussing on complementarities of different knowledge systems

[xxii] Based on information shared by Yolanda Téran (Ecuador), Onel Masardule (FPCI Panama) and Nimal Hewanila (Niemanee Development Foundation, Sri Lanka).
[xxiii] The United Nations Declaration on the Rights of Indigenous Peoples
[xxiv] See publication "Livestock keepers" for successful models[74]

- **Protect traditional farmers and holders of knowledge on genetic diversity against negative impacts of synthetic biology, GMO crops, commercial seed selection and terminator seeds.**[xxv]

Key resources:

- http://searice.org.ph/
- SEARICE is an important source of information:
  - public information on the contribution and experiences of farmers and communities in PGR conservation, development and use.
  - Advocacy for policies that recognize, support, strengthen and institutionalize community initiatives in conservation, development and use of plant genetic resources (PGR).
  - Research and Analysis of issues, policies and trends at the community, and national and international levels which affect farmers' access, management and control of Plant Genetic Resources (PGR) and local seed systems.
- More on pastoralism: The World Alliance of Mobile Indigenous Peoples (WAMIP) is a global alliance of nomadic peoples and communities practicing various forms of mobility as a livelihood strategy while conserving biological diversity and using natural resources in a sustainable way. http://wamipglobal.org/
- 'In Photo: The Seed-Saving Farmers Who Pass Down Their Land to Their Daughters', 2016, Yes Magazine http://www.yesmagazine.org/people-power/in-photos-the-seed-saving-farmers-who-pass-down-land-to-their-daughters-20160108
- http://www.etcgroup.org/
- Practical action on Agriculture: http://practicalaction.org/food-and-agriculture
- GRAIN on farmer's rights and food security: https://www.grain.org/
- FAO, 2007, Sustainable Agriculture and Rural Development (SARD) Policy Brief 16
- IIED. 2006. Protecting indigenous knowledge against biopiracy in the Andes. Sustaining local food systems, agricultural biodiversity and livelihoods. London, International Institute for Environment and Development

[xxv] See ETC Group in Further Resources

TARGET 14

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Key message: Ecosystems that provide essential services to indigenous peoples and local communities are primarily their customary lands, territories and resources. These serve their multiple needs in relation to subsistence and food supply, health, spirituality, identity and culture, and is also reflected in their own holistic approaches to safeguard and conserve these territories. Often these lands, territories and resources are being alienated and exploited to provide services and products to others, while restricting access to parts of their territories and resources, thus adding to IPLCs' vulnerabilities . The linkages between this target and securing the customary rights of IPLCs over their lands, waters, and resources require greater attention and efforts, so that IPLCs can fully benefit and enjoy the ecosystems services from their lands, territories and resources.

Implications of the global trends for indigenous peoples and local communities

The customary lands, territories and resources of IPLCs provide a richness of benefits to them and they have unique relationships with specific territories, referred to as 'ecosystems and habitats' in Target 14[77]. The endorsement of a Global Plan of Action to protect and encourage customary sustainable use of biological resources (article 10(c) of the CBD) by the Parties at COP12 is a milestone that requires active follow-up.

The majority of global trends treat biodiversity and natural systems separately from people and their institutions or social systems. This contrasts with how most indigenous peoples and local communities conceive of their relationship with their territories: their social systems are coupled with the natural systems with which they co-evolve[78].

A deeper understanding of the integrated and complex nature of social –ecological systems could enhance implementation of, and improve monitoring and reporting on the target[xxvi], supported by studies and information-sharing by IPLCs themselves (see section below). The Satoyama Initiative is an example of a process that has taken a more inclusive approach and offers useful tools to better understand and support "socio-ecological production landscapes and seascapes"[79].

There is global acknowledgement that recognition of customary property rights, in particular access to and control of resources, is critical for sustainable livelihoods and for reducing poverty and vulnerability. [xxvii]. The new post-2015 sustainable development goals include an indicator on the secure rights to land,

[xxvi] GBO-4[5], page 96-97, stated concluded that there is little sign of progress towards meeting this target, and that in particular the target element on the needs of local and indigenous communities, women, the poor and vulnerable appears to be moving in the wrong direction. In the national reports assessed for GBO-4 there was little mention of the needs of these target groups being taken into account.

[xxvii] The World Bank hosts an annual conference on Land and Poverty; in 2015 this conference focused on "Linking Land Tenure and Use for Shared Prosperity";
see http://www.worldbank.org/en/events/2014/08/06/landconference2015.
According to the FAO "access by the poor to natural resources (land, forests, water, fisheries, pastures, etc.), is essential for sustainable poverty reduction. The livelihoods of rural people without access, or with very limited

property, and natural resources.[xxviii] Because most IPLCs do not have full legal recognition of their rights to their territories, lands and resources, they are faced with restricted access to their lands, waters, and resources and with exploitation of their territories (e.g. forests, rivers) to provide essential services and products (water, irrigation and electricity) to others.

Globally various initiatives are emerging that address or investigate issues of community land tenure, and promote recognition of community land rights, including the World Resources Institute (WRI) portal[xxix], the forest tenure database of the Rights and Resources Initiative (RRI) [xxx] and the Global Call to Action on Community Land Rights[80].

Contributions of Indigenous peoples and local communities towards the target

Around the globe indigenous peoples are initiating initiatives like community cultural mapping which encompasses all the ecosystems/ biomes in their territories and communities that are essential to them, to describe their importance, and they develop plans to set out how they care for their territories. Securing customary lands and gaining recognition of traditional ways of caring for territories and resources is a leitmotif that connects nearly all initiatives.

Such initiatives support dialogues with policy-makers and conservation parties and enhance understanding and awareness about the needs of communities and raise awareness on integrated socio-ecological approaches. Community-based research, documentation and monitoring also generates important information to keep track of trends in land-use change and land tenure in the traditional territories of indigenous and local communities (see also target 18).

Guyana: Wapichan people's plan to secure and care for their lands

The Wapichan people from the South Rupununi District of Guyana (South America) have carried out comprehensive community mapping of their traditional use, occupation and spiritual attachment to their land, and documented their customary use and traditional ways for caring for lands and biological resources[81]. In 2012 the Wapichan compiled a community-based plan for sustainable community-based use and development of their ancestral territory for the benefit of present and future generations. They published this plan, with the territorial map, as Thinking Together for Those Coming Behind Us[82].

These community-based studies describe the Wapichan territorial management and governance

access to natural resources are vulnerable because they have difficulty in obtaining food, accumulating other assets, and recuperating after natural or market shocks or misfortunes."[107]

[xxviii] Percentage of women, men, indigenous peoples, and local communities with secure rights to land, property, and natural resources, measured by (i) percentage with documented or recognized evidence of tenure, and (ii) percentage who perceive their rights are recognized and protected". More information, including on rationale, definition, disaggregation, etc. see http://indicators.report/indicators/i-5/

[xxix] http://www.wri.org/

[xxx] See http://www.rightsandresources.org/resources/tenure-data/ . RRI continuously updates and expands the data from both methodologies. RRI's forest tenure database is now accessible through the **Tenure Data Tool.** This interactive tool makes it easy to compare changes in legal forest ownership from 2002 to 2013 between countries, regions, and lower- and middle-income countries.

system. Customary laws are the backbone of this system, and traditional authorities, including village councils, elders, and District Toshao Councils, play an important role in overseeing these. The territorial plan also describes the multiple services, values and meanings that the ecosystem provides. For instance, respect for spirits beings and their homes is essential for the wellbeing of the communities and the health and abundance of the games and fishes. The Wapichan territory contains many important cultural heritage sites for the communities, where stone axes, arrow heads, beads, pottery and rock carvings and burial grounds are found. The 'Wapichan wiizi' (territory) is home to many animals, reptiles, plants, insects, birds, fishes and other water creatures, many of which are internationally rare or endangered[xxxi].

> "Some add delicacy to our damorudu (pepper pot). Others that we do not eat, beautify our mountains, forests and savannahs. We value certain flowers, birds and insects in our traditional knowledge system as signs of the health of our lands and the environment. We use the activities of wildlife through the year as markers in our Wapichan seasonal calendar. Wildlife also plays a big part in our stories and legends" (p63-76[82]).

The territorial management plan sets out common principles, goals, and customary laws on the sensible use of the land and forest, mountain, grassland and wetland ecosystems. It includes more than one hundred inter-community agreements on collective actions for sustainable land use, customary sharing of resources and community development and livelihood initiatives. It also details hundreds of local wildlife sites for community protection, including proposals to establish an extensive (1.4 million ha) Wapichan Conserved Forest over old-growth rainforest in the eastern part of the territory.

Securing the Wapichan territory (obtaining legal recognition of their traditional territory) is a main goal for the Wapichan and a prerequisite for fully realising and implementing their plans. The existing land titles are very fragmented and do not nearly cover the full extent of the areas traditionally used and occupied by the Wapichan people. Moreover, the Wapichan territory is facing serious external pressures caused by the unsecure tenure situation. To address this, the Wapichan have developed a community-based system for detecting and documenting damaging development, such as illegal mining and logging and generating evidence on the illegal encroachment of cattle rustlers and commercial hunters entering Wapichan territory. The system also monitors ecosystem health (e.g. water quality) and land use change (forest cover etc.). On review of information, collective actions are discussed to address environmental threats and infringements of their rights, including formal complaints to relevant government authorities and agencies[83,84].

The Wapichan have initiated active dialogue with relevant government departments and agencies and commissions (e.g. mining and forestry commissions), to explain their plans and ambitions for continued community-based conservation and care of their ancestral areas, and of their self-determined development based on their own ecosystem/cultural values that attach to the territory. The Wapichan use their maps and information, including the photographic and geo-referenced information and data on traditional occupation and use of the land, to support their community land claims and to point out where the tenure gaps are. These initiatives have led to formal talks between the communities and the government about actions to legally secure their land and forests, and to the prevention and suspensions of impositions of industrial logging and mining concessions on Wapichan land.

[xxxi] E.g. kitanaaru (jaguar), saaro (giant river otter), wichaa waru (bush dog), crested eagle, kawanaru (cock-of-the-rock), udaru'o kokoi (harpy eagle) and dyuwudan uzu (red siskin)

Eco-cultural mapping and eco-cultural calendars in the Tharaka district of Kenya

Communities around the Kathita river in the Tharaka district of Kenya initiated the production of "eco-cultural maps and seasonal eco-cultural calendars", focusing on the practical and sacred role of the Kathita river in the lives of the communities who live alongside it and rely on it. One of the objectives of this initiative was to present, on the communities' own terms, local knowledge and experiences related to the governance of the river, and to support initial dialogues between knowledge systems (see also target 19). The participation process involved different clans who have different management responsibilities but also the National Museum (documentation of stories of the river), and lawyers and social scientists (documentation of traditional ecological law relevant for the governance of the river). An important outcome so far is that the community now has maps of the river, both of the present and future that will contribute to aggregation of the data so it can be added to national data. The river can be gazetted as a sacred river in the future.

Gathuru Mburu of the Institute for Culture and Ecology in Kenya[xxxii]: "Eco-cultural mapping is a community-driven process can make joint problem definition and analysis easier. Also, maps manifest the knowledge and understanding of territory and enable community-based ecosystems assessments, and enable articulation of a set of rights and responsibilities for communities which are reflected in the actions. Eco-cultural calendars support community research to revive socio-ecological systems as they embrace the whole universe. The eco-cultural calendars support plans towards revival of socio-ecological systems, and highlight cross-gender collaboration areas. The eco-cultural calendars are very important for the revival of culture, rituals, cosmovision, etc"[xxxiii].

Subsistence mapping project in Rural Alaska

Another example is a the Northwest Arctic Borough's Subsistence Mapping Project that will produce a nearly 600-page atlas documenting subsistence-use areas (where people hunt, fish and gather by season) and important ecological areas (places where animals feed, breed, raise young and migrate) in seven of the region's coastal communities. With the landscape transforming rapidly due to a myriad of factors (changing climate, increased shipping traffic and a wide array of proposed development), the project is intended to offer a tool for decision makers when it comes to balancing conservation and economic development[85].

Livestock keepers' initiatives in Iran

Livestock keeping is significant not only to the livelihoods of many rural households, but also to the sustainable use of marginal areas. Large parts of the globe can be used for food production only by livestock that are adapted to local conditions such as drylands, mountainous and high- altitude zones. Grazing animals convert the local vegetation in these ecozones into food that can sustain people. Pastoralists and smallholder farmers have developed an array of strategies for the sustainable use of these areas, including sophisticated herd movements and grazing strategies. Their livestock represent a means of extracting value from land that is not suitable for cropping, and generating food without competing for cereals. Agro-ecosystem services provided by livestock keepers and their breeds include the creation of mosaic landscapes and mini-habitats that sustain biodiversity, connecting ecosystems by transporting seeds, improving the water-holding capacity of grassland, reducing the risk of forest fires,

[xxxii] the Institute for Culture and Ecology (ICE) is a national indigenous non-governmental organization[108]

[xxxiii] See Eco-cultural mapping for mobilization of knowledge in a collective action for recovering Kathita river including its natural sacred sites, and its further recognition in local planning and national biodiversity conservation, Gathuru Mburu, ICE, Kenya, presentation available for download: https://www.cbd.int/financial/collectiveworkshop.shtml (session IV).

restoring and maintaining soil fertility through manure and nutrient cycling and mimicking the grazing activities of large wild herbivores.

Among the key needs of pastoralists and smallholder farmers to continue their practice is having secure access to grazing areas and water, and support for their mobile lifestyles. A major problem in Iran is the destruction of the migratory routes of nomadic pastoralists and their cattle. Sedentarisation, nationalisation and privatization of land for construction of refineries, roads/highways, dams, agricultural development, invasion by settled farmers are challenges they are facing. Nomadic tribes in Iran are now taking initiatives to create their "bio-cultural indigenous territories" or ICCAs (see also target 11) and seek recognition of these areas. They map customary boundaries and restore customary governance systems. The Shahsevan tribe for instance are now organized and have registered their tribal confederation with the Ministry of Justice. This has led to government recognition. Steps are being taken to recognize their territory as a basis for participatory planning.[xxxiv]

Actions to enhance progress

- Support (including financial and technical) community initiatives such as community mapping and documentation that help in the global identification and monitoring of those lands, territories and resources that are particularly important in providing essential benefits to vulnerable groups.
- Support to IPLCs' efforts, solutions and proposals for restoration and safeguarding of their lands, territories and resources and prioritize implementation of the Plan of Action on customary sustainable use (see also Target 18).
- Take a more holistic, integrated view on "ecosystems/habitats that are essential for human well-being " and initiate respectful sharing of knowledge and collaboration across sectors, scales and knowledge systems.
- Policy-level action to create enabling environments for ensuring that IPLCs fully benefit from their lands, territories and resources, in particular tackling land tenure security.

Key resources:

- Fred Pearce, "Where they stand" (2015) **details how Wapichan people in South America use modern technologies in their struggle to secure land rights[86].**
- Customary sustainable use of biodiversity by indigenous peoples and local communities: Examples, challenges, community initiatives and recommendations relating to CBD Article 10(c), **Case Studies and Synthesis Paper (**Forest Peoples Programme 2011[77]). http://www.forestpeoples.org/customary-sustainable-use-studies

[xxxiv] FAO. 2009. Livestock keepers – guardians of biodiversity. Animal Production and Health Paper. No. 167. Rome. (in particular the summary and pages 29-40).
Indigenous Nomadic Pastoralist Territories Indigenous Nomadic Pastoralist Territories as Community Conserved Rangelands as Community Conserved Rangelands– – Iran. Presentation by Dr M Taghi Farvar, Secretary General, WAMIP (World Alliance of Mobile Indigenous Peoples) and Chair, IUCN CEESP. https://cmsdata.iucn.org/downloads/icca_presentation_poble_shahsevan.pdf
Poverty eradication through biodiversity and territorial rights: indigenous nomadic tribes of Iran rise to the occasion. Presentation by Dr Taghi Farvar Member, Council of Elders, UNINOMAD President, ICCA Consortium Chair, CENESTA at the CBD Poverty & Biodiversity Expert Group Madras, December, 2013. https://www.cbd.int/doc/meetings/development/egm-bped-02/presentation/Best%20Practices_IPLC%20presentation.pdf

TARGET 15

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Key message: Indigenous peoples and local communities have made major contributions towards conserving carbon stocks and increasing socio-ecological resilience to environmental change. Resilient ecosystems are closely linked to resilient communities and socio-ecological resilience needs to be addressed in a holistic manner to safeguard against top-down restoration and sequestration strategies that could curtail communities' access and sustainable use of biodiversity. Traditional knowledge plays an important role in increasing the effectiveness of ecosystem restoration and enhancing resilience as well as carbon sequestration. Supporting communities' initiatives for ecosystem restoration not only contributes to the achievement of this target but can also provide multiple benefits (including livelihood benefits) to communities.

Implications of the global trends for indigenous peoples and local communities

Globally, some progress has been made towards restoring degraded ecosystems but there continues to be a net loss of forests, a major global carbon stock. GBO4 highlights that ecosystem restoration not only presents numerous opportunities for carbon sequestration but also for providing associated benefits to people, in particular indigenous peoples and local communities[5].

Non-achievement of this Target could have severe negative impacts on indigenous and local communities. States' failures to safeguard against environmental degradation and to restore degraded areas has, in some cases, threatened the very lives of indigenous peoples and local communities who obtain water and food directly from the surrounding ecosystems (see also Target 8). Moreover, resilient ecosystems are closely linked with resilient communities, requiring a holistic approach addressing the resilience of complex socio-ecological systems. Top-down initiatives for carbon sequestration or strict forest protection that limit communities' access and use of ecosystems that they depend on can pose a significant threat to communities' wellbeing (see also Target 5).

Contributions by indigenous peoples and local communities towards the target

Indigenous peoples and local communities' customary practices and traditional knowledge provide useful examples of ecosystem approaches to effective adaptive resource management (see also Target 14). Communities contribute towards achieving this target through their actions to restore degraded ecosystems, enhance ecosystem resilience, and conserve and increase carbon stocks.

The role of traditional knowledge in ecosystem restoration

Traditional knowledge can provide many contributions to ecological restoration, including in the construction of reference ecosystems, particularly when historical information is not available; species selection for restoration plantations; site selection for restoration; knowledge about historical land management practices; management of invasive species; and post-restoration monitoring. A recent review of the applications of traditional knowledge in ecological restoration found that incorporating traditional knowledge not only contributes to strong partnership building for the successful implementation of restoration projects but also increases their ecological viability, social acceptability and economic feasibility[87].

A concrete example can be found in Thailand where it has been recognised that the Karen and Lawa's traditional knowledge of swidden cultivation and their deep understanding of fallow dynamics can inform and increase the effectiveness of national plans for assisted natural regeneration of degraded areas[88].

Communities' contributions towards enhancing ecosystem resilience

In many places, communities are taking actions to improve resilience to environmental change by strengthening or reviving their traditional knowledge systems and putting in practice local adaptation and mitigation solutions, particularly in the face of climate change. Drawing on their deep understanding of environmental change, communities have contributed to enhancing ecosystem resilience to climate change by complementing scientific data with chronological and landscape-specific precision based on local knowledge, which has enabled improving climate models and scenarios. Indigenous knowledge also provides a crucial foundation for community-based adaptation and mitigation actions, aimed at enhancing the resilience of social-ecological systems at the interconnected local, regional and global scales[89,90]. The Indigenous Peoples' Biocultural Climate Change Assessment Initiative (IPCCA), for example, developed a toolkit for indigenous and local communities to perform local assessments of climate change impacts and strategies for enhancing resilience[91].

Around the world, traditional agricultural communities are increasing climate change resilience through their management of biodiversity at various scales, creating dynamic landscape mosaics of fields, gardens, orchards, pastures and ecosystem patches. In Rajasthan, India, patches of vegetation considered as sacred groves were maintained to protect water sources crucial to agriculture. The degradation of sacred groves and associated water management schemes has severely impaired water availability. A local initiative started two decades ago with the aim of reinstating traditional rainwater-harvesting systems in the Alwar district of Rajasthan, has catalysed rebuilding of thousands of small-scale irrigation systems, contributing to improved water availability for irrigation and watershed restoration at the landscape scale, despite recurrent drought and other stresses[92].

In Ethiopia, communities of the Bale Mountains, Sheka forest, Foata Mountain complex and Wechecha Mountain Complex have been using participatory mapping to mobilize knowledge related to their territories and lands in order to strengthen socio-ecological resilience and better understand environmental change. Creating eco-cultural maps of their lands not only served communities as the basis for revitalizing traditional ecological knowledge but also led to plans for rehabilitating degraded ecosystems, thus strengthening social cohesion around a common purpose, and further boosting communities' resilience and capacity to respond to environmental change[93].

Box XX: ***Community-based vulnerability and resilience mapping and adaptation practices, Sundarbans, Bangladesh (photos available)***

Authors: Unnayan Onneshan

The communities around the Sundarbans (Bangladesh) are continuously struggling to sustain their livelihoods. Most of the community members are entirely dependent on the Sundarbans' mangrove forest but forest degradation (caused by overwhelming pressure on its resources), recurring cyclones, salinity intrusion, floods and other factors are contributing to increased vulnerability of the traditional resource users in the Sundarbans area. With Unnayan Onneshan's support, a local research team and the communities put together a damage assessment report on cyclone Aila that hit the South-Western coastal region of Bangladesh on 25 May 2009, and a follow-up report that provides insight in the socio-economic and environmental situation of the affected people in the affected regions one year later[94].

It was very important to identify the vulnerability of the traditional resource users and to map the current and potential threats (such as flooding). Communities carried out vulnerability mapping exercises and participatory research on vulnerabilities to disasters and associated livelihood insecurities in three areas. Elders and experienced collectors from different occupations (honey collectors, fishermen, *golpata* (Nypa palm fronds) collectors) collaborated to point out the areas that are most vulnerable to flooding and other threats. Resource collection areas were grouped into three zones: a green zone where resources are abundant; a blue zone where resources are decreasing; and a red zone where resources have decreased considerably. They also identified factors relating to resource degradation. The research data they gathered was used to prepare vulnerability maps to indicate which areas need special conservation attention and which areas can be used for resource collection (and to what extent). These maps are used for advocacy with the forest departments, who often have a different view on the vulnerable areas and therefore direct inappropriate action (for instance they ban access to the wrong places).

The same research initiative also investigated the community based adaptation approaches and listed their main features, limitations and opportunities. In total the study has documented 47 adaptation practices that respond to livelihood and water scarcity and structural scarcity, and created resiliency to tropical cyclones, storm surges and salinity intrusion. Two examples were sunflower and crab cultivation, both activities that have been spontaneously developed by the traditional forest users who were noticing the gradual decrease of forest coverage and resources due to climate change and other anthropogenic interventions.

In particular, research has focused on 'community mangrove aqua-silvi-culture' or agro-silvi-aquaculture, a community-based adaptation tool and an alternative to traditional shrimp cultivation. Communities affected by natural disasters in coastal areas in Khulna, Satkhira and Bagerhat districts, have attempted to cultivate mangrove species in swampy lands with brackish water that are affected by increased salinity and have become unproductive for food crop production. In this newly developed practice, mangrove species are growing along with fish, ducks and vegetables. Such innovative community based mangrove forestry reduces pressure on the Sundarbans by providing forest resources as well as secured livelihood through generating multiple incomes. Following small-scale advocacy programmes at local level to popularize the Agro-Silvo-Aquaculture model, many *Bawalis* (traditional woodcutters) have started practicing Agro-Silvo-Aquaculture in their private or leased land and are able to improve their livelihood conditions.

For more information see: http://www.unnayan.org/

Communities' contributions towards enhancing carbon storage

A significant number of international research projects in forest commons have stressed the positive links between high carbon storage and greater decision-making power at the local level. Increased legal recognition and government support for community forest tenure enhances carbon storage benefits by enabling communities to exclude loggers, extractive companies, and settlers from destroying their forests and releasing carbon into the atmosphere. It has also been shown that communities restrict their consumption of forest products when they own forest commons, thereby increasing carbon storage[95–97].

Emerging evidence shows that community forestry is one of the most effective management regimes for carbon sequestration[xxxv] (see also Box XX on carbon sequestration). Other forms of forest protection and sustainable forest use by indigenous peoples and local communities also contribute to carbon sequestration (e.g. community-conserved forests, see Box XX on HCS forests in Kapuas Hulu and Target 14 on the proposed Wapichan Conserved Forests).

Box XX: ***Community-based documentation of positive contributions of traditional rotational farming to carbon sequestration and ecosystem resilience, Thailand*** (photos available)
Authors: Prasert Trakansuphakon, IKAP

The Indigenous Knowledge and Peoples network (IKAP), a regional network of indigenous communities throughout mainland montane Southeast Asia and IMPECT, a network of indigenous peoples inhabiting the northern part of the country, have carried out detailed research during the past two decades in three areas in Chiang Mai province where rotational farming is practised. Rotational farming is an agro-forestry practice where a selected patch of land is cleared, the vegetation is dried and then carefully burned. Then, the land is cultivated and, after harvesting, left fallow for a long period (generally 7-10 years) to regenerate. This practice involves deep cultural and spiritual relationships between the people and the environment and follows many customary rules and regulations.

Traditional rotational farming methods, also called shifting cultivation but often as a pejorative term, have in past decades often been misunderstood and blamed for forest fires, releasing carbon into the atmosphere, and forest destruction. The research done by IKAP and IMPECT has demonstrated the role of rotational farming in providing sustainable livelihoods, food security, resilience of agro-forestry systems and increased biodiversity; they also highlighted the contribution to carbon sequestration with concrete numbers, and proved that this traditional practice is more sustainable and less destructive than commercial agricultural methods. It also showed that rotational farming stores much more carbon than it emits[98].

The research involved community monitoring of Karen farming areas in Ban Mae Lan Kham[99] and Hin Lad Nai[100] using a stock-based approach to analyse above-ground carbon. The net carbon storage from fallow fields, covering 236 ha, left to recover for up to 10 years, accounts for 17,348 tons C, while CO2 emissions from the burning of fields amounts to only 480 tons C. The research also documented a large number of edible plant species that grow or are planted in each successive year during the 7 to 10 year fallow period, all of which significantly contribute to food security and sustainable livelihoods, as well as diverse species of fauna that find food in and are attracted to the fallow plots.

The data contributed to a change in government and media perspectives and to the adoption of a Thai Government Cabinet Resolution for the Revitalisation of the Karen Way of Life in 2010 and its subsequent implementation, thereby providing policy support for the maintenance and revitalisation of particularly important customary practices in Northern Thailand.

[xxxv] See for instance interview with Regan Suzuki of RECOFTC in the video “Community Based Forest Management: Local Solutions to Global Challenges” (AIPP 2014), https://www.youtube.com/watch?v=fAz0_NlxMuM&hd=1

Actions to enhance progress

As illustrated by the case studies, actions promoting customary sustainable practices and traditional knowledge systems of indigenous peoples and local communities can be a very effective strategy for increasing carbon sequestration, resilience and ecosystem restoration. Progress on this target could be enhanced by:

- Placing urgency on the implementation of the CBD Plan of Action on Customary Sustainable Use.
- Providing support to community initiatives, including ICCAs, that contribute to the elements of this target.
- Supporting community-based mapping initiatives that contribute to the identification of vulnerable areas and the development of land–use plans that ensure or promote the protection and sustainable use of biodiversity.
- Supporting communities to take the lead in identifying opportunities and priorities for restoration, taking into full account the current use of land and resources.
- Exploring both market and non-market mechanisms to incentivise the sustainable use, conservation and restoration of ecosystems, particularly those critical for carbon sequestration (see also Target 3).
- Promoting an integrated landscape approach with rights-holders and stakeholder engagement that includes meeting the long-term socio-economic needs of indigenous peoples and local communities.
- Consider the adoption of an indicator on socio-ecological resilience for Target 15. The recent initiative by the UNU Institute for the Advanced Study of Sustainability on developing a Toolkit for Resilience Indicators in Socio-ecological Production Landscapes and Seascapes could serve as a useful starting point[101].

TARGET 16

By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Key message: The successful implementation of the Nagoya Protocol can provide opportunities for the recognition of TK and the provision of fair compensation for indigenous peoples and local communities (IPLCs) by all Parties. However, in order to ensure positive outcomes for IPLCs, implementation must focus on recognition of IPLCs rights, capacity-building, guidance on prior informed consent (PIC), education and provision of resources (financial and legal) to ensure that benefits flow to IPLCs and that human rights are protected during the creation of access and benefit-sharing systems (ABS).

Implications of the global trends for indigenous peoples and local communities

The Nagoya Protocol has been operational since October 2014, thereby meeting the Target in advance of the proposed deadline, and has been ratified by 72 Parties to the Convention on Biological Diversity at the point of writing[102].

The Nagoya Protocol as the binding international framework that affirms and respects rights of IPLCs over their traditional knowledge (TK) associated with genetic resources has the potential to open up opportunities for benefit-sharing, the recognition of customary law and local governance and respect for PIC. It addresses TK and the role of IPLCs in its provisions on access, benefit-sharing and compliance. It also addresses genetic resources where IPLCs have established rights over them. Essential for its implementation is the recognition of the rights of IPLCs by user-country governments.

An indigenous representative from Ecuador noted:
'From my perspective [...] the major difference that I can find between the Nagoya Protocol [and other international guidelines] is that it feels like an an internationally binding instrument for establishing better rules on just and equitable distribution of benefits for access to genetic material and traditional knowledge. Another aspect that also seems important to me [...], which is very linked to the distribution of benefits, is the recognition of the right to prior informed consent of indigenous peoples for access to traditional knowledge and even prior informed consent for indigenous people when the genetic resources are in indigenous territories.
With regards to the effects on indigenous peoples, at least in the Latin American region, who have not got any examples or case studies on genetic resources that incorporate the associated traditional knowledge [or they are only referred to in broad terms in national strategies] [...] we are instead building what we call 'Biocultural Protocols', for the conservation, protection and access to traditional knowledge, so that they will have management tools for this knowledge.'

Contributions and experiences of indigenous peoples and local communities toward the target

IPLCs, such as the Khoi San, the Kuna and some indigenous groups in Peru, have already begun the process of utilising the Nagoya Protocol for the recognition of their TK of genetic resources. However, this process requires knowledge, funding and resources. The legal knowledge of the organisation

Natural Justice, along with funding provided by outside institutions enabled the Khoi-San Council to mount a legal challenge to the Rooibos Tea Industry's use of Rooibos and Honeybush tea.

For the indigenous groups in Peru that form Potato Park (see Target 13), the process of implementing benefit-sharing for their TK and the biologically diverse genetic resources of Potato Park involved the creation of a Biocultural Community Protocol including: training indigenous researchers with the provision of funding and educational resources from IIED and Asociación ANDES; and capacity-building, extensive meetings, consultations and research on the process of free, prior and informed consent.

The process included three phases:
1. Identifying community norms and customary laws on benefit-sharing
(Literature review, thematic working group work, study groups, participant observation)
2. Consultation, discussion, revision and negotiation of the inter-community agreement: In this stage, the main objective was to expand community participation and control in the BCP development process.
3. Final consultation and validation of the inter-community agreement.

This IIED-supported process focused on creating an equitable ABS model with IPLCs rights over and self-determination of their biocultural heritage as the foundation[103].

Interview on the Rooibos Restitution for the Khoi-San

The Khoi and San (collectively known as Khoi-San) peoples[xxxvi] self identifies as indigenous peoples of South Africa. They occupied the region for thousands of years. They later encountered and integrated with other indigenous African peoples who migrated from the great lakes areas to the southern parts of the continent. With the National Party enforced apartheid from 1948-1994 in South Africa, the Khoi-San identity was completely erased by forcing them into the racial category of "Coloured." This resulted in the Khoi-San not being able to maintain their identity as an indigenous community with a distinct ethnic composition. This was done purposely to dispossess them of their land, culture, traditions, languages, heritage and natural resources. Official statistics in South Africa still reflect the apartheid typology of race and language and do not reflect the presence of Khoi-San people in South Africa.

The National Khoi & San Council (NKC) comprises the five main Khoi-San groupings named (i) Nama, (ii) San, (iii) Koranna, (iv) Griqua and (v) Cape Khoi. The mandate of that council was to serve as a negotiating body between Khoi-San indigenous peoples of South Africa and the government.

There is currently a Bill in parliament (the 'Traditional and Khoi-San Leadership Bill') that will finally give recognition to Khoi-San people as traditional communities with traditional structures and institutions.

[xxxvi] Note on the terminology of Khoi-San, Khoi and San, Khoikhoi:
The term "Khoi-San" generally refers to the two groupings, Khoikhoi and San. The term Khoi-San was initially used as a collective term to refer to the languages of the Khoi and San. The Khoi-San revivalist movement today, commonly refer to themselves as Khoi-San or Khoesan. These two groupings have a shared history as the indigenous peoples of South Africa; shared languages; geography; and cultural values for the most part; as well as similar genetic ancestry. Different people throughout history interpreted the Khoikhoi and the San as separate due to their different forms of livelihoods. The San generally lived as hunter- gatherers whereas the Khoikhoi at some point took on pastoralism as a form of economy. 'Khoi' is also spelled Khoekhoe (in terms of the Khoekhoegowab language) or Khoikhoi. In terms of the official SA government reports called the Status Quo reports 2000, they are mainly grouped as Nama, Griqua, Cape Khoi and Koranna. They were called 'Hottentots' and referred to as such in several South African colonial laws. The South African San is grouped largely into Khomani, !Xung; and Khwe. In Southern Africa however, the San groupings are much more diverse. They for the most part prefer to be called by their traditional groupings' name or either San; bushmen.

Q: What are some of the various roles Rooibos and Honeybush play in the communities?

Cecil (National Khoi and San Council): Just as the NKC focused on legal recognition in terms of an Act, in the same way the NKC in the last three years has put special emphasis on the issue of recognition of indigenous knowledge pertaining to biological resources such as plant material, here we are referring to plants that the Khoi-San people have used historically over the ages for livelihood, medicinal, food and health purposes, for skin care etc. In this regard the Rooibos tea and Honeybush are examples of plants known to the Khoi-San [...] long before European colonisation.

The Rooibos and Honeybush are used as commercial commodities by big companies for both pharmaceutical and cosmetic purposes, supplying a huge Rooibos tea industry both locally and internationally. [...] For more than 100 years now, this trade went on without the recognition of the indigenous knowledge and the rights that accompany it. With the Nagoya Protocol coming into force the Rooibos industry now [has] a legal obligation to share benefits with the Khoi-San community as the associated traditional knowledge holders.

There are still largely historical Khoi-San communities residing in the Cederberg mountain range stretching through the Western Cape into parts of the Eastern Cape and even a small part of the Northern Cape. These communities are the people who held knowledge on the uses and farming of Rooibos without interruption over the ages. The broader Khoi-San people moved away from these historical areas where the tea grows naturally as time went on. Some of them remained as communities in these mountains and are still practising the old and the new ways of harvesting and trading.

The NKC started to engage with our South African Rooibos industry to persuade them to recognise the indigenous knowledge of the Khoi-San people in terms of paying benefits to these communities. We found it extremely difficult to engage with the Rooibos industry due to the lack of legal knowledge on the side of the NKC and [...] as a result [...] we came in touch with Natural Justice (NJ). We became engaged in negotiations supported by NJ and funding institutions such as OSISA[xxxvii] and together [...] [they] decided that they will support the NKC to fight for the acknowledgement of the associated traditional knowledge of the Khoi-San people with regard to Rooibos and Honeybush.

From Lesle (NJ): The SA government conducted a study on the traditional knowledge (TK) associated with Rooibos in South Africa. The objectives of the study were:

(i) Conduct an ethnobotanical study on the origin of TK associated with Rooibos and Honeybush species;
(ii) Investigate and analyse information on the original distribution of the species in SA and link it with the existing associated traditional uses by indigenous and local communities.
(iii) Investigate and reveal how the TK associated with these species as an information source has provided valuable leads into the scientific and commercial environment; and
(iv) Make recommendations on the existence and legitimate ownership of TK associated with Rooibos and Honeybush species in SA.

The study confirmed the evidence [...] that one could conclude the indigenous and genetic resources were being utilized for tea in the Western cape for over 150 years ago. The originators of the knowledge of the use of the Rooibos species were with the Khoi and the San people. These communities still living close to the resource show a long history (over 300 years) with this resource. Knowledge of the uses of the species is passed orally from generation to generation [...] [including] harvesting and preparation practices currently used for Rooibos species [...]. The report concluded that, the fact that these species are endemic only in certain parts of the country, combined with the

[xxxvii] Open Society Initiative of Southern Africa

fact that Khoi and San populations were resident in these areas for centuries before the arrival of the settlers, and that the industry has evolved and expanded in these particular areas largely supports the communities' perception that the TK for Rooibos rests with the communities who originate in these areas.

Cecil: The NKC first became aware [of Nestle's intention to biopatent the use of Rooibos and Honeybush] through the work of NJ and the film they produced around this matter.
The San people, under the leadership of the South African San Council (SASC), and assisted by their legal representative Roger Chennells, negotiated benefit sharing agreements around certain plant species (such as Hoodia) where the San community's associated TK was affected prior to the NKC coming on board. We then entered into a MOU[xxxviii] agreement between the NKC and the NSC to establish a legal negotiating team consisting of members of both councils. Together we work towards the goal to bring the Rooibos industry to the negotiation table to persuade them to comply with the law around recognition of the TK of the Khoi & San and their responsibility around benefit sharing.
It is a very difficult issue [biopatenting] for we are not dealing with an isolated community, the impact is widespread to include all the Khoi-San communities. So it is difficult to visualise the impact it would have had.
We did meet with Nestle more than once and had open discussions around the issue. We perceived Nestle as an honest and bona fide negotiator. At the time when the NKC became involved in the discussions, Nestle were already willing to recognise our TK and to conclude an agreement.
Nestle approached the Khoi and San during 2014 for a South African product they intended to develop where the species Rooibos is being used. A benefit-sharing agreement was subsequently signed between Nestle and the NKC and the SASC. It was a big relief that Nestle was so willing to comply with their benefit sharing obligations.
For us the concept of access and benefit sharing that arise from the utilisation of indigenous/TK play a vital role in post-apartheid South Africa's restitution processes. It entails the restitution of the injustices of the past, for generations long there was misappropriation of knowledge and that must now be repaired. This issue is also inseparable from the issue of land rights. We also see the rights vested in access and benefit-sharing as part of creating generational rights to guarantee the descendants of the Khoi-San will always benefit from the TK of their people.

Actions to enhance progress

- Undertaking awareness raising and capacity-building activities, including by engaging with indigenous and local communities and the private sector
- Implementation of clearer, more human-rights focused rules relating to prior and informed consent (PIC). Specifically, the implementation of rules relating to PIC should be decided in collaboration with IPLCs.
- Capacity-building workshops are required, as well as consultations between IPLCs and local, national and regional governing bodies on the implementation of the Nagoya Protocol and its utilisation.
- Funding and educational resources are required to facilitate increased engagement with the Nagoya Protocol for IPLCs.

[xxxviii] Memorandum of Understanding

Key resource:
CBD presentation on NP and IPLCs: 'Biocultural Community Protocols Under the Nagoya Protocol 4 June 2011 Key Talking Points'
https://www.cbd.int/abs/side-events/ICNP1/biocultural-protocols-kbray.pdf

TARGET 17

By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Key message: The requirement to consult with a full range of non-governmental stakeholders, including indigenous peoples and local communities (IPLCs), in all stages of the NBSAP process is not yet receiving sufficient attention by Parties. The target has not been met by 2015; full and effective participation and engagement of IPLCs in the revision, updating and implementation of NBSAPs, including formulation of national targets and indicators, and in national reporting, is fundamental to achieve this Target by 2020 [and to ensure that national policies and laws acknowledge and support the roles of IPLCs in achieving the Aichi Biodiversity Targets].

Implications of the global trends for indigenous peoples and local communities

According to the GBO4, 57 out of 194 Parties to the Convention had current NBSAPs, 26 had updated them in line with the Strategic Plan for Biodiversity 2011-2020 by August 2014 and about 90% of the Parties were expected to have completed them by the end of 2015. GBO4 does not contain information about the participation of IPLCs in the updating, revision and implementation of NBSAPs but reports that the adequacy of available updated NBSAPs in terms of following CBD COP guidance was variable, and recommended that NBSAPs should be developed through an open and participatory process, including IPLCs.

As NBSAPs are the key instrument for the implementation of the Convention at the national level and therefore vital for the achievement of all the Aichi Targets, the lack of information about rights-holders and stakeholders in their development and implementation, combined with the general feeling that IPLCs are very seldom engaged in national processes, is a matter of serious concern to them.

As of 31 December 2015, 67 Parties have submitted to the Secretariat a NBSAP revised after the adoption of the Strategic Plan for Biodiversity 2011-2020, 72 are expected to submit it by March 2016 and a further 28 by December 2016[104]. While the quantitative aspect of Target 17 has not been met by the end target timeline of 2015, significant progress is expected to be made by the end of 2016. However, what is even more important and relevant is the extent to which the NBSAP revision and updating has taken (and is taking) place through a participatory process.

A document prepared by the SCBD for SBI-1, containing a section on "Participation of IPLCs at national level in relation to the NBSAPs"[105], reports that of the 60 NBSAPs received by 30 October 2015, and the 59 reviewed by 15 January 2016, only two Parties reported IPLCs' participation on the NBSAPs Committee, 12 reported that IPLCs were consulted in the revision of NBSAPs and four Parties reported that IPLCs would be involved in the future implementation of NBSAPs. Accordingly, 69.5% of the NBSAPs reviewed did not mention IPLCs, confirming that lack of participatory processes and failure to mention and address IPLCs in NBSAPs is a seriously worrying trend. In this regards, it should be noted that Target 18 and Article 8(j) and related provisions apply to all Parties and not just those countries where there are officially recognised indigenous peoples, as the coverage includes traditional knowledge and customary sustainable use of local communities.

Contributions by indigenous peoples and local communities towards the target

IPLCs have also started to gather information about their participation in NBSAPs. Out of seven internal reports based on a survey, two of them (Antigua and Barbuda and Namibia) reported that the NBSAP has been updated and revised with effective participation of IPLCs and with good prospect for their participation in implementation; two of them (Ecuador and Uruguay) reported that NBSAP revision and updating is in progress with good participation of IPLCs and three (Bangladesh, New Zealand and Sri Lanka) reported that the process is in progress but with very limited or no participation of IPLCs. Other information gathered from local organisations also provide mixed and variable responses; in the Philippines the NBSAP was reviewed with the participation of IPLCs; in Suriname the input of IPLCs was reflected in the NBSAP but IPLCs are not provided space and resources for implementation, while in Thailand the NBSAP was updated with no involvement of IPLCs. This is still a limited sample of experiences but it tends to confirm the trend identified by the SCBD in preparation for SBI-1 (text to be reviewed and finalised after SBI-1) that, apart from a small number of countries where participatory mechanisms have been developed, there are variable approaches and in many cases there are not yet effective mechanisms for the full and effective participation of IPLCs in the NBSAP process.

Concerning national reports, four of the seven countries for which a response was collected indicated that some degree of participation took place and materials provided by IPLCs were taken into account but only in two cases it was felt that IPLCs' perspectives had been reflected in the national reports.

Box on examples of local cases, both positive and negative

Among the positive cases that have been reported are those of Antigua and Barbuda, Ecuador and Namibia, although there is scope for improvement in some of them especially on developing national targets and indicators.

A submission from Antigua and Barbuda, reported that *"local community groups and NGOs were invited to the meeting to share. Women, youth and persons living with disabilities were included in the consultation. Each month the Environment Department convenes a Technical Advisory Meeting to get inputs on projects and programs and local communities are represented on this body, so they can share and have input."* Concerning, national targets and indicators, it states: *"The targets were set based on what is taking place in the local communities and they as groups using collective actions can help to meet the targets. This process involved building their capabilities to be able to implement project and programs aimed at meeting the targets."* Concerning the benefits accrued and future prospects, the report concluded that *"The process has provided much visibility to the issues of local communities, their role and participation in the process and also created synergies and networks among government agencies and local groups. The continuing two-way sharing of information on a regular basis will continue to build up and strengthen this process."*

An indigenous leader from Ecuador explains: *The NBSAP process (which took place mostly in 2014) has had many moments of socialisation and dialogue with stakeholders, including with indigenous peoples. The strategy used by the Ministry of Environment was to undertake regional dialogues, 8 in total, in different regions of the country, and 2 dialogues at a national level. The call for their implementation was open to all the social sectors in general. Indigenous peoples' delegates, men and women, were involved in the meetings. The proposals of all actors were taken into account. The Ministry has not organised specific activities with indigenous peoples in the development of national targets and*

indicators but they have talked about them in national meetings and dialogues. It is expected that once the strategy enters into force, it will be implemented with the direct participation of indigenous peoples, taking into account that indigenous peoples' territories are reservoirs of vast and rich biodiversity.

An indigenous (or local community?) representative from Namibia, asserted that *"The NBSAP process (consisting of three regional and one national consultations) was inclusive in the sense that most if not all stakeholders were invited and assistance given to those financially unable to make it to the consultation meeting places. However, the opportunities to speak and provide input were still quite basic because a full understanding of how these processes work to ensure full and effective participation is still a distant dream. Appropriate resources for capacity building are still needed."*

Among the cases where IPLCs' participation has reportedly been insufficient are those of Bangladesh, New Zealand and Sri Lanka.

IPLCs' representatives from Bangladesh and Sri Lanka reported that the NBSAP revision is in progress but that they have not heard of any consultation with IPLCs. A Maori representative from New Zealand added that *"Despite our requests for meetings with the Department of Conservation* (National Focal Point?) *to discuss it, there was no participation. There needs to be a more transparent and open process with more methods for appropriate engagement, including workshops driven by IPs with expertise in this field throughout the country."* In terms of providing concrete recommendations, the Bangladeshi representative added that *"the Bangladesh Indigenous Peoples Network on Climate Change and Biodiversity is one of the largest environmental organizations' network of indigenous peoples working on various forest and environmental issues in the country. It is presently liaising with the Bangladesh Forest Department in terms of forest related laws and policy matters and trying to proactively engage to resolve forest related conflict between indigenous peoples and the department. This process could be naturally linked with the process of updating and implementation of the NBSAP."*

Actions to Enhance Progress

- Concrete and appropriate national mechanisms should be developed by Parties to ensure the full and effective participation of IPLCs in the revisions, updating (including the development and adoption of targets and indicators) and implementation of NBSAPs and the compilation of national reports. (This builds on the first recommendation in GBO-4)
- Parties should ensure full and effective participation of all relevant stakeholders, particularly IPLCs, in the preparation of the national report. National reports should provide information about the consultative and participatory process undertaken for NBSAPs revision/updating and preparation of the report.
- Culturally appropriate materials in local languages on the NBSAPs process and implementation should be developed at the national or sub-national level to augment IPLCs' participation and involvement.

TARGET 19

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Key message: Indigenous and local knowledge, complementary to sciences, are vital for grounding adaptive decision-making and governance in the 21st century. Community-based monitoring, data and information make important contributions to monitoring progress under the Strategic Plan for Biodiversity (2011-2020), related environmental conventions and the new Sustainable Development Goals. Successful implementation of these global commitments will require effective knowledge-policy-society interfaces and partnerships across knowledge systems to address priority issues at appropriate scales.

Implications of the global trends for indigenous peoples and local communities

GBO4 reported significant progress in advancing the science and technologies relating to biodiversity and ecosystems, with an assessment that this target is likely to be met at the global level[5]. Among the ground-breaking advances in recent years has been the inclusion of indigenous and local knowledge alongside the sciences, as complementary systems of knowledge for achieving fuller and richer understandings of biodiversity values, functioning, status and trends and consequences of its loss at different scales.

The Convention on Biological Diversity has played a significant role in the inter-governmental promotion of traditional knowledge in the past 20 years, and the inclusion of Target 18 in the Strategic Plan for Biodiversity has given impetus towards its wider respect and recognition. Today, the inter-actions between biological diversity and cultural diversity are much better understood[xxxix] and the multiple conceptions and values of ecosystems and its services are acknowledged in environmental treaties and sustainable development plans.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has embedded indigenous and local knowledge (ILK) in its conceptual framework, operating principles and work programmes[xl] and has set for itself the task of ensuring that its approaches and procedures, participatory mechanisms and products are fully inclusive of the distinct knowledge contributions of indigenous peoples and local communities[xli]. The report from one of its first thematic assessments on *Pollinators, Pollination and Food Production* concluded that "Indigenous and local knowledge systems, in co-production with science, can be source of solutions for the present challenges confronting pollinators and pollination. Knowledge co-production activities between farmers, indigenous peoples, local communities and scientists have led to numerous relevant insights including: improvements in hive design for bee health; understanding pesticides' uptake into medicinal plants and the impacts of the mistletoe parasite on pollinator resources; identification of species of stingless bees new to science; establishing baselines to understand trends in pollinators; improvements in economic returns from forest honey; identification of change from traditional shade-grown to sun-grown coffee as the cause of

[xxxix] CBD-UNESCO liaison agreement
[xl] Reference to ILK in IPBES documents
[xli] Reference to ILK TF documents and Calls for inputs for various deliverables

declines in migratory bird populations; and a policy response to risk of harm to pollinators leading to a restriction on the use of neonicotinoids in the European Union.

The procedures undertaken in the pollinators' assessment, including workshops with ILK holders and experts and its documentation, will inform IPBES capacity-building efforts to enhance the interface between science and diverse knowledge systems and the mobilisation of multiple expertise in future assessments.
The Inter-governmental Panel on Climate Change (IPCC) has only recently recognized the importance of traditional knowledge in climate change adaption and mitigation strategies[xlii]. The UNESCO-UNU publication "Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation" provided a resource for authors of the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) to consider in formulating text relevant to indigenous peoples, resulting in a marked increase in the inclusion of traditional knowledge and indigenous peoples issues.

These developments underscore that knowledge diversity and multiple disciplinary expertise are important features of knowledge platforms in the 21st century. Moreover, the rapid evolution of creative applications and digital technologies make data and information more accessible and knowledge creation and sharing more socialized.

Contributions by indigenous peoples and local communities towards the target

The locus of implementation and reporting on the Strategic Plan for Biodiversity, as well as on the recent global agreements on sustainable development and climate change falls on national governments, and also sub-national and local bodies. In the coming years, joining up three-way global-national-local connections will be critical in further advancing the improvement, sharing, transfer and application of knowledge and technologies in support of CBD implementation. The effective inclusion of indigenous peoples and local communities in the revision and updating of NBSAPs (see Chapter 17) will influence the mainstreaming of indigenous and local values, knowledge and priorities in national planning, and will have impacts on the institutional and financial support provided to them for community-based actions and reporting.

In recent decades, Indigenous Peoples and local communities have been innovating on combining traditional knowledge with the use of new technologies for participatory mapping, monitoring and information systems in support of local governance and planning and to ensure accountability of public and private bodies in complying with social, environmental and human rights standards.
Being developed and piloted are set of innovative tools to transfer technology to the community level to allow communities to generate, manage and use information to manage their lands and resources in the face of global change. Using these tools, communities are able to create community- owned maps, as the basis of territorial management plans, which has supported the development of environmental and social monitoring systems and the exploration of community-based sustainable livelihood options.

Many earlier initiatives to gather information with indigenous peoples and local communities have tended to disempower rather than empower, reinforcing the perception of outsiders as 'technological experts', and resulting in well-intentioned but extractive data-mining exercises that ultimately further marginalise communities. The approach of Community-based monitoring and information systems

[xlii] See UNFCCC decisions and IPCC reports

(CBMIS) is in developing a set of community- based tools for the communities themselves to generate, control, manage, share and update their own data and information.

The Kalanguya experience of establishing community-based monitoring and information systems in Tinoc, Ifugao, Philippines.
by Florence Daguitan, Tebtebba[xliii]

From 2008 to 2010, ecosystems assessment was conducted in Tinoc, Ifugao, using CBD indicators on land use and land use change, land tenure, indigenous languages, traditional occupations and people's wellbeing[xliv].

The process of participatory action research enabled the Kalanguya people to :
- revitalize their indigenous knowledge systems and practices (IKSP) in territorial management
- appreciate the wisdom and science of their indigenous knowledge which embodies sustainable resource use and equitable sharing of resources
- understand negative impacts arising from their adoption of chemical- based, commercial vegetable farming;
- adopt a Community Land Use Plan addressing the problems identified.

When Tebtebba started work in Tinoc, Ifugao in 2008, people were very cautious to speak about their traditional knowledge, owing to long experience of discrimination. In society at large, research is seen as the work of academics and professionals and information seldom ends up in the hands of the community.

Demystifying research is a good starting point, and helps to encourage participation. It is important for people to realize that anyone can be involved in research and the creation of knowledge, and that this is part of everyday life.
Knowledge is transmitted orally during activities such as farming and hunting, or through storytelling, songs, rituals and art.

Community research was carried out in 5 of the 12 *barangays* or administrative villages of Tinoc: Ahin, Wangwang, Tulludan, Tukucan, and Binablayan. Traditional monitoring systems exist for monitoring irrigation systems (giti), and changes in seasons and weather. For example, the *pullet* (plant) and *kiling* (bird) act as indicators that storms have passed, signalling that it is time to start planting rice. However, these traditional indicators are no longer as accurate due to the effects of climate change. This assessment employed cultural and GIS mapping, workshops, surveys and interviews, as well as secondary data and government rural health clinic records on frequency of childhood illnesses.

Key Findings and Actions Taken

After more than a year of discussions, we came to the conclusion that territorial management among the Kalanguya is based on land use patterns that manifest man-land-nature and spirit relationships, based on biodiversity, culture and spiritual values.

> *"We had to work hard, but we never got hungry. Life was sometimes difficult but we help one another, always maintaining our pagkaka-ilian or community solidarity and collectivity."*

[xliii] Tebtebba, jointly with MRDC had a pilot project applying the ecosystem-based approach jointly with communities in Tinoc , Ifugao
[xliv] Community-based monitoring was based on CBD indicators on traditional knowledge adopted by COP.

Traditional territorial management was vibrant up to the mid 1990's, but with the adoption of chemical-based commercial vegetable production, communities veered away significantly from traditional practices. This new category of land-use and associated technologies was privately owned and managed outside of customary community rules, causing forest degradation and river siltation, drying up of natural springs, farmers' exploitation by the market system, and food insecurity among others[xlv].

Communities used the emerging data to draw up plans for managing the territory, anchoring these in their indigenous knowledge system. What ought to be done varies from village to village.

In the Wangwang community, the data showed that the forest area is largely intact. Here, the aim of the community is to upgrade their traditional knowledge and to strengthen customary sustainable use and customary law.

On the other hand in Tukucan, the data showed a mix of vegetable gardens and secondary forest and a big reduction in the land allocated for watershed, from 1108.73 ha in 1970 to 717.65 ha in 2009. Much of the forest had been cleared for vegetable farming and the range of foods eaten by the community was less diverse. The aim of the community here is to reclaim the watershed area, some of which had been privatized, assist in forest regrowth and shift from chemical-input farming to ecological or sustainable farming.

Comprehensive Land Use plan and Indicators

A land summit was held to unite the communities around the findings of the community assessment. Policies were developed to protect watershed areas and river systems, and to monitor crop yields. Through the process it was realised that although people spoke the Kalanguya language in family conversations, terms relating to customary laws were not widely known.

A unity pact or covenant to arrest environmental degradation and promote peoples' wellbeing was agreed on among community leaders. To realize this covenant, a comprehensive land use plan [CLUP] was formulated with the following goals:

1. Enhanced ecosystems for increased food sovereignty and community resilience ;
2. Strengthened customary governance for the promotion of traditional values, customary sustainable use and equitable sharing of resources; and
3. Strengthened people's advocacy for appropriate development programs and improved social services

Activities on awareness-raising, capacity building, projects development, community resource mobilization and policy advocacy and networking were identified and indicators were adopted for monitoring progress in their plans.

Community-based monitoring and information systems (CBMIS) and the 21st Century Data Revolution

The community-based monitoring undertaken by the Kalanguya people is a pilot initiative to test the application of the indicators on Traditional Knowledge adopted by the CBD to monitor Target 18 of the

[xlv] Workshop among commercial vegetable growers, Tukucan, Tinoc, September 2009

Aichi Biodiversity Targets. Similar community initiatives are happening in different countries around the world facilitated by the International Indigenous Forum on Biodiversity (IIFB) Working Group on Indicators[xlvi]. This network has made linkages with the Biodiversity Indicators Partnership, the International Partnership on the Satoyama Initiative (IPSI)[79] and other global and national monitoring processes, with the aim of embedding indicators relevant for indigenous peoples in their work.

CBMIS approaches and methods have become increasingly acknowledged for their effectiveness and level of sophistication by independent academic institutions. Recent research to assess monitoring possibilities for the CBD 2020 indicators, and those of 11 other international environmental agreements, concluded that of the 186 indicators in these 12 environmental agreements, 69 (37%) require monitoring by professional scientists, whereas 117 (63%) can involve community members as 'citizen scientists' and that promoting 'community-based and "citizen-science" approaches could significantly enrich monitoring progress within global environmental conventions'[23]. Similar analyses by the same research team, showed that communities living alongside the world's tropical forests can estimate an area's carbon stock as effectively as hi-tech systems, and that local communities are able to monitor forest biomass up to the highest standards of the Intergovernmental Panel on Climate Change.

A report prepared at the request of the United Nations Secretary-General by the Independent Expert Advisory Group on a Data Revolution entitled A World That Counts: Mobilising the Data Revolution for Sustainable Development extends the call for mobilizing widespread citizen involvement in knowledge and data platforms stating that "*As the world embarks on an ambitious project to meet new Sustainable Development Goals (SDGs), there is an urgent need to mobilise the data revolution for all people and the whole planet in order to monitor progress, hold governments accountable and foster sustainable development. More diverse, integrated, timely and trustworthy information can lead to better decision-making and real-time citizen feedback. This in turn enables individuals, public and private institutions, and companies to make choices that are good for them and for the world they live in*[106]. The data revolution means "*Ultimately, more empowered people, better policies, better decisions and greater participation and accountability, leading to better outcomes for people and the planet."*

Actions to enhance progress

Inasmuch as global strategies and commitments pose challenges for governments to adopt national implementation plans, monitoring frameworks and indicators, the same can be said for IPLCs who face huge and growing inequalities in access to data and information and in the ability to use it. A wide gap exists between advances being made in the global recognition of traditional knowledge and its continuing neglect and lack of protection in reality.

- Strengthen the inclusion of indigenous and local knowledge as complementary to the sciences in the knowledge base relating to biodiversity.
- Broaden the science-policy interface to include diverse knowledge systems and democratise the data revolution
- Support strategic partnerships and capacity building activities between governments and IPLCS, to jointly implement Targets 17, 18, 19, and 20.
- Provide institutional and financial support for Community-based Monitoring and Information Systems

[xlvi] Resource Book on Indicators Relevant for Indigenous Peoples and Tebtebba Journal Report on CBMIS

- Strengthen the three-way interface of global, national, and community-based knowledge generation and use of indicators for monitoring and reporting.

Key resources:

- IPBES Guidance and Conceptual Framework, available at ipbes.net
- Inter-Agency Support Group on Indigenous Issues: The Knowledge Of Indigenous Peoples and Policies for Sustainable Development: Updates And Trends In the Second Decade of the World's Indigenous People available at: http://www.un.org/en/ga/president/68/pdf/wcip/IASG%20Thematic%20Paper_%20Traditional%20Knowledge%20-%20rev1.pdf
- A World That Counts: Mobilising the Data Revolution for Sustainable Development, Report of the Independent Expert Advisory Group on a Data Revolution
- UNESCO-UNU publication "Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation"

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