DRAFT FOR PEER REVIEW

August 2016

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

For submitting peer review comments:

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The deadline for submitting peer review comments is **11 September 2016.**

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1. INTRODUCTION

There are an estimated 1.5 billion indigenous peoples and local communities (IPLCs) in the world and their customary lands encompass as much as 65% of the global land area.[1] Within these lands, traditional livelihoods, customary sustainable use of biodiversity and sustainable management practices contribute to the conservation and protection of biodiversity and the renewal of traditional knowledge into future generations. Much of the world's biodiversity can be found on indigenous peoples' and local communities' lands and territories.[2–4]

The Convention on Biological Diversity (CBD) recognises that the traditional knowledge, innovations and practices of IPLCs have helped sustain healthy ecosystems and local livelihoods. However, incursions from large scale agriculture, industrial fishing, deforestation, large-scale mining and oil and gas production, amongst others, threaten not only biodiversity and unique ecosystems but also the diverse cultures of IPLCs. The 2007 adoption of the United Nations Declaration on the Rights of Indigenous Peoples signaled a political commitment by States to address these historic injustices through respectful partnerships with Indigenous Peoples around the world.

Understanding about the linkages between cultural diversity and biological diversity has become increasingly clear in recent years and is embodied in the Strategic Plan for Biodiversity 2011-2020. Its Vision foresees that: 'By 2050, biodiversity is valued, conserved, restored and widely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all peoples'. IPLCs are heartened by the inclusion of Aichi Biodiversity Target 18 within the Strategic Plan which calls for respect and inclusion of traditional knowledge and customary sustainable use systems of IPLCs in biodiversity-related policies, and planning and implementation with the full and effective participation of IPLCs.

The International Indigenous Forum on Biodiversity (IIFB), in response to the findings and recommendations of the Global Biodiversity Outlook (GBO-4) and its mid-term assessment of progress on the achievement of the Strategic Plan, agreed to highlight their own perspectives and experiences as a complement to GBO4. Examples of on-the-ground actions were submitted by members of IIFB to bridge the current information gap in reporting on global targets and local initiatives. This publication - *'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'* - is a collaboration between Forest Peoples' Programme (FPP), IIFB and the SCBD to demonstrate the essential contributions that IPLCs are making towards the achievement of all 20 Aichi Biodiversity Targets.

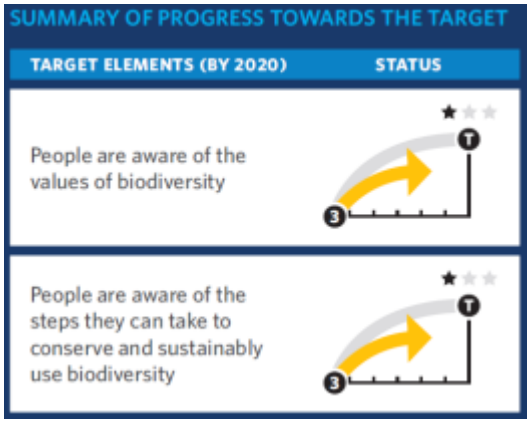
This publication does not attempt to offer a comprehensive response to all aspects of all of the Aichi Biodiversity Targets or a unified perspective from IPLCs. IPLC's hold diverse views on biodiversity, and the chapters do not aim to make conclusions beyond the scope of these case studies. Instead the publication offers a snapshot of the many on-the-ground biodiversity initiatives currently taking place. Proposals and recommendations on ways forwards have also been suggested based on lessons learned from these experiences. The case studies have all been submitted by IPLCs, many of whom are active within IIFB, the majority of the material included is new and previously unpublished.

This publication aims to inspire Indigenous Peoples and Local Communities, CBD Parties, social movements and civil society, NGOs, business, researchers, donors and broader society to each make their contributions and to work collaboratively towards realising *our* Strategic Plan for Biodiversity.

2. ANALYSIS OF INDIGENOUS PEOPLES' AND LOCAL COMMUNITIES' CONTRIBUTIONS AND EXPERIENCES TOWARDS ACHIEVING THE AICHI BIODIVERSITY TARGETS

TARGET 1: Awareness increased

By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably



Key message: Indigenous cultures value the inter-relatedness of all forms of life also known as biological diversity, including the inextricable relationships between humans and nature. Communication, Education and Public Awareness (CEPA) activities on 'biodiversity' by indigenous peoples and local communities encompass conservation and sustainable use of biodiversity, and extend to wider preservation and strengthening of cultures, languages, traditional practices and knowledge. A key message that the International Indigenous Forum on Biodiversity (IIFB) wishes to convey to the public and policy-makers is about the central and vital role that indigenous peoples play in biodiversity conservation, sustainable use and sustainable development.[5]

Introduction

Aichi Target 1 aims for wide understanding, awareness and appreciation of biodiversity, and the creation of willingness amongst individuals to make the necessary behavioural changes and political will for governments to act.[6]

Rather than speaking of "biodiversity" (a word that does not exist as such in many indigenous languages) many indigenous peoples refer to Mother Earth as the fundamental basis for the interconnected and interdependent diversity of life. Community actions to "conserve and sustainably use biological resources" are embedded in holistic management systems that serve to maintain harmonious relationships with Mother Earth.[7]

As these indigenous systems are under pressure in many cases, the question for indigenous peoples and local communities is "what can we do to maintain our sustainable life systems and customary practices"? "What effect does the loss of biodiversity have on our

> "*Biodiversity for me is life, where I have my supermarket, my pharmacy, materials for my home, while the creatures who live there are my relatives; trees, medicinal plants, rivers, stones, we are all one." That is why we continue protecting biodiversity, using it in a sustainable way, as it is integrally related to our ways of life, traditional medicine practices, our own production system, wild plant gathering and art in its different forms."*
>
> Source: traditional authority in an event on protected areas

people and our lives"? More broadly, what contributions do indigenous peoples and local communities make towards biodiversity conservation, sustainable use and sustainable development?

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

Local to global awareness-raising about biodiversity values

Under Aichi Target 1, the CBD specifically promotes awareness and appreciation of the broad and diverse values of biodiversity, including environmental, cultural, economic and intrinsic values.[6]

In practice, global (urban-based) majorities are not familiar with the values of biodiversity for indigenous and local communities and don't easily or automatically relate to these values. By sharing stories and information through social media, press, newsletters, blogs, and websites, indigenous peoples and local communities from all regions of the world raise understanding and support for their 'biodiversity views and values'.

Existing CEPA initiatives by indigenous peoples and local communities facilitate two-way awareness-raising: empowering and informing indigenous peoples and local communities about opportunities and challenges in national and global biodiversity agendas through community-friendly means and channels; and raising awareness among the wider public and decision-makers on the multiple values and perspectives on biodiversity and the importance of traditional knowledge. In the "middle space" many intercultural dialogues are emerging where different groups create better understandings about each other's discourses, approaches and values: a positive development towards Target 1. The recent rise in internet access and social media forums has enabled and empowered vast community-to-community sharing and learning.

The CEPA working group of the International Indigenous Forum on Biodiversity (IIFB) is an example of a network that uses various communication channels to inform CBD delegations as well as the general public about indigenous peoples' and local communities' views and proposals on the global biodiversity agenda. Statements and other contributions are posted on the indigenous portal website and through twitter. The CEPA group regularly organises side-events where indigenous peoples and local communities share their stories and experiences, hosts press conferences at CBD meetings, and arranges for interviews with indigenous peoples' and local communities' representatives with interested media which are shared online.[8]

Global gatherings and cultural events and celebrations generate media attention and serve to reach out to wider audience to share messages from indigenous and local communities (see Box 1).

Box 1: The Indigenous Terra Madre 2015

Author: Phrang Roy, coordinator of the Indigenous Partnership for Agrobiodiversity and Food Sovereignty[9]

In November 2015, the Indigenous Terra Madre (ITM 2015) was held in Shillong, Meghalaya, North East India, organised by the Indigenous Partnership for Agro-biodiversity and Food Sovereignty, Slow Food International and NESFAS. Bringing together 640 delegates representing more than 170 Indigenous food communities from 62 countries across the world, the ITM celebrated the cultural and biological diversity of indigenous communities as expressed in their songs, dance, dress, folklores and food systems. Thematic sessions centred around issues of advancing local food systems, clean and fair food, building networks of local climate smart crops, promoting resilient livelihoods and nutritional security. The event showcased indigenous traditional knowledge, evolving skills including culinary innovations, and sustainable practices that safeguard agro-biodiversity and contribute to resilient food systems. The event also facilitated engagement between food communities and participating scientists and policymakers. The gathering adopted 'The Shillong Declaration' a declaration with commitments and proposals for action - which has since been disseminated and communicated widely.[10]

In many countries, indigenous peoples and local communities engage in celebrations and events to showcase their cultures and connections with their lands and present their skills and products. Other examples of festivals organised by indigenous peoples and local communities to raise awareness about biodiversity and traditional knowledge include:

- The upcoming 'Indigenous Crop Biodiversity Festival' in Maui, Hawaii, the first of its kind, which will explore crop biodiversity, climate change and invasive alien species solutions, conservation and indigenous knowledge.[11]
- The Living Farms Adivasi Food Festival in India raises awareness of traditional agricultural practices, sustainable food procurement and the food cultures of the adivasis, as well as exploring issues of food security. The festival encourages an exchange of food knowledge between different tribes.[12,13]
- Ireecha is celebrated in Oromia (one of the ethnically-defined regional states of Ethiopia) and recognises the traditional identity of Oromo, uniting Oromo visitors from across the world. While primarily a political festival, highlighting the colonial and post-colonial suppression of Oromo, it also has a strong emphasis on Oromo's relationship with nature and their belief that nature is divine and that ecosystems must be protected.[14]
- The Kalacha Festival, held in northern Kenya, celebrates the cultural heritage and traditional knowledge of the region, offering local communities the opportunity to exchange knowledge and showcase their traditional arts.[15]

Targeting local audiences

Indigenous peoples' and local communities' organisations and networks with international experience and expertise reach out to others to share information and raise awareness of opportunities or problems at international policy levels, using indigenous and local languages and concepts, touching on aspects that are relevant and empowering to them.

Numerous organisations and support groups have developed community-friendly materials on biodiversity-related subjects, such as animation videos, comic books, participatory videos, training kits and toolkits by and for communities (e.g. community friendly animation video to explain REDD+[16]). There are inspiring examples of community-to-community sharing and learning, such as the creation of indigenous community radio networks (e.g. across Central America and in Nepal) utilising community radio stations (radio shows) as an affordable and accessible means of sharing information among indigenous peoples and local communities on relevant issues and getting views and inputs based on TK.[17,18]

The CBD itself contributes via the Traditional Knowledge Information Portal (TKIP), which has been developed in order to promote awareness and enhance access by indigenous and local communities to information on traditional knowledge, innovations and practices relevant for the conservation and sustainable use of biological diversity. The TKIP is also communicating in the other direction - by sharing local issues and experiences to wider CBD stakeholders.[19] Obviously many initiatives work two ways; from local to global and vice versa (see also Box 2).

Intercultural dialogues

It is challenging for actors who are coming from very different backgrounds and to whom biodiversity has different values and meanings, to speak the same 'language' and understand each other (see also Box 1and Box 2).

The popularity of "intercultural spaces" is growing - where indigenous peoples and local communities, policymakers from different departments, scientists from various disciplines, conservationists, development agents, and general public interact and engage in dialogues where

different thoughts, discourses and values are shared.[a] Such intercultural discussions contribute to creating new understandings and enhancing awareness of the diversity of perspectives on biodiversity values.

An example is the Joint Programme between UNESCO and the CBD Secretariat (SCBD) on biological and cultural diversity which is a coordination mechanism to deepen global awareness of the inter-linkages between cultural and biological diversity. Among its objectives is to "support and foster learning networks on bio-cultural approaches, linking grassroots and community initiatives with local, national, regional and global policy processes" and "raise awareness about the importance of biological and cultural diversity in resource management and decision making processes".[20]

Box 2: The Indigenous Women's Biodiversity Network

Author: Florina López, Latin American and Caribbean Coordinator of the RMIB

The Indigenous Women's Biodiversity Network or *Red de Mujeres Indígenas sobre Biodiversidad* (RMIB) is an example of a network that is operating at different levels, applying and tailoring approaches to serve needs and address respective audiences.

The RMIB was founded in 1998 to create a space for a growing number of indigenous organizations, and specifically indigenous women, to make their voices heard and to present their proposals in the most important decision-making arenas, at international, regional and national levels.

We focus on engaging indigenous women. They are the central figures in the protection and transmission of traditional knowledge and practices in relation to the conservation of natural resources through teaching and everyday practices. For many indigenous peoples, it is mostly women who put spirituality into practice by celebrating sacred rites and ceremonies.

The RMIB develops capacity-building activities to raise public awareness of conservation and the values of biodiversity and its sustainable use. Schools have not incorporated biodiversity into their curricula at all levels and in all subject areas, let alone traditional knowledge and the contributions of indigenous peoples. We base our activities on the principle that 'you cannot value what you do not know', and therefore our work has been to explain 'what biodiversity is', to get people 'to know' it: its components and interrelationships, as well as what traditional knowledge is.

The whole of society should be made aware of the importance of our traditional knowledge in order to achieve Target 1. RMIB has developed a working strategy to involve various stakeholders in this process. In the training workshops we engage both traditional and state authorities. We work and collaborate with universities and environmental organizations and involve young people, women and men in our workshops.

The RMIB also organises inter-cultural dialogues with national governments. When government representatives talked about biodiversity they only did it in technical terms, which prevented effective communication. This was overcome through intercultural dialogues in villages, where indigenous peoples connected scientific concepts to indigenous words used to describe the same concept. That enabled the creation of a communication bridge to implement decisions and initiatives for the conservation of biodiversity. Since its inception the RMIB has strengthened the capacities of hundreds of government representatives and indigenous peoples, mainly in the Latin American region.

[a] For instance IPBES assessments involving diverse knowledge holders and knowledge systems[214]; Dialogue Workshop on Assessment of Collective Action of Indigenous Peoples and Local Communities in Biodiversity Conservation and Resource Mobilization, 11 - 13 June 2015, Panajachel, Guatemala[7,215]

Figure 1: National workshop
Figure 2: National workshop

Figure 3: RMIB advocacy in CBD processes
Figure 4: Training of lecturers at the Universidad Intercultural in Mexico, in November 2015

Community-based education and transmission of knowledge

Lastly, for indigenous peoples and local communities the target element 'steps to conserve and sustainably use biodiversity' corresponds to preserving and strengthening cultures and knowledge- and management systems. Chapter 18 of this report highlights many community-based examples of initiatives for passing on traditions, values, and customs to children and youth. These are often passed on in practical, field-based ways and through learning-by-doing, mostly within families or collectively in the community with a special role for elders. Because of the importance of indigenous languages and linguistic expressions to biodiversity-related concepts and collective knowledge of biodiversity, languages are a priority for many indigenous peoples. For example, thousands of Native Americans across North America are working to revitalize and perpetuate their heritage languages, showcasing a vibrant cultural revival in indigenous cultures.[21]

Opportunities and recommended actions to enhance implementation of the target

- Governments and relevant organisations to support and promote participation of the general public and policymakers in cultural events that celebrate biodiversity and its multiple values and showcase indigenous knowledge and lifestyles
- General public to share and promote indigenous peoples' and local communities' campaigns and CEPA materials
- Governments, donors and public to support community research and activities that focus on preserving and revitalizing indigenous language, knowledge and customs related to biodiversity
- Governments (in collaboration with national indigenous networks or educational institutions) to include specific CEPA, awareness-raising, and capacity building strategies in

National Biodiversity Strategy and Action Plans that focus on engaging indigenous peoples and local communities, preferably in indigenous or local languages, using culturally sensitive terminologies and concepts

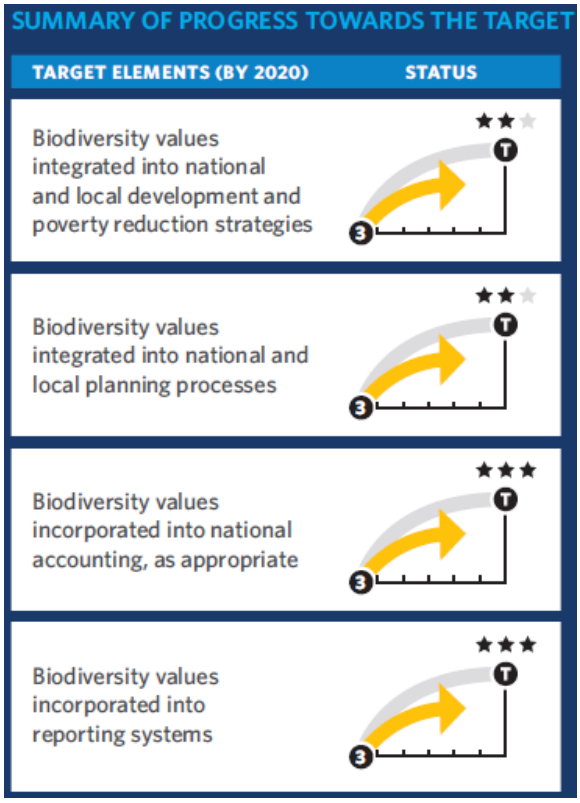
- Local governments, education ministries, universities and other education institutions to address multiple biodiversity values through school curricula
- Indigenous peoples, policy makers, government and UN officials, scientists, conservation and development actors to continue and increasingly engage in intercultural dialogues with respect for multiple views and values
- Indigenous peoples and local communities to continue to establish, consolidate and strengthen their CEPA networks and channels.

Key resources:

- IIFB Portal: http://iifb.indigenousportal.com/
- CBD TK portal: https://www.cbd.int/tk/about.shtml
- Tebtebba Foundation: Indigenous Peoples & the Convention on Biological Diversity - An Education Resource Book
- The Indigenous Crop Biodiversity Festival: http://www.icbf-maui.com/
- The Living Farms Adivasi Food Festival: http://www.living-farms.org/site/
- Kalacha Cultural Festival 2013: http://www.kivulinitrust.org/index.php/17-news/89-kalacha-cultural-festival-2013-kalacha-cultural-festival-2013

TARGET 2: Biodiversity values integrated

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 Strategic Plan for Biodiversity has much to offer the 2030 Sustainable Development Agenda, presenting a unique opportunity to align biological and cultural diversity values with national economic strategies and planning for sustainable development. The global pledge to leave no one behind opens the door for Indigenous Peoples and Local Communities (IPLCs) to highlight their diverse local economies, customary sustainable use systems and traditional knowledge as forward-looking contributions to food security, community development and cultural renewal whilst conserving biodiversity and safeguarding the Earth. Joint implementation of the Aichi Biodiversity Targets alongside the Sustainable Development Goals and targets constitutes an important and viable approach towards enhancing practical progress on national implementation of global commitments, in full partnership with IPLCs.

Introduction

Approaches towards mainstreaming biodiversity from local community perspectives are more holistic and integrative compared to more specialised and technical approaches by governments and scientists. IPLC approaches towards mainstreaming biodiversity and cultural values, are to embed these in all aspects of governance and planning – in legal and social policies including respect for human rights, in economic and development strategies and in environmental management and climate change actions and to promote coherence and synergies among these separate sectors.

In as much as biological diversity underpins the resilience of ecosystems, likewise, cultural diversity underpins social resilience for sustainable development. This includes legal pluralism, respect and recognition of customary law; diverse health traditions including traditional healing and medicines; diverse traditional diets, diverse educational institutions including transmission of cultural traditions; as well as diverse local economies and traditional livelihoods.[22] This holistic approach underlines the important 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[23–25].

IPLCs have been historically impoverished by mainstream economic development and prevailing economic values and accounts continue to marginalize their contributions. More recently, multiple high-level political summits[b] have placed indigenous peoples and local communities (IPLCs) as potential central actors in the transformative agenda for global change (see Box 3). 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 meetings. 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. However, 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, posing a political obstacle to the inclusion of diverse ecological and cultural values in national strategies, planning and accounting called for in the global agenda for change.

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

Box 3: Global Commitments from Recent Political Summits

Future We Want

We affirm that green economy policies in the context of sustainable development and poverty eradication should:

Enhance the welfare of indigenous peoples and their communities, other local and traditional communities and ethnic minorities, recognizing and supporting their identity, culture and interests, and avoid endangering their cultural heritage, practices and traditional knowledge, preserving and respecting non-market approaches that contribute to the eradication of poverty;[c]

Paris Climate Change Agreement

"Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups,

[b] Rio + 20, World Conference on Indigenous Peoples, New York and UNFCCC Paris Summit

[c] Political Declaration of Rio+20 UNCED Paragraph 58 (j)

communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate." [d]

Addis Ababa Action Agenda of the Third International Conference on Financing for **Development**

At the same time, we recognize that traditional knowledge, innovations and practices of indigenous peoples and local communities can support social well-being and sustainable livelihoods and we reaffirm that indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions. [e]

Sendai Framework for Disaster Risk Reduction 2015–2030

To ensure the use of traditional, indigenous and local knowledge and practices, as appropriate, to complement scientific knowledge in disaster risk assessment and the development and implementation of policies, strategies, plans and programmes of specific sectors, with a cross-sectoral approach, which should be tailored to localities and to the context; [f]

SIDS Accelerated Modalities Of Action [S.A.M.O.A.] Pathway

We call for support for the efforts of small island developing States:

(c) To raise awareness and communicate climate change risks, including through public dialogue with local communities, to increase human and environmental resilience to the longer-term impacts of climate change; [g]

To develop and strengthen national and regional cultural activities and infrastructures, including through the network of World Heritage Sites, which reinforce local capacities, promote awareness in small island developing States, enhance tangible and intangible cultural heritage, including local and indigenous knowledge, and involve local people for the benefit of present and future generations.

Box 4: Outcome Document of the World Conference on Indigenous Peoples (WCIP) UN General Assembly Special Session

We commit to cooperate with indigenous peoples, through their own representative institutions, to prepare and implement national action plans where relevant, devoted to achieving the ends of the United Nations Declaration on the Rights of Indigenous Peoples.

We commit to establish at the national level, in conjunction with indigenous peoples concerned, fair, independent, impartial, open and transparent mechanisms to acknowledge advance and adjudicate the rights of indigenous peoples pertaining to lands, territories and resources. Such mechanisms will be culturally appropriate and flexible, and competent to safeguard free, prior and informed consent by indigenous peoples prior to development or use of lands, territories and resources.

We commit to address the impact or potential impact of major development projects, including extractive industries, on indigenous peoples and to ensure transparency and benefit sharing. The rights of indigenous peoples regarding development of lands, territories and resources, will be incorporated into law, policies and practice.

[d] UN FCCC/CP/2015/10/Add.1, Article 7, Para 5

[e] Section G. Science, technology, innovation and capacity-building, Para 117

[f] Priority for Action 1: Understanding disaster risk Para 24 (i)

[g] Paragraph 44 (c) (Climate Change) and 81(c) Culture and Sport

We commit to develop, in conjunction with indigenous peoples concerned, policies, programmes and resources to support indigenous peoples' occupations, economies, livelihoods, seeds, and food security.

We commit to respect the contributions of indigenous peoples to ecosystem management and sustainable development. This includes knowledge generated through experience in hunting, gathering, fishing, pastoralism and agriculture, as well as their sciences, technologies and cultures.

We confirm that indigenous peoples' knowledge and strategies to sustain their environment will be respected and utilized when we develop national and international policies, standards and measures on climate change mitigation and adaptation. [h]

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[26]. 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. 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.

Contributions by Governments 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. The adoption of the Nagoya Protocol has given further impetus to Parties who have ratified it, to put into place policies and legislation recognising the values of traditional knowledge and measures to ensure prior informed consent and mutually agreed terms for the use of such knowledge (See also Target 16).

The United States- Canada Joint Statement on Climate, Energy, and Arctic Leadership[i] pledged to build a sustainable Arctic economy stipulating that commercial activities, will occur only when the "highest safety and environmental standards including national and global climate and environmental goals, and Indigenous rights and agreements" are met. The two countries committed to embrace opportunities and confront challenges in the Arctic with indigenous and Northern partnerships and responsible, science-based leadership and to incorporate indigenous science and traditional knowledge into decision-making including environmental assessments, resource management, and advancing the understanding of climate change and how best to manage its effects.[j]

Governments in Latin America, many through their adoption of ILO Convention 169[k] have accepted international obligations to uphold the rights of indigenous and tribal peoples in national

[h] Outcome Document of the High-level Meeting of the General Assembly: The World Conference on Indigenous Peoples Paragraphs 8,17,18,19,30,31

[i] Joint Statement on Climate, Energy, and Arctic Leadership by the United States and Canada, March 2016

[k] The following governments from Latin America and the Caribbean have ratified ILO Convention 169 on Indigenous Peoples and Tribal Peoples: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Ecuador, Guatemala,

development processes, including through the collection of data about demographic, social and economic status of indigenous peoples.[l] 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.

Governments in the Pacific have defined a process towards the development of indicators on the well-being of Melanesians, 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.[27]

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.[28]

Box 5: Guaranteeing indigenous people's rights Bolivia

The Pluri-national State of Bolivia recognizes as a state policy, indigenous peoples as distinct historical and political entities (authority, territory, institutions, cognitive and spiritual). Changes to the structure of the State have also led to the formation of indigenous governments in most of the country's municipalities.[29] with concurrent competence to contribute to the protection of the environment, biodiversity, forest resources and wildlife according to their own rules and procedures, and maintaining ecological balance and control of environmental pollution, including powers for conflict resolution at a local level.

Box 6: Sustainable Development Working Group of the Arctic Council

The Arctic Council has 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 Working Group(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. The SDWG also contributes to Arctic Council priority areas 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 such as 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 with full consultation rights in connection with the Council's negotiations and decisions. The Permanent Participants represent a unique feature of the Arctic Council, making valuable contributions to its activities in all areas. The following organizations are Permanent

Honduras, Mexico, Nicaragus, Paraguay, Peru and Venezuela. Other countries from other global regions include Central African Republic, Denmark, Fiji, Nepal, Netherlands, Norway and Spain.

[l] 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."

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).

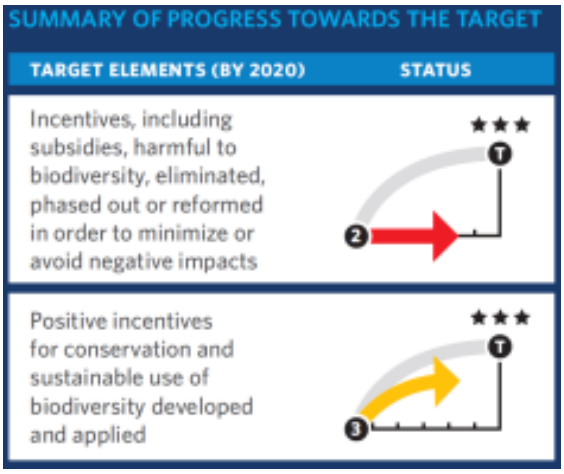
Opportunities and recommended actions to enhance implementation of the target

To mainstream biodiversity values within the global change agenda a range of measures at all levels need to be pursued by Member States, the United Nations system, indigenous peoples and other actors.

- 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
- 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 .

TARGET 3: Incentives reformed

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.



Key message: Positive incentives targeted directly at indigenous peoples and local communities (IPLCs) and respecting their traditional knowledge and customary resource and ecosystem management practices and livelihoods, such as fire abatement and community forestry, have great potential for securing climate change mitigation, multiple biodiversity values and community well-being. For optimum outcomes, these need to be designed and implemented in collaboration with IPLCs, with benefits flowing directly to communities. A stronger focus is needed on eliminating perverse incentives, including those awarded to extractive industries, which have disproportionate impacts on IPLCs, their lands and ecosystems.

Introduction

GBO4 reports a lack of progress on eliminating or phasing out incentives harmful to biodiversity, it also states that "insufficient progress has been made on the development and application of positive incentives", and that these thus far seem to have focused on financial benefits.[30] A diversity of views exists amongst IPLCs on financial and non-financial benefits; for some communities financial incentives can help them to continue their traditional lifestyles and enable them to remain connected to the land; others see financial benefits as disruptive for encouraging the

commodification of biodiversity; and all would support fundamental non-monetary incentives such as land or access rights. In order to create fair and participatory positive incentive schemes, IPLCs need to be consulted on what benefits would be most suitable given their situation, customary rules and culture.

Why this Target is important for IPLCs

Incentives awarded to extractive industries have grave impacts on both biodiversity and the lives and livelihoods of IPLCs. Because of their close inter-relationships with lands and ecosystems, IPLCs are particularly affected by governmental support for resource exploitation by extractive industries because significant natural resources are found on indigenous lands[31,32] and the bargaining power held by these extractive industries continues to be much higher than that held by most IPLCs.[33] The chapter on Target 8 explores in-depth the impacts of oil pollution but other extractive industries, such as gold mining, also affect the health and lands of many IPLCs. An upcoming report by the Brazilian Oswaldo Cruz Foundation found that 92% of indigenous peoples living in the vicinity of mining areas suffer from mercury contamination.[34] Phasing out incentives that cause harm should therefore be a priority from both a biodiversity and a human rights perspective.

Positive incentive systems, such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) and PES (Payment for Ecosystem Services) can bring with them challenges and known risks for IPLCs, such as resources being unavailable or inaccessible to grassroots communities due to elite capture or lack of participation of local actors. Incentive systems can also cause problems when they imply that the non-economic values of traditional activities are negligible and should be changed.

On the other hand, PES can be useful mechanisms if they provide benefits directly to local actors and allow traditional land users to continue to live using their sustainable traditional practices. The case study from Australia (Box 7) reflects the tensions between PES and traditional fire practices and describes the deliberations of Aboriginal communities over whether to accept money for their fire abatement activities. While this case study highlights the challenges of PES, it also demonstrates that positive effects of PES can be felt in the community, for example, by enabling the Balngarra Clan to continue to foster their connection with the land. The example from Vietnam (below) describes a successful attempt at demonstrating how incentives for restoration of traditional knowledge and community forestry can inform the approaches and frameworks of national REDD+ programmes.

<u>Contributions and experiences of indigenous peoples and local communities towards the target</u>

Box 7: Story from the Northern Territory, Australia
Dabboh[m] and Smoke Money: Burning the Bush for People and Country
Authors: Otto Bulmaniya Campion and Beau J. Austin[n]

"The Balngarra Clan is an Indigenous Nawurrk[o] tribe from Arnhem Land in the Northern Territory of Australia. Our homeland is ~70km south of the town of Ramingining and covers around 250km^2 of savanna, escarpment and wetlands. The Balngarra Clan's 'ownership', 'connection' or 'belonging' to this land has never been broken. The Balngarra Clan use many types of fire to look after people and

[m] Fire that occurs in the countryside that has not been lit for any specific purpose. This is in contrast to *wurrk*, which is fire that has been lit to achieve something specific (e.g. using fire to hunt for kangaroos).

[n] Otto Bulmaniya Campion is a member of the Balngarra Clan, Malnyangarnak (Northern Territory, Australia) and of the Arafura Swamp Rangers Aboriginal Corporation (ASRAC), Ramingining, and the Aboriginal Research Practitioners Network (ARPNet), Darwin, Northern Territory, Australia. Beau J. Austin is connected to the Research Institute for the Environment and Livelihoods, Charles Darwin University, Darwin, Northern Territory, Australia

[o] Nawurrk tribes are experts in the use of many different types of fire to achieve particular outcomes on Country, especially for hunting animals.

Country.[p] Fire is used for hunting and gathering, cooking, keeping plants and animals healthy, clearing paths for walking and is important for ceremony.

In the cool part of the dry season, somewhere between April and August, in our language[q] we call it *marluwurru*. When we see spear grass, *gardaykkah*[r] flowering, when we touched from that wind feeling, cold weather is coming up – *gabekbek*. That means it is time to go and burn. To 'smoke up' the Country. We never leave fuel load to build up because we know that the next season coming will be *warlirr* (hot weather) and more fuel of dry grass, leaves and branches will build up on the ground and we get unmanaged wildfire.

Our fire is like a treasure. When we do traditional fire management we always get rewarded; our Country gives us back animals, bush tucker[s], and we can collect spears from the jungle. Our Old People looked after it the proper way. Burning at the right time is not dangerous.

Then one time, these *Balanda*[t] scientists were watching *Bi*[u] burning Country. They realised that our traditional fire was not only good for biodiversity, but also reduced the greenhouse gas and carbon dioxide that gets put into the atmosphere by unmanaged wildfires.[35–37] *Bi* started to make partnerships with fire scientists and were working together to measure all the trees and collect data from the monitoring sites. In the late 1990s we started the West Arnhem Land Fire Abatement (WALFA) project.[35,36] Today, we are negotiating agreements with all of the Indigenous ranger groups in Arnhem Land to join the Arnhem Land Fire Abatement project (ALFA). This will cover an area of around 120,000 km^2, including hundreds of Indigenous clan groups. Every year we bring all the rangers, scientists and knowledge holders together to plan for burning at the right time. ALFA has a board that watches over the project and we use a formula to split the income equally. However, boundaries do not worry us. We want to manage that country without lines. Because when you put lines, draw boundaries on a map that is the *Balanda* way.

As soon as the fire projects started to grow, all the rangers got training from 'accredited trainers'. They taught us how to *fight* fire. All the smoke money we were creating was going back into rangers *fighting* fires. One time I was watching Traditional Owners using fire to do hunting and gathering on their Country. The rangers started to worry that this Traditional Owner fire might grow into a wildfire. So they got a helicopter, flew over and put it out. That is wrong. In Bi culture we never fight fire. That is not the way of Nawurrk tribes. We just make fire, not put him out. So this made me stop and think. Look back to that Country and to the Traditional Owners.

Bi did not work closely with scientists on developing the carbon accounting methodology. We only did field work with scientists. Just recording and measuring, and guiding scientists to different places. We did not get proper pay. All the science work we did out in the field, carrying all the equipment and tools with scientists, we only got CDEP[v] money. Scientists and politicians set up the carbon accounting methodology and gave us this rule saying we can only burn every year in May, June and July. The 1st of August is the deadline to stop burning or we will get a penalty.[38]

Today, we are making some good money from fire work. We are making satellite ranger bases on each of the clan estates in the Arafura Swamp region in Arnhem Land. These satellite bases are not getting any funding from any government organisation. They are running on bushfire smoke money. Traditional Owners are being paid a salary and have equipment to support burning. This means that

[p] The English word Country is used to refer to Indigenous peoples' clan estates. In Rembarrnga, this is known as *dawal*.

[q] The language spoken by the Balngarra Clan is Rembarrnga.

[r] Stringybark (*Eucalyptus tetradonta*).

[s] Bush tucker is an Australian term used to describe wild harvested foods.

[t] Balanda is the word used by Indigenous people from the Arnhem Land region to refer to non-Indigenous people.

[u] The word used by Indigenous people who speak the Rembarrnga language to refer to themselves

[v] CDEP stands for Community Development and Employment Programme, which was a former Australian Government welfare programme targeted specifically at employment and development for Indigenous Australians.

we can make sure that rangers are not acting like heroes by going and fighting fires, but that Traditional Owners are taking the lead in looking after their Country.

It is really important for Traditional Owners to have jobs on Country. Country is not a place for weekends, it is our home. The towns that the governments are trying to make us live in, 'growth towns'[39] are making our people and our Country sick. They are over-crowded with lots of different clans, which creates social problems. It makes us worry. But the good news is that from smoke money some of our families are getting back to Country. Not only do carbon projects help us to stop global warming, if they include Traditional Owners properly, they can help us look after our health, our language, our ceremony, the biodiversity that lives with us on Country, and provide good jobs for our people."

IPLCs making good use of REDD+ in Vietnam

Can financial incentive systems also be designed in a way that respects the rights, wishes and existing practices of indigenous peoples and local communities? This is the core of a pilot project by Tebtebba Foundation in Vietnam with the involved collaboration of the Centre of Research and Development in Upland Areas (CERDA)[w], Northern Vietnamese local authorities and grassroots organisations. The aim of the project was to explore how IPLCs can act as rights-holders in REDD+ and to integrate the principles of carbon sequestration and reductions in deforestation in a way that respects traditional knowledge, traditional monitoring systems, collective decision-making, and local social and environmental attitudes. 'The incentive system was approached as part of a 'holistic intervention' with socio-economic benefits for the community. Through the project, communities established cooperatives which provided legal standing to use and manage forests that previously had been unallocated and consequently affected by illegal logging. A demarcation map of community forests was created by the community and local forest experts developed tools for monitoring tree diversity and forest biomass through community-based monitoring.[40,41]

This example highlights a successful attempt at piloting the development of financial incentives where the focus is on community actions to secure community forest tenure and user rights, restoration of traditional knowledge and customary management of forests, institutional and capacity strengthening, and community models of reducing emissions from deforestation and forest degradation as pilot learning sites to engage the government's national and sub-national REDD+ programmes.

To date REDD+ has mainly focused on forest carbon offsets rather than the 'non-carbon' aspects of the programme, including the preservation of traditional livelihoods and culture, the importance of free, prior and informed consent, and ensuring security of forest tenure. The successful implementation of REDD+ should include structures to encourage participation, transparency and respect for the rights of IPLCs.[42,43]

<u>Opportunities and recommended actions to enhance implementation of the target</u>

- The use of non-monetary and financial incentives should be guided by the context, needs and cultural perspective of all parties interested in and affected by incentives. Dialogue and collaboration with communities is essential.
- Non-financial incentives require greater international and national attention, in particular the granting of land tenure and access rights to IPLCs. Community-based incentives, such as licensing or certification of sustainable methods and products, should receive broad support and cooperation.
- The social and cultural impacts, as well as the negative impacts on biodiversity, caused by incentives awarded to destructive industries, such as mining, logging and industrial scale fishing companies, must be acknowledged at all levels and greater efforts must be made to phase out perverse incentives.

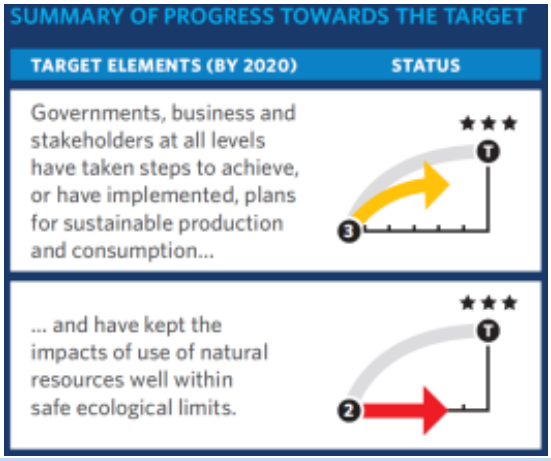
[w] An independent research organisation and NGO accredited by the Vietnamese government

Key resources:

- http://www.environment.gov.au/climate-change/emissions-reduction-fund/methods/savanna-burning (accessed 25 November 2015).
- Department of Community Services (2013). Major remote towns - Properly planned and designed towns. Northern Territory Government, Darwin. http://www.drdia.nt.gov.au/about_us/regional_services/major_remote_towns (accessed 21 Nov 2013).
- Fitzsimons, J., Russell-Smith, J., James, G., Vigilante, T., Lipsett-Moore, G., Morrison, J., & Looker, M. (2012). Insights into the biodiversity and social benchmarking components of the Northern Australian fire management and carbon abatement programmes. Ecological Management & Restoration, 13(1), 51-57.
- Russell-Smith, J., Whitehead, P., & Cooke, P. (Eds.). (2009). Culture, ecology and economy of fire management in North Australian savannas: rekindling the Wurrk tradition. Csiro Publishing.
- Yates, C. P., Edwards, A. C., & Russell-Smith, J. (2009). Big fires and their ecological impacts in Australian savannas: size and frequency matters. International Journal of Wildland Fire, 17(6), 768-781.
- Anon, 'The Double Life of International Law: Indigenous Peoples and Extractive Industries' Harvard Law Review 129.6 (2016) pp. 1755-1778.

TARGET 4: Sustainable consumption and production

By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.



Key message:

Many of indigenous peoples' and local communities' existing governance systems and customary practices are examples of approaches to achieve sustainable consumption and production. Indigenous territorial management plans and community-based land use plans show how diverse local economies built on traditional and local knowledge, practices, cultures and values can achieve sustainable development and keep ecosystems within safe ecological limits. Policy advocacy at all levels also plays a crucial role in ensuring that commodity supply chains as well as national plans and private sector initiatives for sustainable consumption and production protect both the environment and human rights. Indigenous peoples and local communities call for stricter compliance with existing voluntary commitments on sustainable supply chains and "zero deforestation", as well as stronger regulatory standards to address current trends.

Introduction

Present patterns of unsustainable consumption and production underlie direct pressures on biodiversity and overall resource use is projected to further increase. While voluntary certification standards for sustainable production and consumption of certain commodities (palm oil, rubber, soy

and timber, among others) have been adopted, available evidence suggests that it is unlikely that current efforts will suffice to keep ecosystems within safe ecological limits by 2020.[30]

When unsustainable extractive activities, agribusiness and logging expand into or nearby community lands, these can threaten the ecological integrity of territories, communities' food security, livelihoods and even the survival of indigenous groups living in voluntary isolation.[44] As a consequence of insecure land tenure and unequal power relations many indigenous peoples and local communities have been vulnerable to large-scale land acquisition and "landgrabbing".[45]

Demand-side campaigns and consumer-driven boycotts have increased the pressure on producers to reform unsustainable supply chains. In 2015, seven per-cent of companies with the greatest influence over tropical deforestation had full, cross-commodity commitments on deforestation.[46] As an example, thanks to pressure from hundreds of thousands of supporters, multinational giants such as Nestlé and Unilever have changed their palm oil sourcing policies to protect rainforests and peatlands.[47] As the case study on HCS forests (Box 12) illustrates, communities play a central role in monitoring and holding the private sector "zero deforestation" pledges.

Another example is the Roundtable on Sustainable Palm Oil (RSPO), which has created a certification system to assure customers that palm oil is produced without causing harm to the environment or society, including addressing land grabbing linked to palm oil expansions. On the ground, however, insufficient progress has been made towards implementing the RSPO standard, particularly relating to addressing unethical and/or unlawful land acquisition deals and negative impacts of business operations experienced by communities as evidenced by several cases of escalating land conflicts over palm oil.[48]

Experiences of other private sector sustainability initiatives, such as the Aluminium Stewardship Initiative (ASI), also show that addressing past and on-going rights violations remains a serious challenge as discriminatory past acts continue to be deeply embedded in the institutional and regulatory frameworks of many States, underpinning the process of concession issuance in indigenous peoples' territories.[49]

A recent meeting of the national human rights commissions of South East Asia and concerned civil society representatives concluded that the growing concern about agribusiness land grabs is not being matched with mandatory controls and enforceable standards. It was noted that large-scale land allocations for timber plantations and agribusiness continued to be given priority over communities' rights, livelihoods and local food security, further exacerbating the growing inequality in the region.[50]

Demand-side measures which do not specifically integrate human rights concerns can in some circumstances marginalise communities. For example, none of the European Union's agreements with developing countries to prevent the import of illegally logged timber into the EU under the EU's FLEGT Action require the incorporation of human rights laws, meaning that the inclusion of community rights is *ad hoc*, varying significantly between countries. This risks legitimising existing legislation and governance regimes that dispossess communities of their lands to the benefit of business enterprises and (sometimes) national governments.[51]

<u>Contributions and experiences of indigenous peoples and local communities towards the target</u>

Community actions to improve unsustainable commodity industry

Indigenous peoples' and community-based organisations have played an important role in challenging unsustainable commodity supply chains, in particular concerning large-scale land conversion. For instance, in May 2016, a delegation of indigenous and community leaders gave testimonies of the impacts of the palm oil industry to the European Parliament and relevant EU officials in which they emphasized the urgent need for strong binding regulations of supply chains. One of the delegates stated: "It is not enough to create voluntary certification schemes, while we continue to suffer land grabs and the on-going violation of human rights."[52]

Communities have also been working together with civil society allies to use grievance procedures of existing sustainability standards in order to identify and challenge company violations. As an example, in April 2016 joint advocacy and complaints submitted to RSPO led to the temporary suspension of IOI Group's RSPO certification, due to serious environmental and human rights impacts of IOI's operations. IOI is one of the world's largest palm oil producers in the world and following their suspension, leading major buyers made moves to stop trading with them, sending an important market signal to stop unsustainable production.[53]

Box 8: The Universal Declaration on the Rights of Mother Earth

Adopted at the World People's Conference on Climate Change in Cochabamba in 2010 [223]

"We are all part of Mother Earth and Mother Earth has inherent rights such as the right to life, the right to regenerate its bio-capacity and continue its vital cycles, maintaining its integrity as a self-regulating and interrelated being"

Promotion and use of alternative economic models and land use plans

Indigenous peoples and local communities showcase and promote low-impact lifestyles characterized by sustainable production and consumption, that challenge capitalist profit maximization over keeping resource use within safe ecological limits.

Several indigenous organisations and sub-national governments have been leading the way in promoting economic models that are not built around increasing consumption but increasing well-being of Mother Earth, encompassing both humans and nature (see also Box 8 and Box 9). In Latin America, indigenous cosmovisions of "living well" (e.g.: *Buen vivir, Sumaq Kasway*) promote the healthy flourishing of all in harmony with nature and challenge Western economic paradigms, by calling for economic de-growth and increased environmental awareness.[54]

For the Maori in New Zealand the reverence for the creation as a whole, the kinship of all things and responsibility for all living things and natural resources are key principles driving the development of an alternative Maori model of development and well-being.[55]

Box 9: The Shillong Declaration

A living document based on the sessions held at the Indigenous Terra Madre, 2015 Shillong, Meghalaya, North East India[10]

"Our initiatives on food sovereignty, tenurial security and knowledge safeguarding are part of a larger movement to fundamentally transform the nature of economic and political systems away from those dominated by the state or private corporations, and towards community-centred, ecologically sustainable, socially just, and economically equitable alternative models of human and planetary wellbeing."

There are many examples of community-based territorial plans that set out how communities view their relationship with the natural world and how they plan to sustainably develop, manage and use the resources in their territories (see also

834 Box 10). In Canada, the Dhecho First Nations' Land Use Planning Committee oversees the
835 development of a comprehensive land use plan, guided by the respect for the land as understood by
836 the Decho elders and the principles of sustainable development. Once approved, the Land Use Plan
837 will provide legally binding directions to decision-makers and regulatory agencies[56].
838
839
840

Box 10: Children of the water: Plan de Vida (Life Plan) of the Misak people, Colombia

Link to full Plan de Vida (Spanish only):

http://repository.oim.org.co/bitstream/20.500.11788/377/1/COL-OIM%200296.pdf

We, the Misak, are located in the Southwest of the Republic of Colombia, and have a population of 25,000 inhabitants approximately, with ancestral and autonomous authorities managing and regulating the territory.

We created the "Plan de Vida" (Plan of Life), which is a political strategy to ensure the existence of community **LIFE** and spirituality, linked to Mother Nature and countervailing the country's own laws and regulations. The "Plan de Vida" is Mother Earth's path to a comprehensive life with the mission of preserving moors, water resources and wetlands, all of which are alive and enjoy their own, natural rights with no economic attributions. But we humans cannot see them as living beings. Currently we, the Misak, have 35,087 ha rich in flora and fauna, containing a richness of water resources unique in Southern Colombia. Its protection is our constant struggle.

This Plan of Life is very ancient and was passed on through oral tradition until it was finally systemized in 1992. In this plan, a general diagnosis of comprehensive life is made through general assemblies, were the past, present and future are known, determining the factors of degradation of Mother Earth and cultural identity. From there, life projections are made and it is our own policies that should be recognised by the State, and according to them that economic resources should be distributed. Examples are our own policies on health, education, the exercise of our own justice, the control and planning of the territory according to our ancient wisdom, etc. These are the basis for the government to recognise as a minimum our cultural diversity and establish laws according to our beliefs and ways of life. Making the "Plan de Vida" a binding political-legal framework was one of the key political and legal issues in the recognition of indigenous peoples as subjects of rights. The "Plan de Vida" is always changing and updated according to changing situations in the country.

We, the Misak People with our Plan de Vida, as a peaceful indigenous group that protects life in our territory as well as for the whole humanity, we safeguard the moors, protecting them from agriculture because they are sacred places. Also, because we are environmental authorities we plant trees to safeguard water sources, manage watersheds and riverbanks and avoid their contamination. Similarly, we restrict the activity of research and collection of resources and

expertise within our territories, avoiding the privatisation of natural life. All this we do without the support of the national government. Only because our **Mama** calls us to care for and preserve her life. We are her children. We are the children of the water.

We, the Misak, are a peoples consisting physically of individuals but we have a collective mind and conscience. This collectiveness gives us the necessary measures to protect Mother Earth and its biological diversity; a collective consciousness that can withstand the onslaughts and development paradigms imposed by the globalised world, allowing relations and twinning with other struggles in the world.

We, the Misak, we have lived with Mother Nature wisely without looking at economic, commercial or industrial benefits. With the conviction that exercising the right to live is not only a human right but also the fundamental right of our Mother Earth. Only then can we live well. We are not against what the Western world call "*development*". But we are against dispossession, a model of extractive development, mining, or any kind of human action that threatens the life of our Mother. We support a *minga* for the life of our Mother; we want to work as brothers with all the peoples that work to protect environmental rights. We want to unify our physical and spiritual strengths to protect a sustainable life. This is the only way to stop the illness of the economic and political model that is taking over without ensuring the life of the planet and humanity.

© all pictures: Misak

Opportunities and recommended actions to enhance implementation of the target

- The CBD to enhance communication and mainstreaming of communities' low-impact economic models, in existing programmes, guidelines and partnerships on sustainable use and business.
- Parties and other governments to:
  - Support the development, use and mainstreaming of community life plans and holistic territorial planning
  - Engage in dialogues and exchanges with indigenous peoples and local communities to better understand their development frameworks and support their effective participation in developing plans for sustainable production and consumption at all levels
- Governments, private sector and stakeholders to:
  - Reform or strengthen legislation, measures and governance regimes to ensure that they do not facilitate the dispossession of communities or undermine sustainable community initiatives like small-scale enterprises in favour of large-scale production and consumption industries

- Evaluate and, where needed, improve plans and initiatives for sustainable consumption and production to ensure that they uphold human rights as well as economic, environmental, social, and cultural standards and are accountable to communities (including operationalising accessible grievance mechanisms)
- Create partnerships with indigenous peoples and local communities to implement and monitor compliance with sustainability standards, resolve grievances and keep ecosystems within safe ecological limits
- Continue to reform unsustainable commodity supply chains including the development of strong binding regulations of supply chains.

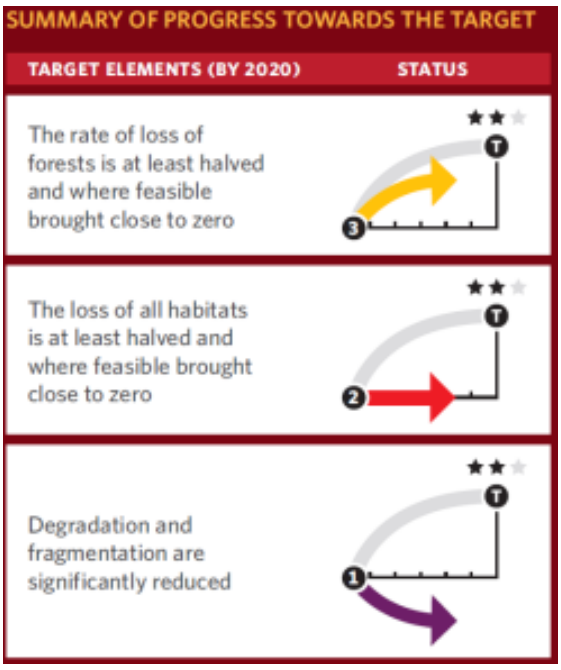
- Indigenous peoples and local communities to:
  - continue developing and implementing territorial management and land use plans
  - share and promote their models and visions for sustainable, diverse local economies
  - engage stakeholders at all levels to reform unsustainable supply chains

Key resources:

- Toolkit on developing Life Plans: http://www.lifemosaic.net/eng/tol/life-plan/
- COMPAS (2007) *Learning Endogenous Development. Building on Biocultural Diversity:* http://develhttp//www.bibalex.org/Search4Dev/files/416867/362431.pdf

TARGET 5: Habitat loss halved or reduced

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: Much of the world's forests and other habitats can be found on communities' lands and territories as communities' systems for territorial management (including community forestry) have been essential in conserving them. There are numerous examples of how forests under customary control have experienced less deforestation than even government controlled protected areas. Strengthening and securing communities' land rights is an essential first step to enable upscaling community conservation of habitats. Action is needed to protect human rights and environmental defenders at the frontline of resource conflicts and challenging habitat conversion. Regulatory and voluntary approaches to conserve habitats (e.g. "Zero deforestation" pledges) can make important contributions when working simultaneously to address communities' livelihoods and secure their rights.

Introduction

Habitat loss caused by agricultural expansion is the single most important driver of global biodiversity loss. While overall rates of deforestation are declining globally, they are still alarmingly

high and no overall significant progress has been made to reduce the loss of other habitats (e.g. grasslands, wetlands, river systems). Also habitat degradation and fragmentation are becoming worse rather than better.[30]

Much of the world's remaining forests and other biodiverse habitats are on indigenous peoples' and local communities' lands and territories.[2] Communities' cultures, identities and physical survival as distinct peoples are sustained by their traditional resources and territories. What is more, the forests on indigenous territories in the Amazon Basin, the Mesoamerican region, Democratic Republic of Congo and Indonesia alone contain over 20% of the global above ground tropical forest carbon.[57] 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 Papua 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.[2,58] As languages, cultures and ecosystems are interdependent, these areas are also home of much of the world's cultural and linguistic diversity[59] (see also Target 18 and Figure 5).

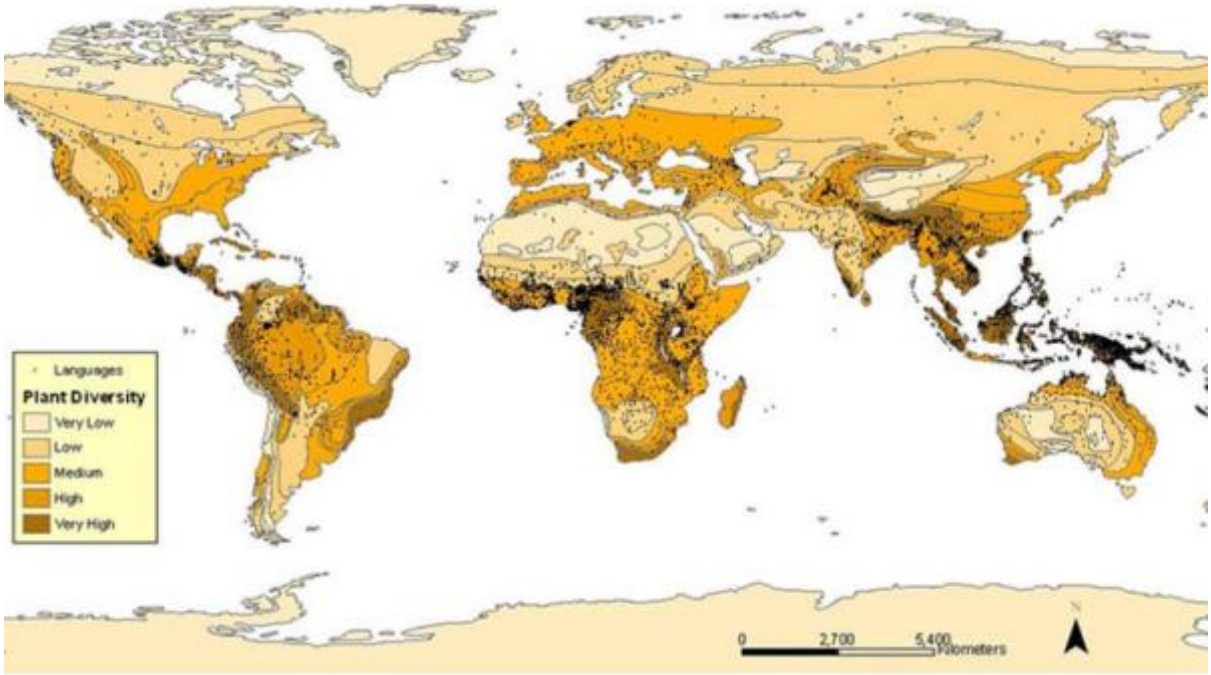


Figure 5: Overlap between biodiverse habitats and areas of high cultural diversity: Plant diversity and language diversity serve as indicators to illustrate the interlinkages between biological and cultural diversity[60]

Communities' systems for territorial management (including community forestry) have been essential in conserving forests and other habitats, while providing sustainable livelihoods to communities.[44] In spite of this, communities have secure land tenure over less than one-fifth of their traditional lands. At the same time, recent years have seen an increase in appropriation of customarily owned forests and other habitats by governments, agribusiness, mining companies, speculators and powerful local elites.[1] The combination of weak government regulations over the private sector and weak recognition of indigenous peoples' and local communities' land and forest tenure has created a situation of land and resource conflicts and human rights violations against

communities. In 2015, 45% of human rights defenders assassinations were linked to the defence of environmental, land and indigenous peoples' rights.[61]

Widespread habitat loss and degradation has affected indigenous peoples and local communities across the world. There are 1.5 billion forest-dependent people that obtain direct and indirect livelihood and environmental benefits from the world's forests, 370 million of whom are estimated to be indigenous and tribal peoples. Shrinking forests and reduced access to resources can lead to scarcity of livelihood materials, decreasing food security, poor nutrition, ill health and severe hardship. Due to legacies of discrimination, in some cases customary practices of indigenous and local communities continue to be blamed for habitat loss and degradation, even when this contradicts available empirical evidence (e.g. rotational farming; see also Target 15).[44]

Current policy frameworks are characterised by weak state environmental regulations with regard to business and markets and voluntary standards developed by the private sector. The "High Carbon Stock" (HCS) approach has been adopted by many of the largest commodity producers linked to deforestation (e.g. palm oil) 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 confirmed that many HCS forests can be found on the territories and lands of indigenous peoples and local communities (see also Box 12). This highlights the importance of securing communities' rights and safeguarding community livelihoods in the zoning and implementation of the HCS approach. If HCS zoning is imposed on community lands without their Free Prior Informed Consent (FPIC) this can create "green land grabs" and lead to escalation of land conflicts.[62]

Voluntary mechanisms by the private sector to reduce deforestation and forest degradation need to work with communities to address land tenure security and community livelihoods and the strengthening of traditional practices and community conservation of forests.

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

Community-based conservation as an effective tool for reducing deforestation and forest degradation

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.[63]

The Kayapo in Brazil have had outstanding successes in halting habitat loss and degradation. Through decades of fighting against encroachment by illegal gold miners, mahogany loggers and ranchers, the Kayapo have successfully conserved 105,000km^2 of tropical forests in a frontier zone characterised by heavy deforestation (see Figure 6). They also mobilized

Figure 6: 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[64])

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.[64]

Activism at local, national and international level to stop habitat loss and degradation.

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.[65]

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.[66] 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[67] (seeBox 11).

Box 11: 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[67])

Box 12: 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.

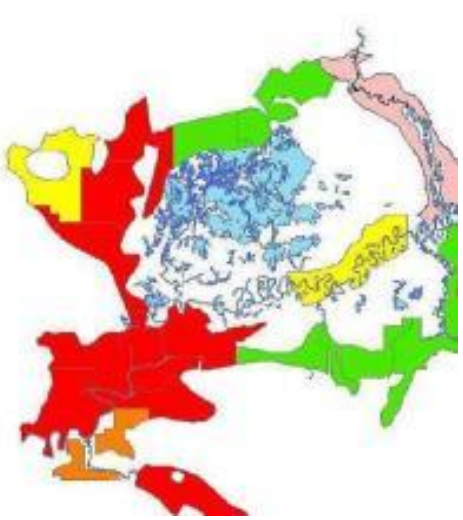


Figure 7: Palm oil concessions are issued in a ring around Danau Sentarum National Park[68]

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.

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. As a young man from Bati village explained: "We have seen the impacts of oil palm in neighbouring areas that are devastating. We are concerned that our culture will disappear with the arrival of oil palm plantations."

Figure 8: 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.

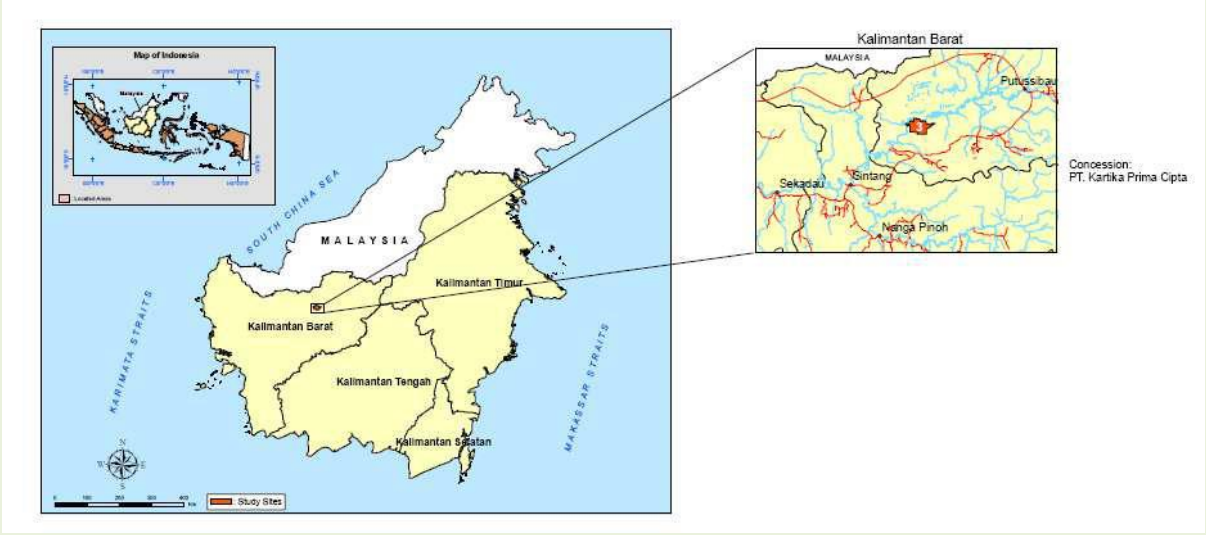


Figure 9: Location of PT KPC in Kapuas Hulu, West Kalimantan[69]

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"[68]

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?"

Opportunities and recommended actions to enhance implementation of the target

CBD, parties and NGOs to:

- Support community based monitoring of forests and other 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)[70].
- Strengthen the role of indigenous peoples' and community conserved areas (ICCAs) in order to increase effectiveness and efficiency of habitat conservation
- Support communities' initiatives for moratoriums on oil palm, extractive industries and logging to stop land grabbing and unsustainable land conversion.
- Protect community activists, environmental and human rights defenders

Governments to:

- Evaluate and improve national mechanisms and institutions for land use planning and forest governance, with the aim of increasing opportunities for indigenous peoples and local communities' initiatives to conserve habitats.
- Increase demarcation of IPLC lands, territories and resources, consistent with good governance of tenure of land, forests and other natural resources to achieve both conservation and development goals

Private sector to:

- Ensure that zero deforestation commitments safeguard communities' livelihoods and secure communities' rights to their lands and territories.

Indigenous peoples and local communities to:

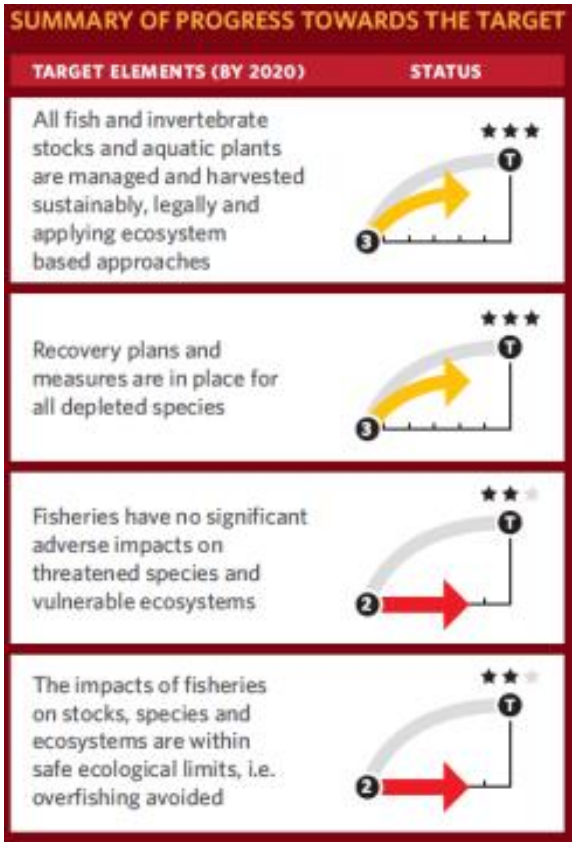
- Continue defense of lands and forests and engage stakeholders at all levels to ensure that government and private sector initiatives to conserve habitats have a positive impact and respect human rights.

Key resources:

- The Palangka Raya Declaration on Deforestation and the Rights of Forest Peoples: http://www.forestpeoples.org/sites/fpp/files/news/2014/03/declaration_english.pdf
- Porter-Bolland, L. *et al.* Community managed forests and forest protected areas: An assessment of their conservation effectiveness across the tropics. http://www.cifor.org/publications/pdf_files/articles/AGuariguata1101.pdf
- CFS and FAO. Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security: http://www.fao.org/docrep/016/i3016e/i3016e.pdf

TARGET 6: Sustainable management of marine living resources

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, the continuation of unsustainable fishing practices not only threatens fishing stocks, threatened species and vulnerable ecosystems but also the livelihoods of many local fishers and their customary sustainable fishing systems. Global and national assistance is needed to tackle this.

Introduction

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 for depleted species, there has been little to no progress on reducing the adverse effect of fisheries or on reducing overfishing. There is also limited information available on the management and harvest of aquatic invertebrates and plants.[30]

Why this Target is important for IPLCs

IPLCs are among the people who are most reliant on ecosystem services, including aquatic animals and plants for food and cultural purposes, and are consequently threatened by the unsustainable fishing practices of large fishing companies. Women are particularly negatively impacted by the effects of overfishing because they make up a large part of the fishing sector, according to the International Collective in support of Fishworkers (ICSF), women constitute nearly 90 per cent of the post-harvest sector'[71] , and are generally those responsible for the food security of their families. In addition, when political assistance is offered to community fisherpeople dealing with the effects of overfishing, women tend to be overlooked due to their unacknowledged role in the fishing sector.[72]

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. However, in many fisheries these rights are not clearly established or recognized. For small-scale fishing communities safeguarding these tenure rights 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. The connection between cultural diversity and biological diversity, as discussed in the introductory

chapters, coupled with the fact that many IPLCs have been successfully using aquatic resources sustainably for hundreds of years, strongly suggests that loss of traditional knowledge associated with sustainable management of the seas and coasts could result in further biodiversity loss.

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

Traditional sustainable fishing methods offer useful lessons for more sustainable, ecosystem-focused fishing practices at wider scales. For example the haenyeo[x] 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.[73] 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.[74] Respect for nature is an intrinsic part of the sui generis shamanistic religion[y] practised on the Jeju Island and feeds into the interactions between the haenyeo and the sea they harvest. Encouraging the continuation and transmission of these often threatened traditional practices is important for the achievement of this target.

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 the small community-based marine sanctuaries on Balicasag and Pamilacan Islands demonstrate that it is not realistic for scattered, small no-take areas to maintain fish abundance and diversity on surrounding reefs when intensive fishing is occurring immediately adjacent to no-take areas.[75] This highlights the limitations of small and isolated MPAs[76] and emphasises the importance of nesting individual MPAs within broader management regimes with a focus on national policies supporting overall reductions in fishing quotas and increased networking between MPAs.

Examples of national level policy decisions supporting the rights of indigenous fishers to sustainably manage aquatic resources include: the recent affirmation of commercial fishing rights to Torres Strait Islanders[77], and increased support for and recognition of the Satoumi approach in the Japanese Archipelago. The Satoumi approach, a concept encompassing ocean stewardship and traditional local fishery management and coastal resource use, has been utilised by small communities in Japan over hundreds of years. In addition to the sustainable use of marine and coastal resources, the Satoumi approach also includes mechanisms for preserving aquatic ecosystems; it is thought that 30% of the MPAs in Japan are community-based self-imposed no-take zones. Governmental support for Satoumi initiatives includes awarding exclusive harvest rights to local fishers over specific areas, there is also increasing recognition of the importance of these community initiatives for meeting biodiversity targets, mainstreaming and promoting ecosystem approaches to aquatic resource management.[78,79]

Box 13: History of the Ngati Hine pilot program for the monitoring, recovery, and protection of eels

Author: Tui Shortland

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

[y] Hilty, A., & Hong, S. (2013, January 30). Jeju shamanism: a primer. The Jeju Weekly. 'One of the features that renders Jeju shamanism unique is the familial, almost casual attitude of devotees toward their gods. Most deities in the extensive pantheon of this "Island of 18,000 Gods" were either once human, elevated to deity after death, or are otherwise perceived as ancestors and as members of the village in which a shrine is located and rituals are based.'

Ngati Hine is a fishing nation in Aotearoa/New Zealand which cultivates a day to day relationship with eels. We maintain 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 were sustainable over a seven year period.

Over the past ten years, Ngati Hine, alongside customary and commercial fishers, have expressed concerns over declining eel populations. In 2011, we completed an eel population survey with the support of the National Institute of Water and Atmospheric Research, 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 where eels can 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 on the lower Taumarere River.

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 across the North Island. The project is called '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 over elvers (baby eels, 'tangariki' in Maori) due to the manmade and natural obstructions within our catchments. Local kaitiaki[z] have historically helped transfer the elvers above waterfalls and continue this practice today. This is embodied in the local story of a taniwha[aa], 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 contained obstructions and therefore necessitated outside assistance for elvers. Methodologies for elver recruitment were discussed at community meetings. The decision was made, based on assessments of ease of use, impact on the local environment, cost and effectiveness, to install mussel spat ropes to assist elver recruitment. The three pictures below show young Ngati Hine fishermen being shown how to set up these ropes (photos 1-3). These areas were monitored regularly, and some elvers were transported and transferred upstream (photo 4).

The long fin management research involved a 'customary catch approach' with fishers who continue to fish during the eels migration run. In Ngati Hine, whanau[bb] use traditional ways of catching the eel migrators, such as eel weirs (see photos 5-6). Six Ngati Hine monitors actively monitored their waterways during rainfall periods and fishers involved in the research agreed to keep records of catch volumes, sub-species, sex, length, etc. (photo 7).

Objective 2 - Improve habitat appropriate for eels

Following the completion of the eel migration research, a two day community meeting was held to discuss monitoring outcomes and interventions to improve habitats. 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 maintain. An analysis of some swamp areas and waterways running into and from the repo[cc] was carried out (photo 8). It was agreed that the appropriate flow of swamps is an important factor which could be measured by keeping eels boxes, like those shown in

[z] 'Kaitiaki' means environmental guardian

[aa] 'Taniwha' means supernatural creature

[bb] 'Whanau' means community or extended family

[cc] 'Repo' means swamp

the photos above. Eel mortality and health can also indicate the amount of available food flowing through for the eels. Impacts of farming and pine forestry, including flora and fauna used for grazing and shelter, were identified as having harmful effects on elvers and eels habitat. Following these discussions, priority sites for enhancing this 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.

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 with each other through improved respect and understanding. This has been an invaluable contribution to the pilot project.

The feasibility of promoting young fishers into commercial fishing has been an ongoing discussion during this project.

Ngati Hine believes that the first priority is to continue to use eels to sustain the livelihoods of the people. There is a strong desire 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. The Northland Regional Council supported the Kete Tangariki project as well as providing ongoing support for the eel and water management. The Taumarere Catchment has now been identified as a fifth priority catchment area and the council will be assigning funding for collaboration with Ngati Hine in its future management. 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 has discussed whether we would be interested in adapting a common methodology so that Maori can contribute to national reports on the status of eels. The results and any future work on this inventory will ultimately influence regulations surrounding sustainable fishing in Aotearoa.

Photos

Credit: Doug Jones 1

Credit: Cilla Brown 1

Credit: Tohe Ashby 2

Opportunities and recommended actions to enhance implementation of the target

- **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**

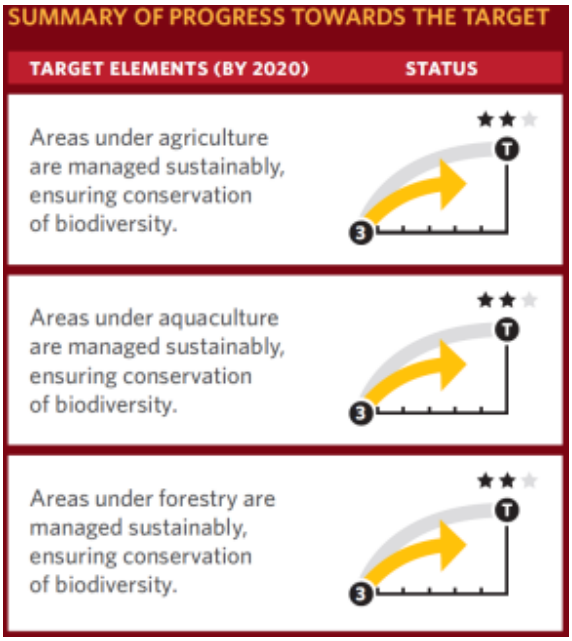
While increased participation in decision-making and management can be a useful approach it may be too narrow. Right to marine resources and land tenure rights, remain a key priority for many small-scale and traditional fishing communities, including rights to riparian and coastal resources and to fisheries resources.

Key resources:

- The International Collective in Support of Fishworkers (ICSF) http://www.icsf.net/index.php
- 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/
- Kete Tangariki - Pilot Tuna Enhancement Project
- Nga Tikanga mo te Taiao - Ngati Hine Environmental Management Plan
- Ko Ngati Hine Pukepukerau - Ngati Hine Catchment Management Plan
- Tuna population survey with NIWA

TARGET 7: Sustainable agriculture, aquaculture and forestry

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.



Key message: The translation of the Plan of Action on Customary Sustainable Use of Biological Diversity into national and local plans and targets and implementation of these, provide positive opportunities for enhanced attainment of Aichi Biodiversity Target 7. Customary sustainable use practices and management systems, including community-based innovations, have been proven and are increasingly recognised as extremely effective ecosystem-based conservation approaches.. Positive national and international examples are emerging which award and support renewal and strengthening of customary knowledge on biodiversity related to agriculture, aquaculture and forestry.

Introduction

CBD guidance on developing and refining national targets in support of Aichi Target 7 highlights how customary use of biodiversity by indigenous and local communities can often offer lessons of wider applicability.[6] Examples of such exemplary practices of customary use include: rotational agriculture in the tropics, community-based fire management, agricultural heritage systems and agro-foresty, as outlined in the next section.

COP12 endorsement of the Plan of Action on Customary Sustainable Use of Biological Diversity, which builds on the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, gives further impetus towards implementation of this target based on the full and effective participation of IPLCs.

GBO4 suggests that one way of supporting customary sustainable use is delegating governance and responsibility for land management to indigenous and local communities. This is consistent with the practice of countless communities who are making valuable contributions to sustainable use but are

facing difficulties in enforcing customary rules due to lack of formal authority and decision-making power. In such cases territories under sustainable customary governance risk being degraded or destroyed by external pressures and demands.

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

Customary sustainable use in forest and agricultural landscapes

The traditional land use system of the Lua (La-weu) peoples in northern Thailand offers an example of CSU and a stimulus for other low-impact approaches to forestry and agriculture with broader application. The Lua community has different categories of conservation forests guided by various rules and agreements ranging from sacred forest, which can only be used for performing rituals, to forests where they will not cut trees but only gather timber and food. They also practise rotational farming or shifting cultivation as a sustainable management strategy (see Box 14). This highly sophisticated agro-forestry system is practised in nine areas which are unsuitable for rice paddy farming, and each area is used for one year. The areas are decided on in community meetings. The main crop is rice but many other plants are also grown in the fields. Land is cleared and dried for two months, then burned, but first fire break lines are made near the fire protection forests to prevent spreading. When cutting the trees, the community members leave the stumps at a height of 60-100 cm and, after harvesting, trees will sprout from these stumps again. This allows forest to regenerate quickly. Land is left fallow for at least nine years. A local leader explains: ”if you farm like this, the soil will remain healthy, and the rice is good”. [dd]

Support by policy makers, conservation managers, UN agencies and CSOs for customary use of biodiversity by indigenous peoples and local communities as shown in Box 14.

Box 14: Multi-stakeholder collaboration to enhance recognition and support for shifting cultivation in Asia

Indigenous peoples across South and Southeast Asia depend strongly on shifting cultivation (also known as rotational agriculture or swidden farming) for their livelihood and food security, but this landscape management approach continues to be one of the most misunderstood and controversial forms of land use. What has been overstressed is the “slash and burn” component, whilst the cultivation and fallow period are not fully appreciated as good practices for biodiversity enhancement, food security and sustainable livelihoods for millions of indigenous peoples. In many Asian countries, there are policies on land use that consider shifting cultivation as a driver of deforestation. These policies are damaging indigenous land use systems and are resulting in food insecurity and the loss of biodiversity and traditional knowledge of indigenous peoples.

In the context of the above, the FAO Regional Office in Asia and the Pacific (FAO-RAP) and the Asia Indigenous Peoples Pact (AIPP) initiated a project on ‘Regional Support to Indigenous Peoples for Livelihood and Food Security (2014)’. Seven case studies were conducted in Bangladesh, Cambodia, India, Indonesia, Laos, Nepal and Thailand on the livelihoods and food security among indigenous shifting cultivation communities.

The case studies concluded that shifting cultivation plays a significant role in providing livelihoods and ensuring food security for those indigenous communities; that their lives and cultures are

[dd] See video “Community Based Forest Management: Local Solutions to Global Challenges”, produced by the Asia Indigenous Peoples Pact (AIPP) and the International Work Group for Indigenous Affairs (IWGIA), in collaboration with Indigenous Peoples’ Foundation for Education and Environment (IPF), 2014. https://www.youtube.com/watch?v=fAz0_NlxMuM&hd=1

intrinsically linked to shifting cultivation, and that the traditional shifting cultivation fallow cycle of 7 to 10 years is sustainable and does not lead to deforestation unless restrictions on land use compel farmers to clear new land in forest areas.

The findings of the case studies were presented and discussed in a multi-stakeholder consultation in Chiang Mai, Thailand, with active participation of government representatives, UN agencies, regional NGOs, Indigenous Peoples' organizations and community leaders; and local governments. Discussions affirmed that sustainably managed shifting cultivation requires protection and promotion. The consultations raised awareness about the importance of shifting cultivation and fostered collaborations between the different stakeholders involved, building on the principle of equal partnership between states and indigenous peoples and adherence to the right to free, prior and informed consent (FPIC). Many of the recommendations highlighted provision of support services for indigenous peoples to enhance their livelihoods by governments, with support from FAO, other UN agencies and CSOs.

Customary practices and knowledge on fire management

Around the world IPLCs have practised the use of controlled fires to regenerate pastures, fertilize land, shape landscapes and control undesired insects, plants and animals. Traditional natural commons, controlled by specific communities, are and have been associated with multiple and wise uses of fire.

Restoring and promoting traditional fire management patterns, which are linked to wider governance and management structures, will have significant benefits for biodiversity as they help prevent large, uncontrolled and destructive fires associated with ineffective firefighting models. A persistent challenge is that many countries' budgets prioritize fire-fighting equipment over prevention.

In most areas of Spain, traditional fire management was closely related with communal grazing of cows, horses, sheep, goats, and even pigs, often several in rotation during different seasons. As a result, a number of local breeds developed over the centuries, well adapted to the great variety of the Iberian Mediterranean forest ecosystems, ranging from sea level to over 2300 m of altitude. However, under the influence of the EU agrarian policies, traditional communal and family flocks and transhumance diminished, resulting in a sharp decrease of forest grazing, and the loss of several traditional breeds.

Fires are a persistent yearly threat in southern Europe and grazing has proved to be one of the most effective, cheap and traditional prevention strategies. Local groups from Spain are lobbying for animal grazing as a fire prevention method. Very positive experiences have been tested for years on the ground in several Spanish regions (Castilla y León, Catalonia and Andalucia). A measure of fire prevention through grazing was admitted in the latest Spanish Rural Development Programmes. In Catalonia, the awareness of the need of recovering traditional fire management resulted in the creation of a specialized team of firefighters (Grup de Recolzament en Actuacions Forestals, GRAF) in 1999, devoted to create strategic small fires during winter time in order to prevent large scale wild fires in summer.[80]

Similarly, in the USA a fire learning network has emerged so that people can relearn forgotten fire management skills and restore the social and ecological diversity of forest systems.[81]

Box 15: Globally Important Agricultural Heritage Systems (GIAHS)[82]

An important international initiative that recognises and supports communities and local knowledge in agricultural biodiversity, is the FAO initiative "Globally Important Agricultural Heritage Systems (GIAHS)".

This initiative emphasises that, worldwide, specific agricultural systems and landscapes have been created, shaped and maintained by generations of farmers and herders utilising diverse natural resources and locally adapted management practices, and building on local knowledge and experience. In 2002 FAO started the initiative to safeguard and support these "agri-cultural heritage systems" and to promote public understanding, awareness, national and international recognition of these systems.

Over the past decade, the GIAHS Initiative has designated thirty-two sites around the world and has many success stories to share. China currently has the most GIAHS sites, which include various rice culture systems including: rice-fish culture, Hani Rice Terraces, Dong's Rice Fish Duck System), Pu'er Traditional Tea Agrosystem, Xuanhua Traditional Vineyards System, Jiaxian Traditional date Gardens, Xinghua Duotian Agrosystem, and Fuzhou Jasmine and Tea Culture Systems.

Box 16: Exploring a labelling scheme for biocultural heritage-based products

The use of certification and labelling systems or standards is one of the existing proposed 'actions and milestones' to be promoted as part of this target. The International Institute for Environment and Development (IIED), the University of Leeds and Asociacion ANDES from Peru are exploring the development of a new labelling or indication scheme for "biocultural, heritage-based products" as an innovative way of supporting this option. Labelling and certification schemes exist for ecological and fair trade products, but there is no such scheme specifically protecting biological and cultural diversity.

The aim is to develop a non-bureaucratic and inexpensive scheme that can be easily used by indigenous peoples around the world and to find a culturally appropriate approach to marketing that harnesses goodwill towards indigenous peoples and their traditional lifestyles. An informal collective trademark developed by the Potato Park in Peru, for example, increased revenues and strengthened social cohesion and environmental stewardship, but the communities were not able to register formal trademarks for their products due to bureaucratic difficulties.

The proposed scheme will emphasise and authenticate the way that cultural and spiritual values, local knowledge, innovations and practices, and the local environment, including ecosystems, biodiversity and landscapes, are all closely linked, giving products a unique character. The "indication" could be a graphical sign, accompanied by the name of the relevant indigenous group, community or territory, to be applied to goods and services that embody or express biocultural heritage, and to goods and services whose sale supports biocultural heritage. The scheme aims to ensure that as much of the market value as possible is captured locally, through "full benefit capture", rather than "benefit-sharing" from products developed by others (as in the ABS model).

Consultations on the design of the scheme and investigation into similar schemes are currently taking place. A number of key design questions around accessibility, local language, certification vs labelling, and enforcement, amongst other issues, still need to be addressed. However, concrete initiatives like this hold the potential to promote continued and enhanced sustainable community-based agriculture, forestry and aquaculture while providing a source of income and incentives to sustain these practices.

Benefits of devolving management to local levels

Devolving governance and responsibility for land management to indigenous and local communities is one of GBO4's proposed actions to enhance progress towards Target 7. In relation to the conservation of forest areas, growing and diverse sources of evidence highlight the positive contributions from community based-forest management. CIFOR reports that community forestry is highly effective and that "the worlds' best-kept forest and ecosystems tend to be in indigenous peoples' territories." Analysis of annual deforestation rates reported in 73 case studies conducted in the tropics, found that deforestation is significantly lower in community-managed forests than in strict protected forests. The findings also underscore that greater rule-making autonomy at the local level is associated with better forest management and livelihood benefits.[63] A related study on forest

loss, undertaken by the World Bank Independent Evaluation Group, comes to similar conclusions about the effectiveness of community-managed forests, in particular forest areas managed and controlled by Indigenous Peoples. "*The results suggest that indigenous areas and multi-use protected areas can help accomplish these goals, also suggesting some compatibility between environmental goals (carbon storage and biodiversity conservation) and support for local livelihoods. Zoning for sustainable use may be more politically feasible and socially acceptable than designation of strict protection in areas of higher population density and less remoteness*".[83]

Opportunities and recommended actions to enhance implementation of the target

Parties, governments, funders and relevant organisations, with the full and effective participation of IPLCs, to:

- Prioritize effective implementation as well as active follow-up of the Plan of Action on customary sustainable use (see also Target 18).
- Explore and promote innovative, collaborative initiatives that recognise and support customary use and traditional ways of life
- Devolve management and decision-making authority over agricultural, aquacultural and forestry areas that are located in indigenous lands and territories to customary institutions
- Give wider attention and publicly award and support communities and local knowledge in agricultural biodiversity (e.g. though GIAHs nominations)

Indigenous peoples and local communities to:

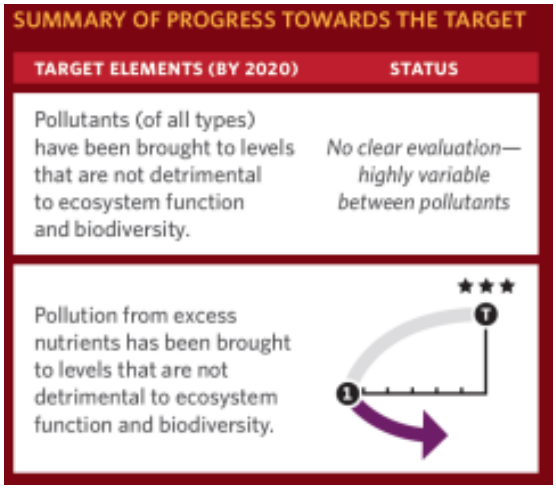
- Continue recovering and strengthening their sustainable traditional management systems.

Key resources:

- 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). http://www.forestpeoples.org/customary-sustainable-use-studies
- http://www.fao.org/giahs/giahs-inforesources/success-stories/en/
- http://aippnet.org/briefing-paper-on-shifting-cultivation-livelihood-and-food-security-new-and-old-challenges-for-indigenous-peoples-in-asia/
- http://www.iied.org/consultation-designing-new-biocultural-heritage-indication

TARGET 8: Pollution reduced

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, restoration of degraded areas and sustainable agricultural production.

Introduction

Environmental pollution continues to worsen in many regions of the world. While nutrient pollution (e.g. nitrogen from agricultural fertilizer) has levelled off in Europe and North America it 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 global evaluation was possible at the time of GBO4.[30]

Environmental pollution directly affects the health and well-being of indigenous peoples and local communities, who rely on water from natural streams and/or directly depend on hunting, fishing and gathering for their diets. The siting of highly polluting land uses (e.g. landfills, chemical plants) close to politically disempowered and economically poor ethnic communities has also been documented, raising charges of "environmental racism".[84] Heavy metal pollution (e.g. lead or mercury) is particularly problematic as it can bioaccumulate in the body and in food chains, affecting both biodiversity and people relying on affected species for their diets. There are various examples of the harmful effects of pollution on indigenous peoples and local communities. For example increased Achuar mortality has been linked to oil exploitation in Peru[85] (see also Box 17). Many indigenous and local communities have filed legal cases to stop pollution and restore polluted areas in their lands and territories but protracted legal battles and delayed payments have meant that many communities are still waiting for urgent actions to protect their lands, health and well-being. Communities that do not have access or the means to buy clean food and water may thus be forced to continue consuming contaminated goods.

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

Protecting healthy ecosystems by stopping polluting mining practices

Communities have made important contributions to reducing environmental pollution from unsustainable mining practices. 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 claims on their traditional lands and river corridors (which are the subject of a long-standing

land claim in the High Court of Guyana). 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. 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).[86]

Using legal cases to hold polluters to account

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.[87] To this day, however, Chevron has not made this payment and has been implicated in the intimidation of judges in Ecuador, bribing of others and falsification of evidence.[88]

Box 17: Linking community-based monitoring and reporting of oil pollution to environmental enforcement– 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, without communities' consent. 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. Communities suffered from many illnesses but did not know what was going on. In September 2013[89] the situation was declared an environmental emergency, partly due 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.

Spill (© FECONACO)

Activities of the Territorial Vigilance Programme

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; 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 numerous spills and incidents [e.g. pipeline spills, leakage from storage wells, dumping of waste produced water]. 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 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.

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.

Reducing nutrient pollution through the promotion of traditional agricultural practices

Indigenous peoples and local communities around the world are making important contributions to reducing 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 food sovereignty initiative and verification and validation system for products and food production, aligned with the Slow Food Movement (see Target 1). 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. Hua Parakore also promotes the re-establishment of vibrant, diverse and food-secure indigenous economies and provides communities with alternative pathways for development. Hua Parakore has been essential for linking indigenous knowledges and practices with non-indigenous organic certification schemes that had not been able to verify and validate indigenous knowledge or ways of knowing as key to organic practices for Maori growers. This initiative has contributed to developing a bi-cultural partnership between Maori and non-Maori organic interests, building momentum for transformative change to holistically approach food production and focusing on conserving ecosystems, biodiversity, soil and people health.[90]

The Andean Project for Peasant Technologies (PRATEC) likewise promotes traditional, sustainable agricultural practices and agrobiodiversity. Founded in 1986, PRATEC has carries out and coordinates training programmes alongside local universities to revitalise Andean culture and agriculture in the Andean regions of Peru and Bolivia. This has not only supported reducing nutrient pollution but has also increased the diversity of cultivated plants and revitalising Andean indigenous culture [91]

Kalanguya communities in Tinoc, the 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-1990s (see Target 19 for more details).[92]

Opportunities and recommended actions to enhance implementation of the target

CBD and parties to:

- Link up with and support relevant indigenous and community-based organisations engaging in training and outreach activities promoting traditional, sustainable agricultural practices. Not only does this contribute towards reducing nutrient pollution (Target 8) but also towards safeguarding genetic diversity of cultivated plants (Target 12) and strengthening traditional knowledge (Target 18).
- Support existing initiatives to strengthen agricultural heritage sites, such as GIAHS – Globally Important Agricultural Heritage Systems.

Governments to:

- Explore and facilitate mechanisms for communities to work together with relevant government agencies to report environmental crimes and pollution and monitor business compliance with applicable environmental regulations.
- Investigate and strengthen national mechanisms and institutions for providing legal support to communities to ensure that the “polluter pays” principle is enforced and that damages are adequately compensated.
- Continue improving national environmental laws and standards to ensure that the cleanest possible technologies are used, learning from significant improvements in national environmental regulations being made around the world.

- Improve land zoning and strategic environmental impact assessments (or similar assessments) to prevent/stop activities likely to cause environmental pollution in environmentally fragile areas or on community lands. Strengthening community mapping activities and community land use planning can provide important contributions.

Governments and private sector to:

- Train and financially support indigenous and/or community-based environmental monitors to gather information on ecosystem health and trends in environmental pollutants. This not only builds trust with communities but also increases cost-effectiveness and efficiency for achieving this Target.
- Provide urgent access to clean food and water for communities affected by environmental pollution.
- Work together with affected communities to urgently restore degraded areas, recognizing that traditional ecological knowledge can make important contributions to improving ecosystem restoration (see also Target 15).

Research and academic organisations:

- In collaboration with communities, investigate how traditional ecological knowledge can improve restoration of polluted areas

Indigenous peoples and local communities to:

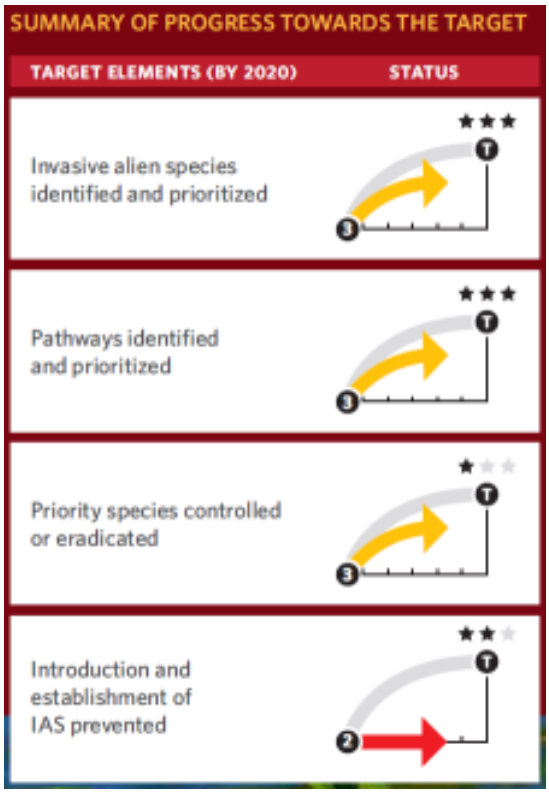
- Upscale community-based environmental monitoring programmes and continue engaging with stakeholders at all levels to avoid, reduce and remediate environmental pollution
- Continue promoting traditional agricultural practices to reduce nutrient pollution

Key resources:

- Indigenous environmental monitoring in the Peruvian Amazon: http://observatoriopetrolero.org/reportes-ambientales/
- Hua Parakore initiative and certification system: www.tewakakaiora.wordpress.com
- PRATEC Proyecto Andino de Tecnologías Campesinas: www.pratecnet.org/wpress/
- GIAHS – Globally Important Agricultural Hertiage Systems: http://www.fao.org/giahs/giahs-sites/en/

TARGET 9: Invasive alien species prevented and controlled

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: IPLCs can play a significant role in identification, assessing impacts, monitoring, and control or eradication of Invasive Alien Species (IAS). Their inputs, building on traditional knowledge and deep knowledge of their ecosystems can complement scientific solutions and strengthen holistic, ecosystem-based approaches. IAS pose serious threats to IPLCs' cultural, environmental and food systems, especially for IPLCs inhabiting islands, and many have initiated programmes to address this growing problem.

Introduction

The number of IAS continues to increase globally as do their impacts on biodiversity.[30] The Millennium Ecosystem Assessment concluded that the impact of invasive alien species on biodiversity was exceptionally high on islands compared to other biomes.[93]

Why this Target is important to IPLCs

This continued increase in the numbers of IAS also has jeopardising impacts on IPLCs' wellbeing and livelihoods, for instance: the impediment of vital water sources by plant IAS which 'choke off' rivers or lakes; threatened food security following soil degradation or loss of pasture land; time and resource loss due to fighting IAS; damage to sacred areas; and disruption of burning patterns.[94] In particular for IPLCs inhabiting islands, IAS are a pressing issue.

Conversely, situations can arise where IAS come to be valued by IPLCs, especially as conventional concepts of 'weeds' or 'pests' may not necessarily exist in IPLC cultural lexicons. For example, the Spinifex People of the Western Desert in Australia not only rely on feral cats as an important contribution to their diets, there is also evidence that cats have been adopted as part of their spiritual and cultural history, known as 'The Dreaming'[ee], with similar totemic value given to them as native plants and animals.[95] In such situations, engaging with and recognising the cultural or subsistence value of such IAS to IPLCs is an important aspect of dealing with IAS and their long term negative effect on ecosystems.[96]

Contributions and experiences of IPLCs towards the target

IPLCs are producing management plans for controlling IAS and preventing or minimising their effects on cultures and livelihoods. The connection many IPLCs have with their lands and territories

[ee] 'The Dreaming' in Aboriginal culture refers to the past, present and future environment in which Aboriginal people live, as well as spiritual and cultural concepts within the environment including knowledge of plants and animals.[216]

engenders their ability to notice small changes in the ecosystem (on-the-ground monitoring) and to respond more rapidly than external actors.[97]

Box 18: Indigenous Rangers controlling invasive pond apple infestations in World Heritage Area, in north east Queensland, Australia

Author: Chrissy Grant, Member of Jabalbina Yalanji Aboriginal Corporation[98]

In 1988 most of the Eastern Kuku Yalanji (EKY) *Bubu* (Land/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. Following 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.[98]

In 2009, EKY Traditional Owners agreed to establish a clan-based Indigenous Protected Area (IPA). Since 2013, the Jabalbina Yalanji Rangers have managed 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 in implementing the IPA management plans agreed by the Traditional Owners is the presence of over 125 species of introduced weeds (IAS), some widespread. One IAS is the Pond Apple (*Annona glabra*), a 'weed of National Significance'. It originated in America and West Africa and was introduced to Australia around 1912. It behaves like a mangrove, thriving in brackish and fresh water, so is salt tolerant and the fruits and seeds will survive in full strength saltwater for long periods, it produces dense growth and crowds out native vegetation. It now extends along the coastline from far northern New South Wales, along most of the Queensland and Northern Territory coastlines. It transforms coastal wetlands, replacing native mangrove forest, paperbark tree swamp and nationally-endangered coastal littoral forest species[ff], forming mono-cultural thickets.

Since 2014 Jabalbina have collaborated with non-profit groups[99] and local Government completing pond apple surveys and carrying 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 been trained to identify/detect and control pond apple, including hand pulling very small seedlings and using the basal barking technique for larger trees, which involves spraying a small amount of herbicide directly onto the bark at the base of the tree. Indigenous communities are generally against 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 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 the major challenge of eradicating pond apple from low-lying areas which are restricted by tides, *melaleuca* (tea trees) and mangrove swamps, which 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 of removing 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.

Box 19: An invader in our waters: actions of Guna People (Panama) in relation to the Lion Fish

Author: Jorge Luis Andreve[gg]

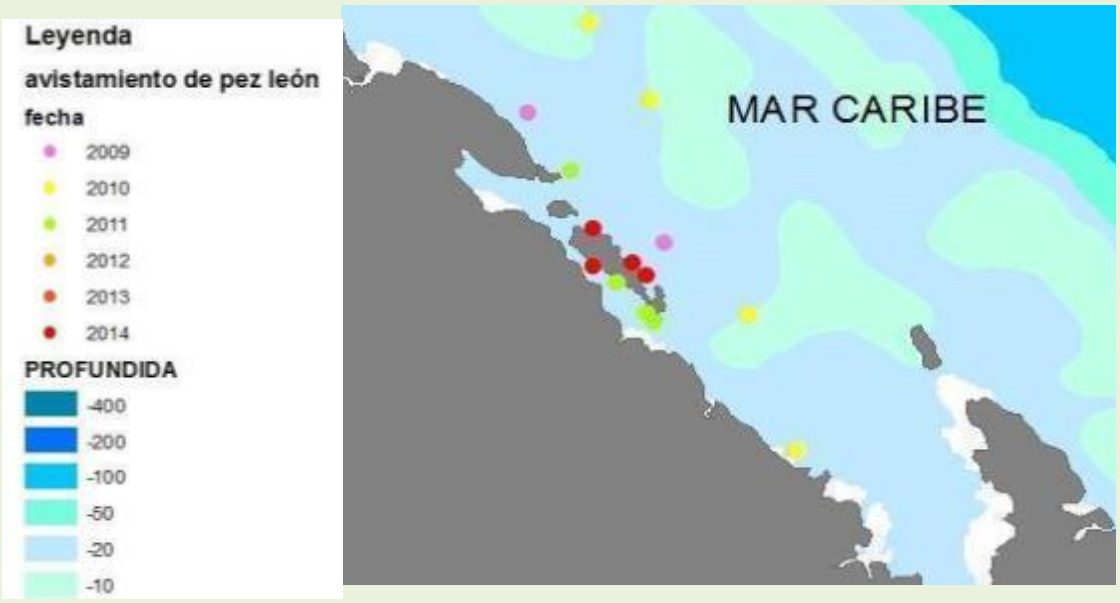
[ff] Littoral forests are a type of coastal forest which differ from mangrove forests.

[gg] 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

The lionfish is a priority invasive alien species that started on the East Coast of the United States in 1992 but has since spread down the coast to Meso America with exponential growth. Although lionfish have been spotted in the Gunayala region, Panama, since 2009, it wasn't until early 2010 that the communities became aware of the danger posed by the species, in particular when several of its fishermen and divers as well as three young children, were stung by the fish. All the victims were transferred from Gunayala to Panama city, due to our lack of medication and knowledge of 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 on the natural dynamic of communities and their culture. One of the first objectives was to develop a participatory map that included the places where the fish has been seen, focusing on the Usdub community, count them and collect information on attributes of the fish, e.g. length, during field trips. 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 lionfish.

Considering the lack of information about the potential impacts of this species, it is important for the Gunayala indigenous communities to seek viable ways to manage the lionfish in the region which do not undermine their cultural, environmental and food systems. Management plans need to be adapted to the particular needs of the Guna, given their reliance on the sea and coral reef systems, changes to which could irrevocably alter their diet and culture.



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

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

Box 20: Development of cultural indicators to monitor Kauri dieback disease in Aotearoa/New Zealand[100,101]

Kauri dieback is a deadly, fungus-like disease, specific to New Zealand which has killed thousands of kauri trees over the past 10 years. Kauri dieback was formally identified in April 2008. Its origin and time of arrival in New Zealand are still unknown, but evidence suggests it was introduced from overseas. This assumption is currently based on the narrow genetic variation found in the disease population (indicating a relatively recent introduction that hasn't had time to evolve variation) and the preference for high soil temperatures which suggests a more tropical origin.[102] No known treatment exists yet.

Kauri trees are 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), part of a joint Kauri Dieback Programme that covers research on detection of kauri dieback, 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 - quantitative or qualitative - that are measurable, repeatable and duplicable and that can:

- Determine the state of health of kauri forests in different areas
- Anticipate or predict the presence of kauri dieback; and

• Indicate resilient kauri trees or forests that are not susceptible to kauri dieback.

The TWR have championed the design of a framework which utilises cultural indicators for the surveillance and monitoring of kauri dieback. 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 kauri dieback. These indicators were creating using a *mātauranga* Māori approach[hh] 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
2) species identified living near kauri
3) species 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.

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* (educational seminar) 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* has potential in the fight against kauri dieback: either as a bio-control or to assist in building the resilience and enhancing the health of kauri *ngahere*.

Opportunities and recommended actions to enhance implementation of the target

- The CBD secretariat in conjunction with Parties and international organisations working on IAS matters to:
    - Recognize the importance of TK and community level monitoring and action in existing implementation measures for Target 9, such as the prototype toolkit on IAS[103]; consider involvement of indigenous knowledge holders in existing and future 'expertise groups'[104] and inter-agency liaison groups on IAS[105]; and include

[hh] 'Mātauranga Māori can be defined as 'the knowledge, comprehension, or understanding of everything visible and invisible existing in the universe', and is often used synonymously with wisdom. In the contemporary world, the definition is usually extended to include present–day, historic, local, and traditional knowledge; systems of knowledge transfer and storage; and the goals, aspirations and issues from an indigenous perspective.'[217]

case studies on community-based actions in the 'experience and case studies' database.[106]

- Initiate awareness-raising, through the clearing house mechanism, on cultural, environmental and food impacts from IAS for IPLCs.
- Develop, with inputs and participation from IPLCs, specific guidance on principles and approaches when working with IPLCs in IAS control programmes.

- Governments and relevant national and international institutions to:
  - Engage in dialogue, collaborative assessments and joint actions with traditional authorities of IPLCs and community organisations to identify and monitor IAS affecting their lands and territories, and to understand their local-level context and impacts
  - -Integrate traditional knowledge, and holistic ecosystem approaches, in existing and emerging "culturally sensitive" efforts to identify and control IAS

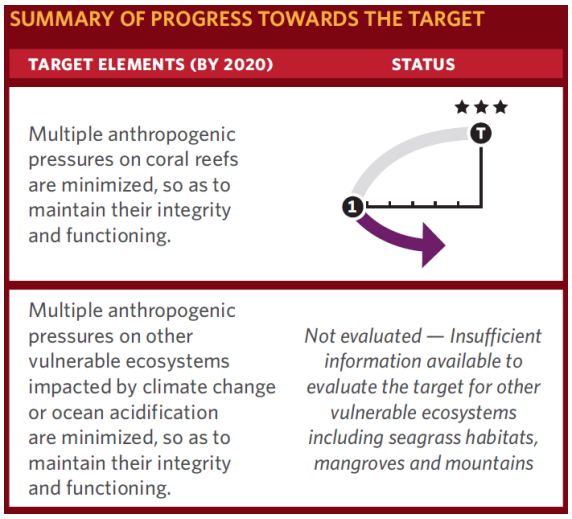
- IPLCs to continue to share their views and experiences and proposals for specific IAS contexts with national stakeholders and general public.

Key resources:

- Parlee, B. L., Goddard, E., Łutsël K'é Dene First Nation, Smith, M., 2014, 'Tracking Change: Traditional Knowledge and Monitoring of Wildlife Health in Northern Canada', Human Dimensions of Wildlife: An International Journal, 19:1) pp. 47-61.
- Boy, G., Witt, A., (2013) *Invasive alien plants and their management in Africa : how a multi-country "War on Weeds" project is helping an infested continent to stem the colonising onslaught of invasive species*. Nairobi : CABI Africa.
- http://www.nonnativespecies.org/sitemap/
- http://canadainvasives.ca/
- Ojaveer, H., Galil, B.S., Gollasch, S., Marchini, A., Minchin, D., Occhipinti-Ambrogi, A., and Olenin, S., 2014, Identifying the top issues of marine invasive alien species in Europe, Management of Biological Invasions (2014) Volume 5, Issue 2: 81–84.
- http://www.reabic.net/journals/mbi/2014/2/MBI_2014_Ojaveer_etal.pdf

TARGET 10: Pressures on vulnerable ecosystems reduced

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.



Key message: Progress on this target is being made through direct efforts by Indigenous People and Local Communities (IPLCs) on protection and restoration of vulnerable ecosystems, particularly mangrove forests and coral reefs. Through seasonal bans, temporary no-take areas and the successful enforcement of locally marine managed areas, many communities maintain ecological

integrity and resilience of coral reefs and other vulnerable ecosystems. Traditional knowledge and communities' systems and practices for adaptive natural resource management have the potential to greatly enhance the socio-ecological resilience of ecosystems impacted by climate change. Indigenous peoples, particularly those in small island, high-altitude, desert and the Arctic, are already experiencing the impacts of climate change. IPLC's ability to remain resilient in the face of an increasingly unpredictable and unstable climate is contingent on urgent global action to reduce greenhouse gas emissions and reform of climate mitigation and adaptation policies that stand to increase their vulnerability.

Introduction

Coral reefs, mangroves, mountain ecosystems and low-lying ecosystems are particularly vulnerable to climate change. Coral reefs also face increasing threats from other anthropogenic pressures such as overfishing, destructive fishing methods, coastal development and pollution.[30] Given the seriousness of the situation, the deadline for minimizing multiple anthropogenic pressures on coral reefs to maintain their integrity and functioning was moved to 2015, but this target has not been met[ii].

There is growing international recognition that communities' traditional knowledge and customary sustainable use practises not only underpin communities' resilience to climate change impacts[107], but also protect the integrity and functioning of vulnerable ecosystems. Progress on Aichi target 10 is being made through direct efforts by Indigenous Peoples and Local Communities (IPLCs) on reducing anthropogenic pressures on and restoration of vulnerable ecosystems, particularly mangrove forests and coral reefs. Through their traditional aquatic resource management systems many communities enforce seasonal bans and temporary no-take areas which ensure the continuing ecological integrity and resilience of vulnerable aquatic ecosystems.[108]

On an international level, the International Indigenous Peoples' Forum on Climate Change (IIPFCC), a caucus of indigenous peoples' and local communities' representatives, has been making important contributions to the United Framework Convention on Climate Change (UNFCCC).[109] Ill-informed climate mitigation and adaptation policies stand to increase communities' vulnerability to climate change and effective safeguards need to be in place to ensure that adaptation and mitigation actions respect the knowledge and rights of indigenous peoples and local communities.[110] The IIPFCC has also been facilitating advocacy on other key issues around climate change mitigation and adaptation – such as keeping reserves of oil and gas on communities' lands and territories in the ground and highlighting the important role that traditional knowledge plays in adapting to climate change.[109]

At the same time, indigenous peoples and local communities across the world are particularly vulnerable to and disproportionally impacted by climate change. Communities in small island developing states and the Arctic have already suffered serious humanitarian crises in the form of forced relocations caused by melting permafrost and rising sea levels.[109] A recent participatory assessment on risks, vulnerabilities and priorities in 50 indigenous communities in five Asian countries concluded that many indigenous communities are at risk of experiencing severe impacts of climate change from linked extreme events such as increasing frequency and intensity of typhoons, whirlwinds, tsunamis and changes of weather patterns such floods, extended dry periods, droughts, landslides. These can cause food shortages, scarcity of drinking water, soil erosion, and destruction in the communities.[108]

Participatory research with farming and fishing communities in Timor-Leste and Solomon Islands suggests that existing livelihood activities will need to be adapted frequently and on an on-going basis to respond to climate change. This research also shows that it is likely that more fundamental

[iiii] See also CBD's report on priority actions to achieve Target 10 released in November 2015[218]

changes to these aquatic agricultural systems will be needed.[111] Tools such as LEAP (Local Early Action Planning) can provide guidance on how to use information on the local climate history, climate change projections, and from field-based threat and vulnerability assessments to mobilize communities to develop and implement adaptation action plans to increase socio-ecological resilience.[112]

Communities' adaptive capacity is closely linked to diversity in ecological systems and livelihoods[113] and maintaining the integrity and functioning of vulnerable ecosystems in their customary lands is an urgent priority for many communities. Important contributions to enhancing socio-ecological resilience can be made through strengthening traditional strategies for buffering against environmental variability and change such as diversity and variation of crops and herds, or traditional land use strategies that reserve the use of certain pastures or fallows for years when conditions are extreme. Eliminating incentives to abandon traditional livelihoods plays a crucial rule in safeguarding communities' resilience to environmental change.[110]

Contributions and experiences of indigenous peoples and local communities

Customary rules and strategies to conserve and sustainably manage vulnerable ecosystems

Many traditional resource management systems are designed for resilience, enabling communities to collectively respond or adapt to changes through different coping mechanisms[108] (see also Target 15). With increasing understanding of complex system dynamics, several of these practices are now being rediscovered.[114]

For example, the Pagu and Gua communities in Indonesia practise *Sasi* (customary aquatic resource management) to protect and maintain mangroves through zoning and implementation of "no-access zones" based on traditional knowledge. They also use marine biodiversity and traditional resource harvesting inventories to avoid over exploitation and to monitor overharvesting by fishing companies and pollution from mining. Similar traditional water resource management systems - *Tagal*, by indigenous Kadazan and Dusun communities in the Mayog river valley in Sabah, Malaysia; *Lue Tee* among the Karen, and *Achaluwa* by the Lisu communities in northern Thailand.[108]

Communities also take actions to engage in monitoring and addressing external pressures such as overfishing in coral reefs and coastal areas. In many Pacific Small Island Developing States (PSIDS) local communities practicing traditional management of coastal resources have been instrumental in improving coastal fisheries by restricting access of outsiders aiming to exploit coastal resources commercially.[115]

The important role of Locally Marine Managed Areas (LMMAs) in conserving coral reefs and other vulnerable ecosystems

Empowering indigenous and local communities to sustainably manage fisheries on coral reefs is one of the key actions to enhance progress suggested by GBO4. At the same time, many MPAs are encountering challenges in reducing threats from fishing and coral reef conservation. [30] A comparison of marine protected areas comprising national parks and co-managed reserves and traditionally managed coral reefs in Indonesia and Papua New Guinea found that traditional management regimes, none of which involved permanent reef closure, were most effective at conserving reef fish. This research suggests that management regimes that are designed to meet community goals can achieve greater compliance and conservation success than regimes primarily designed for biodiversity conservation.[116]

Many communities enforce Locally Marine Managed Areas (LMMAs), which are implemented in a way as to enable community-based adaptive management based on traditional knowledge.[117] Vueti Navakavu, a LMMA and registered ICCA on the Fiji's main island of Viti Levu, exemplifies a successful community conserved marine area, consisting of diverse habitats such as coral reefs, mudflats,

seagrass and mangroves. Designated in 2002 to address the decline of fish population levels observed by the communities in their traditional fishing ground (locally known as *qoliqoli*), this area is managed by the Yavusa Navakaavu clan to improve the management and protection of their marine area with the aim of conserving a healthy ecosystem that can support abundant and diverse marine life as a source for food and income. Following the creation of the *Qoliqoli* Committee and several consultations with the wider community, a system of community fish wardens was introduced to stop illegal fishing and a no-take area constituting 20% of the total area was successfully implemented. Following the establishment of the reserve, the coral reefs have been significantly stabilized and fish catches and invertebrate populations have increased which in turn has reduced the catch effort and increased the income of the fishermen in the local community.[118]

Understanding climate change impacts on vulnerable ecosystems and traditional early warning, risk prevention, and monitoring systems

Monitoring of vulnerable ecosystems as well as early signaling and accurate understanding of risks and problems is vital in taking timely action to protect and restore the integrity and functioning of these ecosystems in the face of climate change. The Tangkuhl community in North East India is able to predict droughts and types of rain through their traditional knowledge of specific weather patterns and animal behaviour. In Laos, K'Hmu and Puan communities have developed their own flood monitoring systems based on their traditional knowledge. In Indonesia, Pagu and Gura communities can read the signs of a tsunami on its way by observing patterns in tides, waves, sea bubbles, and salinity, which enables them to warn each other by using the *toleng-toleng*, a traditional communication tool.[108]

Communities' traditional ecological knowledge and monitoring systems also contribute to increasing the understanding of climate change impacts and improving climate change projections.[110] The Intergovernmental Platform on Biodiversity and Ecosystem Services considers the integration of indigenous and local knowledge in participatory scenario development as a critical foundation for explorations of future scenarios.[119]

Communities also make important contributions to enhancing the resilience of vulnerable ecosystems through their traditional cultivation practices. These can serve as natural barriers and shields against climate change induced natural disasters. Dusun communities indigenous to Sabah, Malaysia use mixed planting of cassava and bamboo species to stabilise landslide prone areas and systematic planting of banana trees as natural fire breaks to reduce risks from droughts and associated fires. Gura communities in Indonesia increase resilience of coastal areas by systematic mangrove cultivation and restoration work, building drainage systems and *Talud* wave breakers based on their traditional knowledge.

Box 21: Identifying impacts and threats to vulnerable ecosystems in Guna Yala, Panama

Author: FPCI

The Guna people live in Guna Yala, an archipelago in which most inhabited islands are threatened by the rising sea level caused by climate change. Guna Yala contains 81% of all of Panama's reef, boasting extremely high organism diversity.[120]

The Guna undertake fieldwork to analyze and diagnose problems related to communities and ecosystems to produce an analysis which describes the effects of climate change on the ecosystems but also on the socio-cultural and economical systems of the Guna people. Through their research, the Guna have been able to identify and monitor several impacts linked to climate change and the rising sea level such as increased mortality of coral reefs, drying up of mangroves and erosion of sandy island ecosystems. These have negative impacts on the biodiversity, but also on the traditional management of Guna of the islands. A further rise in sea levels will greatly undermine the natural systems and the economy, food security and culture of the region.

Opportunities and recommended actions to enhance implementation of the target

CBD and parties to:

- Draw on traditional knowledge and include communities' traditional adaptation and resilience strategies in national and international policy frameworks and plans on climate change adaptation
- Increase connections between traditional knowledge and climate science to improve our understanding of climate change impacts
- Support IIPFCC's call for the establishment of a dedicated fund to be directly accessed and managed by Indigenous peoples to enhance and further develop adaptation capacities and strengthen traditional knowledge and livelihoods[109]

Governments and NGOs to:

- Increase outreach and awareness raising activities to communicate projected climate change impacts to communities
- Provide technical and financial support for participatory community risk and vulnerability assessments towards developing and implementing community-based adaptation action plans
- Provide an enabling environment to support the adaptation of existing livelihood activities and the exploration of alternative livelihoods where vulnerable ecosystems will be heavily impacted by climate change Upscale the creation and implementation of locally-managed marine areas (LMMAs), one of the most cost-effective ways of conserving coral reefs and other vulnerable marine ecosystems[121]

Indigenous peoples and local communities:

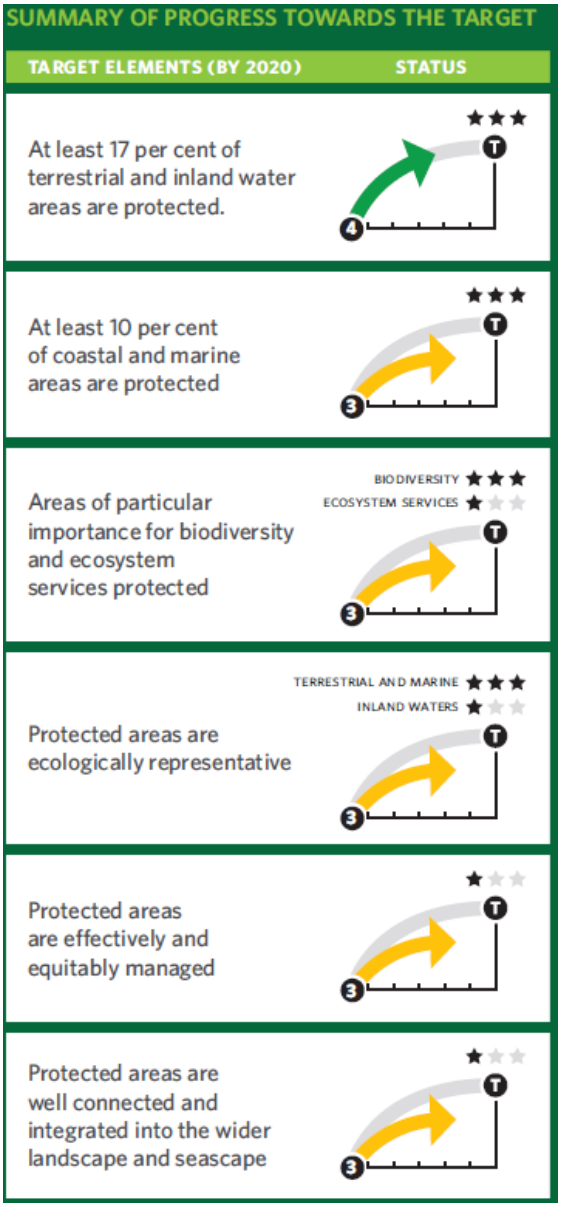
- Continue community-based monitoring of vulnerable ecosystems and feed grassroots evidence into relevant processes to improve adaptation strategies
- Support communities to develop and implement community-based adaptation plans and to strengthen traditional adaptive natural resource management and community conservation of vulnerable ecosystems

Key resources:

- Govan, H., Aalbersberg, W., Tawake, A. & Parks, J. E. Locally-Managed Marine Areas : A guide to supporting Community-Based Adaptive Management. 1–70 (2008). at http://www.reefresilience.org/wp-content/uploads/LMMA-Guide-2008.pdf
- Asia Indigenous Peoples Pact. *Local Actions: Solutions to Global Challenges Initiatives of Indigenous Peoples in Climate Change Adaptation and Disaster Risk Reduction Based on Traditional Knowledge*. at http://aippnet.org/local-actions-solutions-to-global-challenges/
- US CTI Training kit: *Climate Change Adaptation for Coral Triangle Communities: Guide for Vulnerability Assessment and Local Early Action Planning (LEAP Guide).* at http://www.coraltriangleinitiative.org/sites/default/files/resources/LEAP_Final_complete.pdf
- Nakashima, D.J., Galloway McLean, K., Thulstrup, H.D., Ramos Castillo, A. and Rubis, J.T. 2012. Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. Paris, UNESCO, and Darwin, UNU, 120 pp. http://unesdoc.unesco.org/images/0021/002166/216613E.pdf

TARGET 11: Protected areas increased and improved

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: Indigenous peoples' and local communities' lands and territories contain many areas of particular importance for biodiversity and ecosystems services, which are conserved through communities' traditional knowledge and customary sustainable use practices. Indigenous peoples' and community conserved territories and areas (ICCAs) are one of the most effective area-based conservation measures and contribute to both quantity and quality of protected areas and need to be fully and appropriately recognised and supported. To fully achieve the target by 2020, actions are needed to improve the equitable governance and management of protected areas - including recognition of the rights of indigenous peoples and local communities as well as mechanisms to address conflicts or unfair outcomes.

Introduction

Across the world, progress has been made to increase and enhance protected areas. Only a minority of protected areas, however, are enjoying effective management and further actions are needed to ensure effective and equitable management, including enhancing cooperation with indigenous and local communities[30], which often requires recognising their pre-existing community tenure rights[1].

Indigenous peoples' and local communities' lands and territories contain many areas of particular importance for biodiversity and ecosystems services[2], which are conserved through communities' traditional knowledge and customary sustainable use practices. There is increasing evidence that community area-based conservation can be 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[63]. 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.[122] This has been reflected in an increasing trend towards community involvement in protected area management over the last years.[30]

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, and the undermining of traditional resource governance and management practices.[123] To this date, the effective transition to the "new paradigm" supportive of parks and people 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.[124]

Across the world, many indigenous peoples' territories and local communities' lands continue to be impacted by protected areas. In South America, it has been found that 27% of national protected areas overlap to some degree with indigenous territories.[125] 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. 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[126] and an IUCN mechanism to address protected area conflicts, the Whakatane Mechanism[127] (see Box 22).

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

Indigenous and local communities conserve many of the most critical habitats and biodiversity hotspots[2] 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)[4] or through ICCAs [128,129]. ICCAs[jj] are estimated to cover as much land as government-designated protected areas or about 12% of terrestrial surface[130]. 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 and community participation in co-management regimes that support local empowerment[131]
- Highlighting cases where action is needed to address equity and justice in protected areas thereby contributing to the development of policies and tools to promote equitable governance and management.

Kawanana in Casamance (Senegal) demonstrates the important contributions of community conserved areas towards protected 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 registration as an ICCA, the strengthening of traditional sustainable use and conservation practices has played an important role in improving biological habitats leading to a return of most fish species that had locally disappeared, more than doubling of catches, and marked improvement in communities' food security.[132]

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

Numerous examples of community conservation of biodiversity-rich sacred groves can be found in the state of Meghalaya, India. Meghalaya 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 forest patches as sacred groves. Most of the sacred groves are located in 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.[133]

Addressing equitable management of protected areas

Regarding experiences with addressing justice and equity in government protected areas, across the world there have been some successful efforts which need to be replicated widely to achieve better global outcomes. Forty years after the establishment in Canada of the Thaidene Nëné 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 their important role in planning, implementation and management of the park, setting an example of true partnership-building in protected area management.[134]

Recognising and supporting community conservation and collaborative management of protected areas can significantly contribute to achieving Target 11, as shown by the experience in Australia.

The Australian Indigenous Protected Area (IPA) programme has supported indigenous communities to manage and conserve their lands as part of Australia's National Reserve System. To date, there are 72 declared IPAs, covering over 64 million hectares and making up 43.6% of the National Reserve Network. Through the recognition of community conservation and diverse conservation governance, Australia has been able to reach Aichi Target 11 five years ahead of schedule, while at the same time realizing multiple benefits for indigenous Australians and the Australian Nation.[135]

Box 22: The Ogiek's experience with protected areas in Mount Elgon, Kenya: Ways towards rights-based conservation

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

The population of the Ogiek of Mt. Elgon is about 18,000 and about 3,000 Ogiek still live on our ancestral lands in Chepkitale on 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 British colonialists for farming. The forests were then gazetted as protected areas and a tiny part of it up on the moorlands set aside as a native reserve. From 2000 onwards, the community's struggles have become more urgent and after the final part of the community lands that had been set aside as a native reserve was gazetted as Chepkitale game reserve, following on from the conversion of parts of it as Mt. Elgon National Park in 1968.

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 four 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. 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. Corruption among government officials has had a negative impact in many of these supposedly protected areas, not only through facilitating the establishment of timber plantations

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 as part of 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 long

ago.

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 from 2012 until June 2016 we have had amicable discussions to achieve an out-of-court settlement, only disrupted very occasionally (e.g. in 2016) by the KFS burning our homes as some people find it very hard to let go of the colonial approach and embrace the win-win potential of the new conservation paradigm.

Rights-based conservation as the 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.

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.

Opportunities and recommended actions to enhance implementation of the target

CBD, Parties, conservation NGOs, donors and relevant organisations to:

- Recognise and support communities' initiatives for area-based conservation such as ICCAs, CCAs, IPAs and sacred sites, including resolving overlaps with protected areas.
- Embrace people-centred conservation: move away from the exclusionary approach to conservation and stop evictions from protected areas.
- Urgently address equity and justice in protected areas by addressing rights and resolving conflicts: The Whakatane Mechanism[127] has proven to be a useful tool for resolving protected area conflicts.
- Implement the CBD Programme of Work on Protected Areas with a focus on Element 2 on Participation, Governance, Equity and Benefit Sharing and the 2014 Plan of Action on Customary Sustainable Use
- Support the CBD to adopt a global headline indicator to measure equity in protected area governance and management.

Governments to:

- Formally recognise customary rights under national law to empower communities to enforce their conserved areas. Community members are well placed to challenge and stop illegal activities such as overexploitation.
- Review national institutional and legal frameworks for protected area management to ensure that protected areas are governed legitimately, purposefully, effectively, accountably, fairly and respectful of rights.[136]

Research and academic organisations to:

- In collaboration with communities, investigate successful indigenous peoples' and local communities' initiatives for area-based conservation to enable sharing of lessons learnt with the aim of enhancing effectiveness of protected area management around the world

Indigenous peoples' and community-based organisations to:

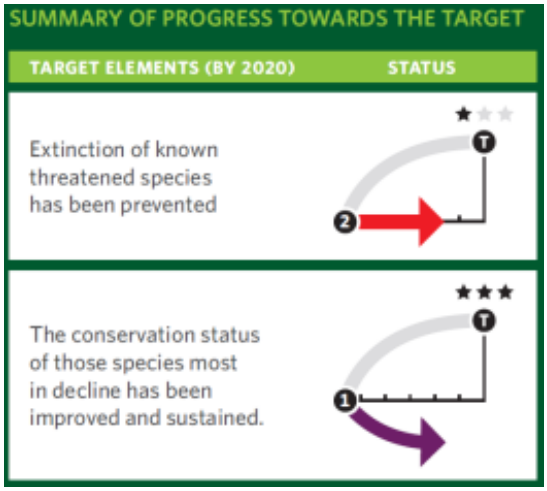
- Continue raising awareness of human rights violations in protected areas and engaging relevant stakeholders to urgently address inequity and injustices in protected area creation and management
- Support upscaling of community-conserved areas and conservation of sacred sites

Key resources:

- Whakatane Mechanism. at http://whakatane-mechanism.org/
- Franks, P. & Schreckenberg, K. Advancing equity in protected area conservation. (2016). at http://pubs.iied.org/17344IIED.html?c=biodiv
- RRI. Protected Areas and the Land Rights of Indigenous Peoples and Local Communities. (2015). at http://www.rightsandresources.org/publication/protected-areas-and-the-land-rights-of-indigenous-peoples-and-local-communities-current-issues-and-future-agenda/
- Oldekop, et al. (2015) A global assessment of the social and conservation outcomes of protected areas. at http://onlinelibrary.wiley.com/doi/10.1111/cobi.12568/epdf

TARGET 12: Extinction prevented

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 threatened species, including emblemic species, have been actively conserved by communities through totem restrictions, hunting/harvest taboos, sacred groves, or use restrictions. Indigenous and local communities' conservation efforts and expertise on the status and trends in abundance of threatened 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 through prevention of poaching and habitat loss is closely related to decisions at the governmental and global levels, in particular relating to land tenure and control of protected areas.

Introduction

While it has been possible to save some threatened species from extinction, the number of species going extinct increases rapidly.[30] Globally, many threatened species can be found on the lands of indigenous peoples and local communities[2], many of whom have been fighting to halt habitat loss and have developed traditional systems and institutions to sustainably manage their lands and resources. 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.[137]

Imposing top-down initiatives to conserve threatened species can have negative impacts on communities and lead do their exclusion or eviction from their traditional lands, criminalisation of traditional hunting/harvesting practices, or criminalisation of acts of self-defense from dangerous animals. The conservation of endangered large and/or dangerous mammals (e.g. tigers, elephants) can be particularly problematic due to their complex relationship with people.[138] In India, around 400 deaths due to attacks by the endangered Asian Elephant are documented each year. In contrast, humans kill around 100 elephants each year, half of these deaths linked to the defense of crops.[139] 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 these payments often do not address all of the impacts on communities' wellbeing and can be linked to increasing social inequity due to their high transaction costs. [140] Conserving threatened flagship species - such as India's national animal, the tiger – can create political tensions by positioning communities' subsistence interests against the interests of wilderness lovers or urban pleasure seekers.[141] Communities can provide many solutions for dealing with "human-wildlife" conflicts as many of them have a long history of living alongside large or dangerous animals.

Creation of reserves for threatened species – Exacerbating conflicts between humans and threatened animals?

"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 with an indigenous Maasai in 2015)

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

As extinctions can directly affect communities' cultures and livelihoods, amongst many communities there is a strong desire to conserve threatened species. Sacred groves or other community-conserved areas are home to many threatened species, making communities' conservation of these areas an important contribution to achieving this target. 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,[142] for example, by implementing hunting/harvest taboos or use restrictions.

Box 23: Traditional Knowledge and Customary Sustainable Practices to Conserve the Endangered Red Panda in Ilam Nepal

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 indigenous peoples of Ilam, East Nepal are making important contributions towards conserving the endangered red panda (*Ailurious Fulgens*) through their traditional knowledge and customary sustainable practices. Under the Nepal National Parks and Wildlife Conservation Act (1973), the red panda is recognized as a protected priority species, designated as vulnerable in 1994 and as an endangered species in 2004 (IUCN 2011) because of habitat loss. People do not hunt red pandas, which are considered to look nice, calm and beautiful. Also religion and customary systems have prohibited killing or hunting them even before these were known to be endangered. However, indigenous peoples of the areas, despite the importance of their traditional knowledge and customary sustainable use, have no knowledge of the Aichi Biodiversity Targets or national biodiversity conservation strategies.

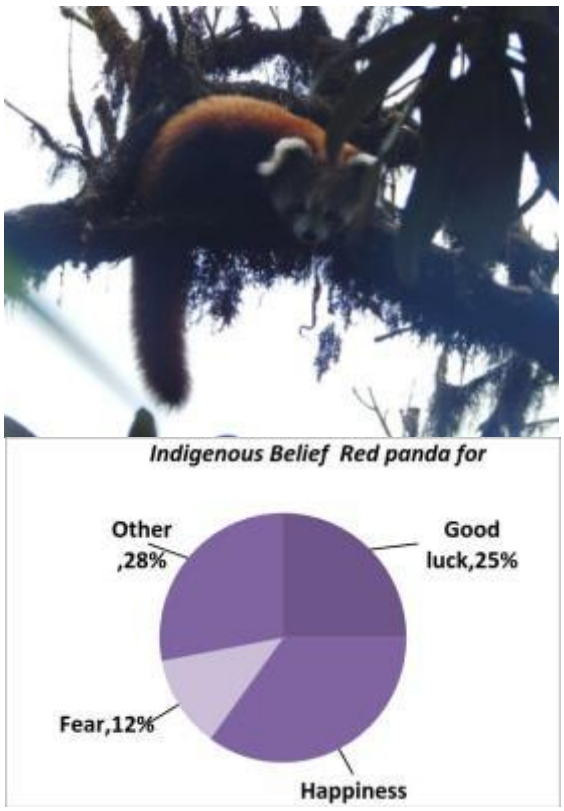


Figure 10: Indigenous belief concerning the red panda

Cultural importance of the red panda

Focused group discussions with the communities revealed that different indigenous beliefs are associated with red pandas. 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 10). Some people call the Red panda '*Hoprakpa*', because of the barking sound it makes which we call '*Hoprak*.'"

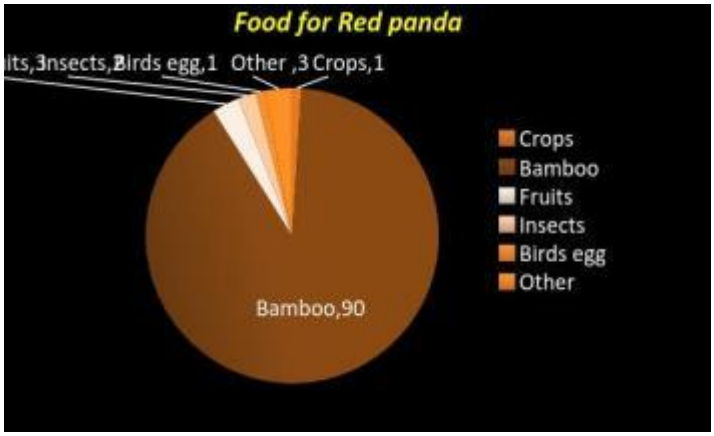
Traditional practices and institutions for conserving the red panda: the '*Kipatiya Pratha'* of Kirant

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.



Traditional knowledge of the red panda's requirements is informing community conservation actions

Indigenous peoples figured out that red pandas in the wild rely mostly (90 per cent) on bamboo for food, followed by 3 per cent on fruits, 2 per cent on insects, 1 per cent on crops and 3 per cent 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.

Source: *Bantawa, Krishna and Sherpa, Finju*

Another example of a species actively conserved by communities is the White Eared-Pheasant (*Crossoptilon crossoptilon*), in Western Sichuan, China. Globally, 25% of all gamebird species (*Galliformes*) are threatened with extinction, but the White Eared-Pheasant is currently not endangered (IUCN status "near threatened"). Because of its white colour, which is of spiritual significance in Buddhism, local communities consider it a sin to kill a White Eared Pheasant and much of its habitat is conserved in the form of sacred sites that are protected by nearby villages or Buddhist monasteries[143].

Exclusion and hunting restrictions are not the only way of conserving threatened species as illustrated by Inuit conservation hunting of polar bears. Many native hunters have been able to obtain sustainable income streams from community-based, non-resident polar bear trophy hunts, and continue to emphasize the conservation of local wildlife resources in line with their traditional values[11].

In Namibia, community-based conservancies are the vital link to re-establishing thriving wildlife numbers and ensuring the safe passage of migrating animals throughout the year. The Equator Prize winner 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[144]. The Kinabatagan Orang-utan conservation project in Borneo and the Tree Kangaroo Conservation Program in Papua New Guinea are other examples of species focused community-based conservation approaches that highlight the value added by involving local communities[145].

<u>Opportunities and recommended actions to enhance implementation of the target</u>

The CBD and parties to:

- Continue increasing engagement with traditional ecological knowledge to close knowledge gaps concerning threatened species, thus increasing the effectiveness and efficiency of conserving threatened species
- Continue raising awareness of the cultural and spiritual values of many threatened species and the importance of customary sustainable use practices for conserving threatened species

Governments and conservation organisations to:

- Train communities to identify and monitor threatened species 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.
- Redirect funding support towards community-based monitoring activities to identify priority conservation areas as well as gather information on trends in threatened 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 communities to carry out initiatives to address direct causes of the decline of threatened species, such as: initiatives to avoid human/wildlife conflicts; initiatives to stop land conversion (see Target 5), restore degraded habitats (Target 15); 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 to communities and may fail 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[146]).

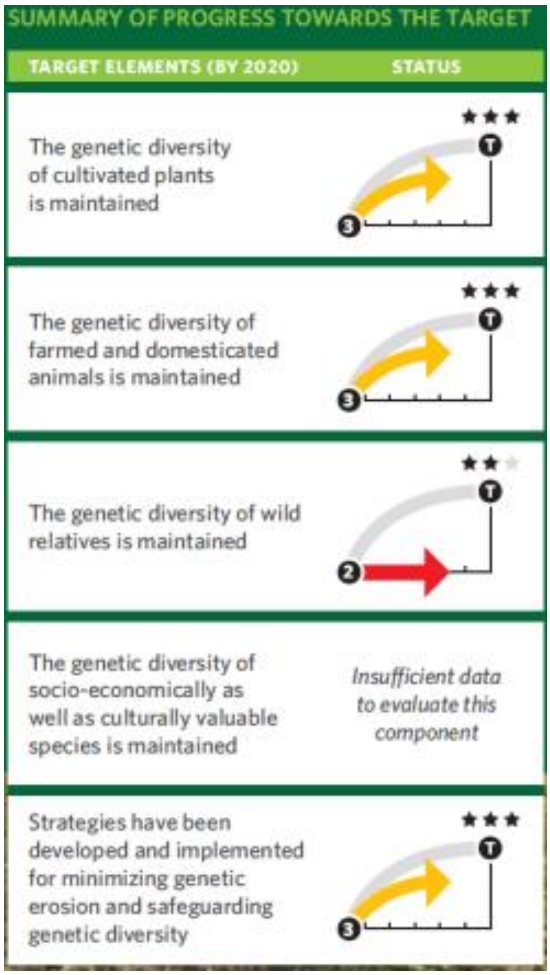
Indigenous peoples and local communities to:

- Continue conserving threatened species in communities' lands and territories
- Share traditional practices on how to live alongside large or dangerous animals and lessons learnt for dealing with "human-wildlife" conflicts

Key resource:
Pungetti, G., Oviedo, G. and Hooke, D. (Eds.) *Sacred species and sites: advances in biocultural conservation*. (Cambridge University Press, 2012).

TARGET 13: Genetic diversity maintained

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: IPLCs, through their traditional agricultural practices and innovations, are helping to maintain genetic diversity of wild relatives and species with particular cultural and socio-economic values, as well as providing important lessons with regard to the wider implementation of genetic diversity protection strategies. Indigenous women play important roles in the maintenance of genetic diversity, making key decisions about which varieties to maintain, propagate or discard from their diverse field and household repertoires. Maintenance of crop diversity on farms goes hand in hand with the fostering of livelihoods, benefits, and income generation from microenterprises. The exemplary experience of the Potato Park in Peru highlights the merging of in-situ and ex-situ conservation strategies, including repatriation and restitution of traditional varieties from seedbanks, and the importance of scientific collaboration and governmental support.

Introduction

The GBO4 concluded that there is insufficient knowledge and data on genetic diversity initiatives 'on-the-ground' conducted by local farmers and livestock keepers like pastoralists, in particular for species that have significant cultural or socio-economical values[30], such as traditional medicines and non-timber forest products. It recommends promoting public policies and incentives to maintain local varieties of crops and indigenous breeds in food production systems, including through increased collaboration with IPLCs for the in situ[kk] maintenance of genetic diversity.[30]

Contributions and experiences of IPLCs towards the target

[kk] In situ conservation means conservation that takes place 'on-site', i.e. within the specific environment and among the genetic resources that are being conserved.

Around the globe, IPLCs contribute to the maintenance of genetic diversity, as discussed in the description of Terra Madre in Target 1. The story of the Potato Park in Peru showcases an example of a group of indigenous communities working together to reintroduce and preserve hundreds of varieties of potatoes as well as wild relatives and other crops.

Box 24: The story of the Potato Park

Author: Walter Quispe Huilcca[ll], Paru-Paru Community, Potato park, Cusco; Peru

We are potato farmers and *papa arariwa* (guardians of the native potato)[mm], passionate in the conservation of our native potato diversity now and for 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.[nn] 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[oo], 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 our 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 the world's most important centers of plant domestication: our grandfathers domesticated and diversified potatoes, maize, peppers, cotton and cassava, just some of the crops that Andean indigenous farmers have given to the world. We have adapted and farmed diverse crops in all altitudes[pp]: at higher altitudes we farm roots and tubers crops like potatoes, yacon[qq], oca[rr] 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[ss], and vicuñas[tt].

For us, however, potato is the most important food crop, over 2000 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

[ll] Walter is a Quechua farmer and Coordinator of the Potato Park's Participatory Plant Breeding Program

[mm] In Quechua *papa arariwa* refers to "guardians of the native potato".

[nn] 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.

[oo] 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.

[pp] International Treaty on Plant Genetic Resources for Food and Agriculture

[qq] Also known as the Peruvian Ground Apple

[rr] 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.

[ss] *Lama guanicoe*

[tt] A wild relative of the llama, inhabiting mountainous regions of South America.

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 that held by women, is responsible for the high number of varieties we have in the pool of species 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 populations, 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 makes them less vulnerable to pests, diseases and severe weather conditions, which we face in the Andes. In managing this great diversity, we have merged in situ and ex situ conservation strategies. Our in-situ conservation approach combines community Seed Banks (which are probably more dynamic than conventional gene bank because they are 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 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 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 our communities.

The Potato Park is managed collectively by a decision making body called the Association of Communities of the Potato Park. This leadership is an inter-community institution working for the collective. Local institutions function and coordinate with the leadership at various different levels of 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. Governmental support, through the Peruvian Biodiversity and Biosafety Unit of the Environment Ministry, has been essential for both ex-situ and in-situ conservation at Potato Park.[147]

Role of women

Many women in indigenous and local communities from all regions play important roles in the maintenance of genetic diversity, for example, 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 different types of maize (species and sub-species) illustrates the importance of their work for the conservation of this plant, in particular their determinant participation in the seed selection process, both as material to be sown and as grain to be used in food for its culinary properties. The women involved in this work continue to transmit their knowledge of the specific uses and culinary qualities of certain genetic materials, demonstrating the importance of this conservation work.[148,149]

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, or the restoration of ecosystems, as further discussed in Target 14. Examples of crop recovery programmes include the Puruha people's recovery of native plants in Ecuador, the recovery of local banana varieties and knowledge and the creation of seed banks for local banana varieties in Sri Lanka and recovery of cocoa in Panama. Cocoa has special ritual and cultural values for the Guna people of Panama, it is used for ceremonies, medicine, and food. According to the Guna worldview, 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 and cultivation programme for the cocoa seed in community-designated sacred sites called '*Galus*'.[uu]

Opportunities and recommended actions to enhance implementation of the target

Parties, governments and other stakeholders to:

- Ensure IPLC's views are represented in discussions on national food production: Ministries of Agriculture to take active steps to involve IPLCs in discussions on national and regional strategies for biodiversity preservation, especially given that 60% of the crops consumed worldwide originate from the indigenous agricultural systems of the Latin American and Caribbean Region[150] and therefore traditional knowledge of resilient crops are critical to sustainable management of these species.
- Build on and expand existing recognition and restoration projects on traditional agriculture such as the Globally Important Agricultural Heritage Systems- a Global Partnership Initiative on conservation and adaptive management of important traditional agricultural systems by the Food and Agriculture Organization.[82]
- Support for on-farm, in-situ conservation by IPLCs, politically and financially through community seed banks and exchange networks, livestock fairs and other indigenous and community-run systems, local micro-enterprises and innovations, with a special focus on women's contributions to agricultural systems and traditional knowledge.
- Promote 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 including through facilitated communication and knowledge-sharing between IPLCs, policy-makers, and scientists/researchers, and use of community-based data.

Key resources:

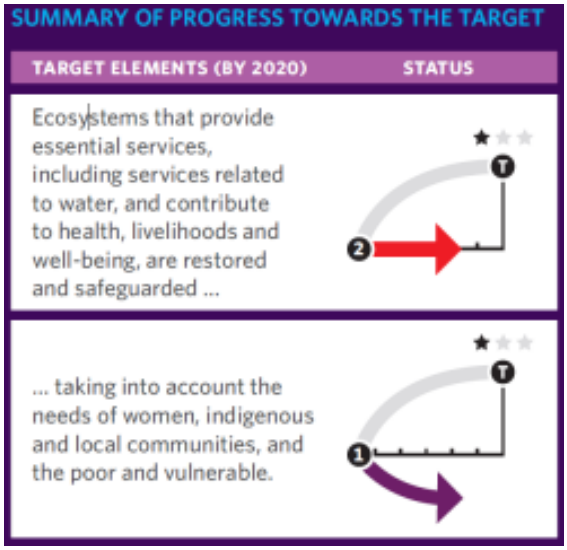
- http://searice.org.ph/

[uu] Based on information shared by Yolanda Téran (Ecuador), Onel Masardule (FPCI Panama) and Nimal Hewanila (Niemanee Development Foundation, Sri Lanka).

- '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
- FAO. 2009. Livestock keepers – guardians of biodiversity. Animal Production and Health Paper. No. 167. Rome
- http://www.unep.org/pdf/SmallholderReport_WEB.pdf

TARGET 14: Ecosystems and essential services safeguarded

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:
For indigenous peoples and local communities, 'ecosystems and habitats that provide essential services' are understood as their customary lands, territories, waters and resources, which provide in their multiple needs in relation to subsistence and food supply, health, spirituality, identity and culture. As areas that are carefully being cared for by them, these territories, including waters, also provide ecosystem services to everyone else. However, these are often alienated and exploited to provide services and products to others, causing loss and degradation of resources, while IPLCs are confronted with restricted access. Progress towards this target links directly to securing the customary rights of IPLCs over their lands, waters, and resources and to greater attention to recognizing and supporting community actions to safeguard, conserve and restore essential territories and resources.

Introduction

GBO4 reported that habitats important for ecosystem services continue to be lost and degraded and there is little sign of progress towards meeting this target. 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, which is a situation of concern.

In the context of this target indigenous peoples and local communities, rather than referring to "ecosystems and habitats important for ecosystem services", understand these to mean their

customary lands, territories and resources, where their inter-connected multiple needs are served, and where their institutions or social systems are not separate from the natural systems.[151]

The positive trend in conservation movements towards "people-centered conservation", calls for a corresponding appreciation by policy and public sectors of indigenous peoples' and local communities' own conceptions about their relationship with their territories. Implementation of this target would be enhanced by thorough understanding of the integrated and complex nature of social–ecological systems supported by information-sharing by and dialogue with IPLCs. 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".[152]

Recognition of customary property rights, in particular access to and control of resources, is critical for sustainable livelihoods and for reducing poverty and vulnerability, especially now that many customary territories are shared with other populations.[6, vv, ww] The numerous IPLCs who do not have full legal recognition of their rights are faced with restricted access to their lands, waters, and resources and with exploitation of their territories and ecosystems to provide essential goods and services to others. Globally various initiatives are emerging that address issues of community land tenure, and promote recognition of community land rights, including the World Resources Institute (WRI) portal[153], the forest tenure database of the Rights and Resources Initiative (RRI)[xx] and the Global Call to Action on Indigenous and Community Land Rights[154] (see also Chapter 18). Nationally, many counties are addressing customary land tenure as part of national good governance approaches, including the through the adoption of the FAO Voluntary Guidelines on the Governance of Tenure of Land, Forests and Agriculture.[155]

> *"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, and cosmovision."*
>
> Source: Gathuru Mburu of the Institute for Culture and Ecology in Kenya[157]

Contributions and experiences of IPLCs towards the target

In all regions, indigenous peoples and local communities are initiating

[vv] 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"[219]; and FAO's sub-programme on access to natural resources: "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 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."[220]

[ww] The new post-2015 sustainable development goals include an indicator on the secure rights to land, property, and natural resources .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/

[xx] 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.[221]

community cultural mapping and action research to clarify the outlines and values of their territories, and developing plans to care for their lands and resources. Securing customary lands and gaining recognition for traditional sustainable use practices is a leitmotif that connects nearly all initiatives. These initiatives also help to create wider understanding of the meaning and importance of the multiple ecosystem services provided by their territories, lands, waters and resources as well as identifying problems that do exist and their possible solutions.

The Northwest Arctic Borough's Subsistence Mapping Project in Rural Alaska will produce a nearly 600-page atlas documenting subsistence-use areas where people hunt, fish and gather by season, and important ecological areas where animals feed, breed, raise young and migrate in seven of the region's coastal communities. With the landscape transforming rapidly due to changing climate, increased shipping traffic and a wide array of proposed development, the project is intended to offer a tool for decision makers for balancing conservation and economic development.[156]

Indigenous peoples and local communities are also engaging in inter-cultural dialogues and research with policy-makers, educational institutions and conservation bodies. 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 living alongside and relying on it. One of the objectives of this initiative was to present, local knowledge and experiences related to the governance of the river in the communities' own terms, and to support initial dialogues between different knowledge systems. The participation process involved different clans who have different management responsibilities, and also the National Museum which documentated stories of the river, and lawyers and social scientists who documented traditional ecological law relevant for the governance of the river. An important outcome so far is that the communities now have present and future maps of the river which can be added to national data. The river can be gazetted as a sacred river in the future.[157]

Box 25: Wapichan people's plan to secure and care for their lands, Guyana

In 2012 the Wapichan people from the South Rupununi District of Guyana (South America) compiled their plan for sustainable community-based use and development of their ancestral territory for the benefit of present and future generations.[158] The plan describes the multiple services, values and meanings that the territory provides. For instance, respect for spirit beings and their homes is essential for the wellbeing of the communities and the health and abundance of the fishes and game. 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 globally rare or endangered.[yy]

> "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".[158]

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, community development and livelihood initiatives. It also details hundreds of local wildlife sites for community protection, including proposals to establish an

[yy] 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)

extensive 1.4 million hectars Wapichan Conserved Forest over old-growth rainforest in the eastern part of the territory.

Securing the Wapichan territory by obtaining its legal recognition is a main goal for the Wapichanna and a prerequisite for fully realising and implementing their plans. The existing land titles are very fragmented and do not cover the full extent of the areas traditionally used and occupied by the Wapichan people. Moreover, the Wapichan territory is facing serious external pressures underpinned by the insecure tenure situation. To address this, the Wapichanna 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.[159,160]

The Wapichanna have initiated active dialogue with relevant government departments and agencies and commissions to explain their plans for continued community-based care of their ancestral areas. The Wapichanna use their own maps and photographic and geo-referenced information and data on traditional use of the land to support their 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 prevent and suspend impositions of industrial logging and mining concessions on Wapichan land.

Box 26: Livestock keepers' initiatives in Iran[161–163]

Livestock keeping is significant to the livelihoods of many rural households, and to the sustainable use of marginal areas. Large parts of the globe such as drylands, mountainous and high- altitude zones can be used for food production only by livestock that are adapted to local conditions. Grazing animals convert the local vegetation in these eco-zones 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, 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, 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 leading to government recognition. Steps are being taken to recognize their territory as a basis for participatory planning.

Opportunities and recommended actions to enhance implementation of the target

Parties, other governments, funders, academe and other stakeholders to:

- Initiate and engage in respectful exchanges with indigenous peoples and local communities on their understandings of "ecosystems/habitats that are essential for human well-being".
- Support community initiatives such as 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 them
- Support IPLCs' efforts, solutions and proposals for restoration and safeguarding of their lands, territories and resources
- Contribute technical and financial resources in support of these actions.

Policy-makers to:

- Ensure land tenure security for IPLCs over essential territories, lands, waters and resources

IPLCs to:

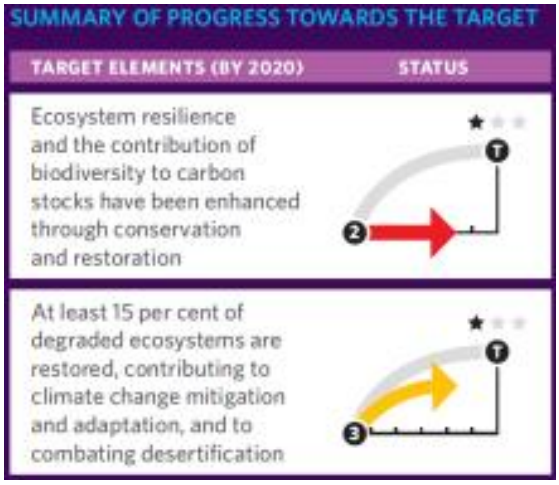
- Continue their care for their territories, lands, waters and resources and raise understanding of the meaning and importance these provide to them.

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.[164]
- satoyama-initiaitve.org - website of International Partnership on the Satoyama Initiative (IPSI)[152]

TARGET 15: Ecosystems restored and resilience enhanced

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: Through their low-carbon lifestyles, traditional knowledge and traditional land use systems, indigenous peoples and local communities have made major contributions towards mitigating climate change, 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.

Introduction

Globally, some progress has been made towards restoring degraded ecosystems. At the same time, there continues to be a net loss of forests, a major global carbon stock, thus releasing additional carbon into the atmosphere.[30]

Permitting environmental degradation and failing to restore degraded areas can threaten the very lives of indigenous peoples and local communities who obtain water and food directly from the surrounding ecosystems (see also Target 8). 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 and experiences of 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.[165]

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.[166]

Communities' contributions towards enhancing ecosystem resilience

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.[167,168] 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.[169]

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, withstanding recurrent drought and other stresses.[170]

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[171].

Another example for communities' contributions to enhance ecosystem resilience is the aboriginal fire management in Australia (see Box 7).

Box 27: Community-based vulnerability and resilience mapping and adaptation practices, Sundarbans, Bangladesh

Author: 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 worked together 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 livelihoods 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.[172–174]

Emerging evidence shows rotational farming can be a very effective way of enhancing carbon sequestration[175,zz] (see also Box 28). 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 12 on HCS forests in Kapuas Hulu and Target 14 on the proposed Wapichan Conserved Forests).

Box 28: Community-based documentation of positive contributions of traditional rotational farming to carbon sequestration and ecosystem resilience, Thailand

Author: 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.[176]

[zz] 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

The research involved community monitoring of Karen farming areas in Ban Mae Lan Kham[175] and Hin Lad Nai[177] 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.

Opportunities and recommended actions to enhance implementation of the target

CBD and Parties to:

- Strengthen safeguards to ensure that strategies for carbon sequestration and restoration do not curtail communities' access and sustainable use of biodiversity
- Continue to increase engagement with traditional ecological knowledge to enhance the effectiveness of conserving carbon stocks and ecosystem restoration
- 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.[178]

Governments to:

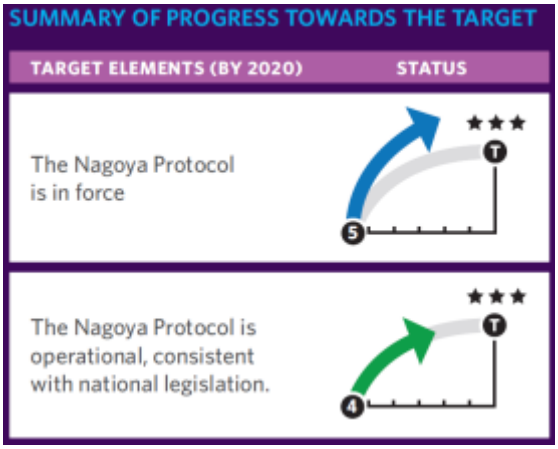
- Redirect funding support to community-based vulnerability and resilience mapping to support the development of community land–use plans to strengthen the implementation of community-based mitigation and adaption strategies
- Increase the role of traditional practices that contribute to carbon sequestration (e.g. rotational farming) to enhance the effectiveness of national strategies for enhancing carbon stocks
- Enable communities to take the lead in identifying opportunities and priorities for restoration, taking into full account the current use of land and resources.
- Strengthen opportunities for livelihood benefits from ecosystem restoration activities

Key resources:

- Trakansuphakon, P. in *Shifting cultivation and environmental change: Indigenous people, agriculture and forest conservation* (ed. Cairns, M. F.) 335–356 (Earthscan Routledge, 2015).
- Uprety, Y., Asselin, H., Bergeron, Y., Doyon, F. & Boucher, J. Applications Review article Contribution of traditional knowledge to ecological restoration : Practices and applications 1. **19,** 225–237 (2012).
- Indigenous Peoples' Biocultural Climate Change Assessment Initiative (IPCCA). IPCCA Methodological Toolkit. (2015). at <http://ipcca.info/toolkits-en>

TARGET 16: Nagoya Protocol in force and operational

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 Traditional Knowledge (TK) and the provision of a range of benefits, including fair compensation, for indigenous peoples and local communities (IPLCs). Positive outcomes require recognition of IPLC rights, capacity-building, guidance on prior informed consent (PIC), compliance, education and provision of financial and legal resources and ensuring effective participation and benefit-sharing of IPLCs throughout the process of promulgating access and benefit-sharing systems (ABS).

Introduction

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.[179]

Why this target is important for IPLCs

The Nagoya Protocol as the binding international framework that affirms and respects rights of IPLCs over their 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 providers and user-country governments.[aaa]

At this early stage of implementation and operationalisation, however, there are still issues with ensuring respect for IPLCs rights. Specifically, compliance mechanisms have been criticised as weak, with no voting rights granted to Indigenous and Local Community (ILC) representatives on the Compliance Committee, unless nominated by a Party to act as a representative, and no rights awarded to ILCs to allow them to trigger an investigation by the Compliance Committee.[180] These weak compliance mechanisms have the potential to make IPLCs more vulnerable to biopiracy and misuse of their traditional knowledge.[181]

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 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

[aaa] Contributed by Barbara Lassen at Natural Justice

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.'[bbb]

Biocultural protocols are developed by communities to help them identify their unique customary laws, values and priorities over their traditional knowledge and resources and decide how these can be integrated into access and benefit sharing systems.[182]

Contributions and experiences of IPLCs toward the target

IPLCs, including the Khoi San, the Guna and some indigenous groups in Peru, have already begun the process of utilising the Nagoya Protocol for the recognition of their TK associated with genetic resources. However, this process requires knowledge, funding and resources. The legal expertise of Natural Justice (an NGO), along with funding provided by outside institutions, enabled the National Khoi-San Council (NKC) to mount a legal challenge to the Rooibos Tea Industry's use of Rooibos and Honeybush tea which resulted in an acknowledgment of their historical indigenous knowledge of these plants and their uses. This will enable the NKC to be better prepared for the results of upcoming and current research into the medicinal properties of these plants[ccc].[183]

For the indigenous groups in Peru that form Potato Park (see Target 13), the process of implementing benefit-sharing for their TK and biologically diverse genetic resources involved the creation of a Biocultural Community Protocol including: training indigenous researchers, with funding and educational resources from the International Institute on Environment and Development (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 Biocultural Community Protocol development process.
3. Final consultation and validation of the inter-community agreement.

This process focused on creating an equitable ABS model with IPLCs rights and self-determination over their biocultural heritage as the foundation.[184]

Box 29: Interview on the Rooibos Restitution for the Khoi-San

The Khoi and San (collectively known as Khoi-San) peoples[ddd] self-identify as indigenous peoples of South Africa. They occupied the region for thousands of years. They later encountered and

[bbb] Contributed by Rodrigo de la Cruz, a member of the International Indigenous Forum on Biodiversity.

[ccc] For an example of ongoing research into the medicinal properties of Rooibos tea see: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3967803/ (Accessed: 20 July 2016)

[ddd] 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

integrated with other indigenous African peoples who migrated from the great lakes areas to the southern parts of the continent. During Apartheid, 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 and 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.

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 [over] the last three years [it] 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 Rooibos 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[eee]. [...] 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[fff] and together [...] [they] decided that they will support the NKC in fighting for acknowledgement of the associated traditional knowledge of the Khoi-San people with regard to Rooibos and Honeybush.

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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.

[eee] Rooibos and honeybush have also been used for research purposes, for example, Nestlé did some research into properties of certain plant species in 2010.[222]

[fff] Open Society Initiative of Southern Africa

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 these 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 TK associated with these species 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 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 results from their research on 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), 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 Memorandum of Understanding between the NKC and the NSC to establish a legal negotiating team consisting of members of both councils. Together we worked towards the goal to bring the Rooibos industry to the negotiation table to persuade them to comply with the law recognising 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 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.

Opportunities and recommended actions to enhance implementation of the target

- Continue and expand awareness raising and capacity-building activities such as: the Progress Report on the Nagoya Protocol Implementation Fund project[185], SCBD regional and sub-

regional capacity-building workshops, SCBD-funded outreach material in different languages and work by the the ABS Capacity Development Initiative .

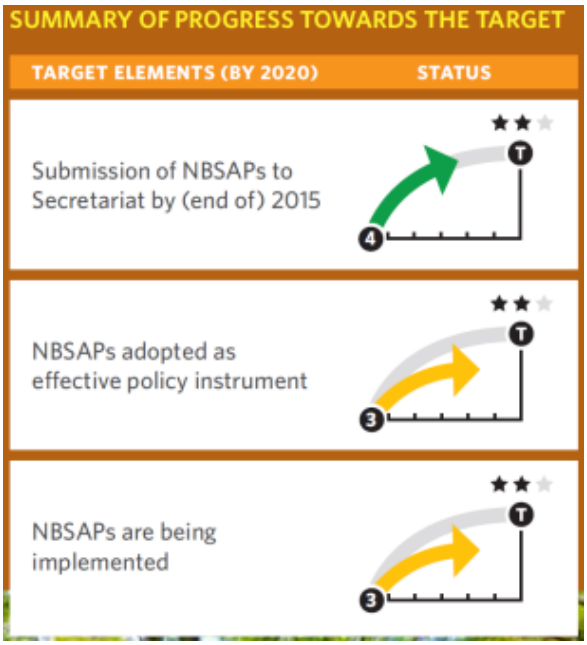
- Implement clearer, human rights-based rules relating to prior and informed consent (PIC). Specifically, the implementation of rules relating to PIC should be decided in collaboration with IPLCs.
- Increased consultation between IPLCs and local, national and regional governing bodies on the implementation of the Nagoya Protocol and its utilisation.

Key resources:

- 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
- UNEP and Natural Justice Report on 'Bio-cultural Community Protocols: A Community Approach to Ensuring the Integrity of Environmental Law and Policy', October 2009, http://www.unep.org/communityprotocols/PDF/communityprotocols.pdf

TARGET 17: National Biodiversity Strategies and Action Plans (NBSAPs) adopted as policy instruments

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: NBSAP updating and revision provides the Parties with one of the greatest opportunities to implement the Strategic Plan for Biodiversity 2011-2020 together with all stakeholders and broader society. Indigenous peoples and local communities (IPLCs) are essential partners for achieving tangible outcomes at the local and national level. The requirement to engage a full range of non-governmental stakeholders, including IPLCs, in all stages of the NBSAP process is not yet receiving sufficient attention by Parties and needs to be urgently addressed moving forward towards 2020

Introduction

As of 31st 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 by March 2016 and a further 28 by December 2016.[186] While the quantitative aspect of Target 17 has not been met by the target timeline of 2015, significant progress is expected to be made by the end of 2016. Also highly important and relevant, beyond the quantitative target, is the extent to which a participatory process has been used during NBSAP revision and updating. GBO4 does not contain information about the participation of IPLCs in the updating, revision and implementation of NBSAPs but reports variability on following of CBD COP guidance in the updated NBSAPs. GBO4 recommended that

NBSAPs should be developed through an open and participatory process, including with the involvement of IPLCs.

SBI-1 documentation on "Participation of IPLCs at national level in relation to the NBSAPs"[135] 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.

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 participatory processes, including of IPLCs, in NBSAPs is a seriously worrying trend particularly with regards to the implementation of Target 18 and the Programme of Work on Article 8(j) and related provisions.

Closely related to the NBSAP process is national reporting. As with NBSAPs, full and effective participation of IPLCs in national reporting has only been taking place in few cases, which warrants a further call for participatory processes to be applied at the national level.

Contributions by indigenous peoples and local communities towards the target

Some IPLCs have started reporting on their participation in NBSAPs themselves through a questionnaire sent to members of the International Indigenous Forum on Biodiversity (IIFB). Out of seven reports, two of them, Antigua and Barbuda and Namibia, reported that the NBSAP had been updated and revised with the effective participation of IPLCs and with a good prospect of their future participation in implementation. Ecuador and Uruguay reported that NBSAP revision and updating is in progress with good participation of IPLCs and three of the respondents, 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 provides 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 with space or 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 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 was it felt that IPLCs' perspectives had been reflected in the national reports.

Box 30: (some) IPLCs' responses concerning participation in NBSAPs

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 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."*

As illustrated throughout this publication, IPLCs can play an important role in achieving the Aichi Biodiversity Targets. Target 17 is a critical target to enable and facilitate the achievement of all other targets. If IPLCs are not provided opportunities to fully participate in NBSAPs and national reports, Parties are likely to miss out on one of the greatest opportunities they have to implement the

Strategic Plan for Biodiversity 2011-2020. The local expertise and actions of IPLCs, besides contributing to the achievement of the global targets, should contribute to the translation of those global targets into national and local targets and indicators needed for effective NBSAPs.

Opportunities and recommended actions to enhance implementation of the target

Governments to:

- Develop and use concrete and appropriate national and sub-national mechanisms 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.
- Ensure full and effective contribution of all relevant stakeholders, particularly IPLCs, in the preparation of the national report, including data emerging from the local level, e.g. through Community-Based Monitoring and Information Systems. National reports to provide information about consultative and participatory processes undertaken for NBSAPs planning, monitoring and reporting.

Governments and other relevant actors, including donor agencies to:

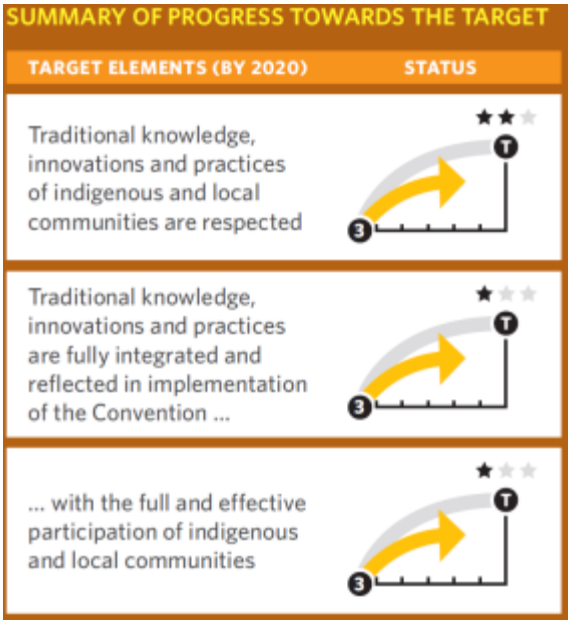
- Support IPLCs to develop culturally appropriate mechanisms and educational resources to enable their effective contributions to the NBSAPs processes and local implementation of the Strategic Plan for Biodiversity and Aichi Targets.

Key resources:

- CBD NBSAP webpage: https://www.cbd.int/nbsap/
- NBSAP Forum: http://nbsapforum.net

TARGET 18: Traditional knowledge respected

By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.



Key message: Building on the moderate progress that has been made towards achieving this target will require a continuation of the numerous efforts taken by indigenous peoples and local communities (IPLCs) to raise awareness of the importance of their traditional knowledge and customary sustainable use and their essential role in meeting the Aichi Biodiversity Targets. Ensuring the recognition of and respect for traditional knowledge and customary sustainable use in the implementation of the Convention will necessitate the further participation of IPLCs in national and international processes and institutional and financial support from Parties.

Introduction

IPLCs have been carrying out a wide range of activities to raise awareness of and promote respect for traditional knowledge and customary sustainable use and to get them incorporated in the implementation of the Convention at all levels. While some progress has been made towards achieving this target, current trends suggest that the actions taken to date are insufficient to achieve it by 2020. While the loss of traditional knowledge is being reversed in some places due to growing interest in traditional cultures and growing recognition of indigenous peoples' and community conserved territories and areas (ICCAs), the overall trend points to a continuing decline as illustrated by loss of linguistic diversity and large-scale displacement of indigenous and local communities.[30] Submissions by Parties shared at the First Meeting of the Subsidiary Body on Implementation (SBI-1) in May 2016 show moderate progress on some components of the target and highlight that only 30% of the Parties regularly report on Article 8(j) and Related Provisions. The SBI document also reports lack of financial and institutional support for the operationalisation and monitoring of the four headline indicators related to the target.[187] Data gathered for this publication confirm mixed positive and negative trends towards achieving this target.

Box 31: Summary data on the global indicators adopted under Target 18

Linguistic diversity

The interconnectivity that exists between global biodiversity and cultural diversity highlights the importance of preserving indigenous languages.[188] Biodiversity hotspots and high biodiversity areas are home to 70% of all languages on Earth, many of them endemic.[3] Numerous indigenous languages contain a wealth of traditional ecological knowledge including of species of flora and fauna unknown to Western scientists.[189] including the knowledge of practices crucial to the conservation and sustainable use of biodiversity. Data compiled by UNESCO and used in GBO-4 points to at least 43% of languages as being in danger of disappearing, based on the degree of transmission between generations.[30]

Land use change and land tenure in territories of IPLCs

Traditional knowledge and customary sustainable use have been evolving over millennia; their continued evolution can best be secured if they are nurtured, practiced and transmitted in the daily lives of IPLCs in their territories and lands. Land use change and secure land tenure in these territories and lands are therefore critical indicators for the achievement of Target 18. Recent assessments highlight that:

- Up to 2.5 billion women and men (including 370 million indigenous peoples and 200 million pastoralists) depend on community- based systems.
- 50% of the world's land area is held under customary or community-based regimes.

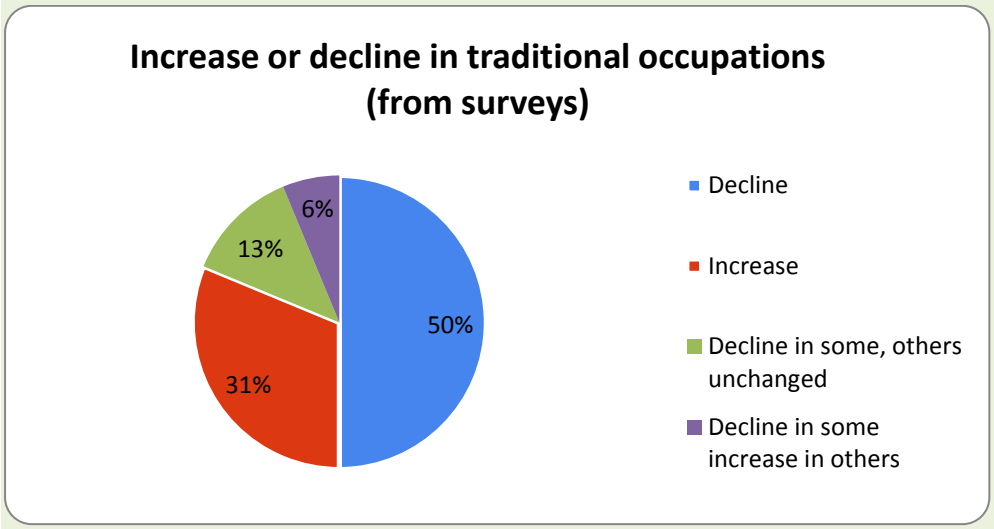
  Just 10% of the lands are recognized by law as formally owned by indigenous peoples and local communities.[1]

Traditional occupations

Traditional occupations (TOs) continue to be a key source of livelihoods and income for many IPLCs. These occupations are tailored to the natural environments and have been developed over generations as sophisticated knowledge-based practice systems. TOs encompass a variety of activities such as: hunting, fishing, collecting wood and non-timber forest products, agriculture, aquaculture, livestock keeping, as well as practicing traditional medicine and traditional crafts and skills. Practicing traditional occupations can provide multiple biodiversity benefits.[190]

Data provided by 17 experts from indigenous peoples and local communities from 13 countries for a recent rapid assessment points to a decline in the practice of traditional occupations in the majority (50%) of cases, while 31% stated that there has been a recent increase in the practice of traditional

occupations in their communities, but there can be a lot of variation within a community between different occupations. The data pointed out that the role of the government can be decisive in the survival of traditional occupations (e.g. through promoting traditional occupations in school curricula and creating a stimulating legal framework and supportive policy environment). Furthermore, certain traditional occupations are negatively affected by the loss or degradation of biodiversity in communities' territories or by climate change impacts.[190]



Integration and safeguarding of traditional knowledge and practices at national level

The main vehicle for national integration of traditional knowledge and practices is through IPLCs' participation in the updating and implementation of NBSAPs and in the compilation of the national reports. As illustrated in Chapter 17, 70% of the NBSAPs do not mention IPLCs, and this is confirmed by data collected from indigenous organisations for this publication.

Positively, 28 Parties have established National Focal Points for Article 8(j) and related provisions. Among them, Guatemala has set a good precedent by designating a government representative and an indigenous representative as national Focal Point.

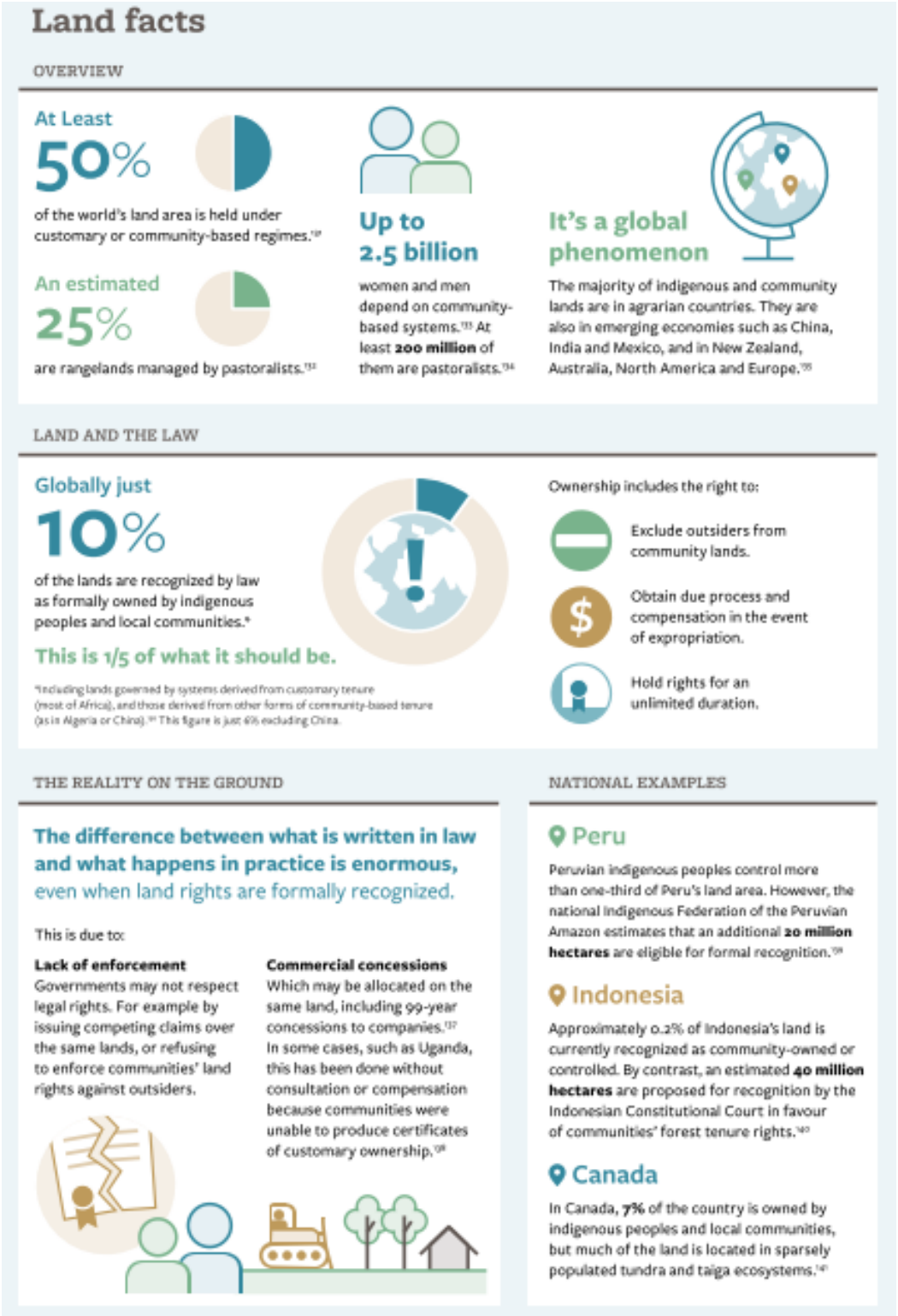


Figure 11: Land facts[1]

Contributions and experiences by indigenous peoples and local communities towards achieving the target

Promotion and revitalization of traditional knowledge, language and practices

Around the world, IPLC communities are prioritising cultural and language revitalization and the transmission of traditional knowledge and practices. A revival of interest and enthusiasm for peoples' cultural identity, particularly among the youth, is notable in many regions. There are many

examples of communities that design their own documentation and research, as well as educational and promotional programmes.

In Thailand, for example, the Karen and Hmong organise youth camps to pass on indigenous culture and knowledge related to the environment, and have set up community cultural centres to provide spaces for the elders to teach cultural practices to the youth.

In Suriname, indigenous and Maroon organisations, with the help of support groups, designed a bi-lingual method (Dutch and Kari'na; Dutch and Lokodyan; and Dutch and Saamaka) for indigenous and tribal children and are raising awareness and initiating discussions about intercultural and bilingual education (IBE) among parents, teachers and school boards.[191]

In Mexico, the Comcaac (Seri people) of Sonora entered into a long-term collaboration with a multi-disciplinary research team on linguistic expressions and traditional ecological knowledge. This project has enabled learning between Western and indigenous perspectives on perceiving and cataloguing biodiversity. Cataloguing indigenous species and place names has led to the discovery of new species, as well as a deeper understanding of species' habitats and requirements through the decoding of biological knowledge contained in species and place names. For example, the indigenous name for Rasa island, a small but globally important sea bird island, is *Tosni Iti Ihiiquet,* meaning "where the pelicans have their offspring". While no breeding pelicans have been observed in the recent past, cross-checking with a naturalist's journal from 1856 revealed that young pelicans had indeed been present in that island.[192] Improving knowledge of species' historic distributions allows a deeper understanding of species' habitat requirements, which not only improves conservation actions but also allows better prediction of how species will respond to climate change or other environmental changes.

In the Republic of Sakha-Yakutia in the Russian Arctic region, indigenous nomadic schools provide education for indigenous children in their native language, and children learn about their culture, traditions and customs, and practice skills related to the traditional Arctic resource governance and management. The schools are supported by regional laws and long-term programs and funding. The schools are created in the locations of the reindeer herding brigades in adapted wooden rooms or winterized yurts (chooms) so that the children do not have to leave their homes and native habitants to go to school. This initiative aims to support the continuation and restoration of the traditional nomadic way of life, which is the primary method of collective survival in the extreme environments of the North.[ggg]

For further examples of indigenous language revitalisation programmes, see links at the end of this chapter, the *Mother Tongue Language Map*[hhh], and the *Wôpanâak Language Reclamation Project*[193].

Community action research on Customary Sustainable Use

Since 2004, numerous IPLC organisations and communities have developed case studies, papers and articles, brochures, presentations, and photo and video materials on customary sustainable use (CSU) of biological diversity.[194] By researching CSU, including customary rules and laws, the communities have deepened insight into their customary management systems, their maintenance or their strengthening. The community studies identified concrete actions to promote respect and

[ggg] For online tool and extra material: Documentary "Children of the Tundra": https://www.youtube.com/watch?v=UQeNOiYL3AQ

[hhh] Our Mother Tongues Language Map evidences how thousands of Native Americans across North America are working to revitalize and perpetuate their heritage languages, showcasing a vibrant cultural revival in indigenous cultures.[21]

recognition for TK and CSU and to take these into account in relevant national policies and programmes. As part of their bottom-up CEPA approach, this information has been shared with national and local governments, as well as at various CBD meetings and through official submissions to raise awareness, understanding and acknowledgement of the value of CSU, and to guide national and international-level decision-making about Article 10(c). Such input has contributed to the development of the Plan of Action on Customary Sustainable Use (adopted by COP12 in 2014) and the communities involved are now determined to play an active role in the implementation of the plan up to 2020 and beyond.

Community mapping to address land use change and security of land tenure

Participatory community mapping based on traditional knowledge and using both traditional and modern mapping technologies, has emerged as a useful and powerful tool during the past two decades. Hundreds of communities have started to use this tool and efforts are under way to establish collaborative networks at various levels. In August 2013, 110 representatives of indigenous peoples, community mapping experts and members of support NGOs and academia from 17 countries gathered together in the traditional territory of the Batak at Lake Toba in Indonesia, to share and learn from their diverse experiences.[195]

Whilst acknowledging some potential risks,the participants agreed that community maps, as part of community-based monitoring and information systems can be used for a wide range of purposes, including: identifying diverse land use and monitoring of land and resource use changes; tracking the extent of use or decline of traditional knowledge (TK), indigenous languages and customary governance; monitoring biodiversity, ecosystem integrity and climate change impacts; development of territorial management plans; as a tool for self-determined development and advocacy for policy reforms.

One of the challenges being addressed in relation to monitoring land use change and secure land tenure is how to better manage complementarity and inter-operability between community-generated maps and larger scale maps being produced by national or global agencies. Meanwhile, community participatory mapping is set to evolve in serving community needs and aspirations, as one of the 2015 Equator Prize winners illustrates.

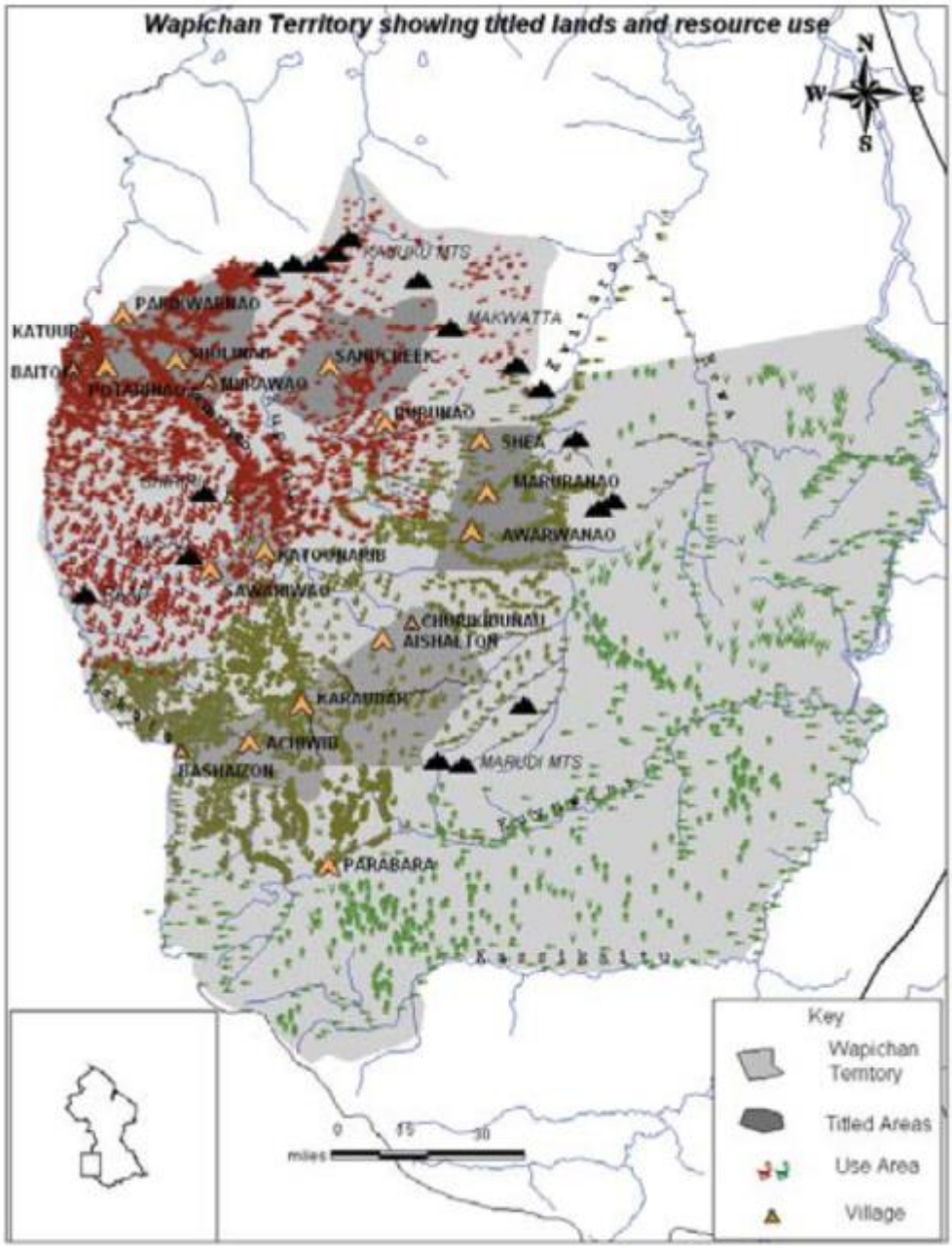


Figure 12: Wapichan Wiizi, Guyana, showing traditional territory, customary land and resource use, and main villages[196]

Opportunities and recommended actions to enhance implementation of the target

Governments, donor agencies and relevant organisations to:

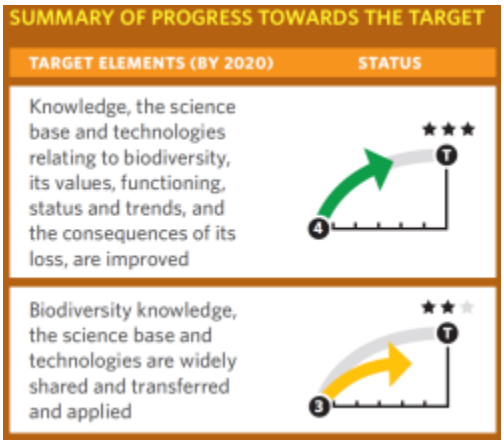
- Support and mobilise financial resources for on-the-ground community initiatives on traditional knowledge and customary sustainable use.
- Scale up and mainstream implementation of the Programme of Work on Article 8(j) and Related Provisions and the Plan of Action on Customary Sustainable Use.
- Support concrete actions to halt the loss and promote the revitalisation of indigenous languages and traditional occupations and to secure indigenous peoples' and local communities' rights to land.
- Mobilise financial resources to support the work of the lead agencies tasked with monitoring the headline indicators related to Target 18.

Key resources:

- Biocultural Diversity: threatened species, endangered languages (2014). Available at http://wwf.panda.org/wwf_news/press_releases/?222890/Biocultural-Diversity-Threatened-Species-Endangered-Languages
- Case studies on customary sustainable use: http://www.forestpeoples.org/customary-sustainable-use-studies
- Status and Trends in Traditional Occupations (2016). Available at http://www.forestpeoples.org/topics/convention-biological-diversity-cbd/publication/2016/status-and-trends-traditional-occupation
- Mapping Our Lands & Waters, Protecting Our Future (2015). Available at http://www.tebtebba.org/index.php/content/361-mapping-our-lands-a-waters-protecting-our-future
- Common Ground. Securing Land Rights and Safeguarding the Earth (2016). Available at
- http://www.landrightsnow.org/en/common-ground/

TARGET 19: Knowledge improved, shared and applied

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 environmental governance. Community-based monitoring, data and information can make important contributions to monitoring progress under the Strategic Plan for Biodiversity (2011-2020) related environmental conventions and the new Sustainable Development Goals, by ground-truthing global and national data-sets and providing evidence of community outcomes. 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.

Introduction

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.[30] 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[22] and the multiple conceptions and values of ecosystems and its services are acknowledged.

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[25] 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.[197] The report from its thematic assessment 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 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."[198]

The Inter-governmental Panel on Climate Change (IPCC) has only recently recognized the importance of traditional knowledge in climate change adaption and mitigation strategies.[199] The UNESCO-UNU publication *"Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation"*[110] provided a resource for authors of the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) 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, and other recent global agreements on sustainable development and climate change falls on national governments. 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 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.

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 innovative tool kits 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, including environmental and social monitoring systems and the exploration of community-based sustainable livelihood options.

Community-based monitoring and information systems (CBMIS) challenge earlier research

approaches towards indigenous peoples and local communities which have reinforced the perceptions of outsiders as 'technological experts', and resulting in well-intentioned but extractive data-mining exercises that ultimately further marginalise communities. Building capacities of IPLCs themselves to generate, control, manage, share and update their own data and information is a major contribution to achieving Target 19. This publication "Outlooks on Biodiversity" of Indigenous Peoples and Local Communities shares this community-based approach of strengthening Indigenous and Local Knowledge.

Box 32: The Kalanguya experience of establishing community-based monitoring and information systems in Tinoc, Ifugao, Philippines

Author: Florence Daguitan, Tebtebba[iii]

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[jjj]. Community research was carried out in 5 of the 12 *barangays* or administrative villages of Tinoc: Ahin, Wangwang, Tulludan, Tukucan, and Binablayan. The assessment employed cultural and GIS mapping, workshops, surveys and interviews, as well as secondary data from records of various government agencies.

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 domain of professionals and results are seldom relayed, hence community appreciation of research was low. Demystifying research encouraged peoples' participation. It is important for people to realize that anyone can be involved in research or the process of creating knowledge, and that this is part of everyday life.

Key Findings and Actions Taken

For as long as one is willing to work the land, no one will be hungry but hunger will occur if we deprive man of the land that is the basic means of production'

- The late Lakay Biaw of Tukucan

After more than a year of participatory action research, the Kalanguyas were able appreciate the wisdom and science of their indigenous knowledge which embodies sustainable resource use and equitable sharing of resources.

We came to the conclusion that territorial management among the Kalanguya is a land use system that manifests man-land-nature and spirit relationships, based on biodiversity and culture.

For sound management, traditional monitoring systems exist, like the "*giti*" to monitor irrigation systems, and changes in seasons and weather influencing economic activities like the maturing of the *pullet* (a kind of plant) signals the start of land preparation in the irrigated riceland, arrival of the *kiling* (bird) signalling the start of planting rice. Whether these traditional indicators are still accurate in the context of climate change needs further study.

Traditional territorial management was vibrant up to the mid 1990's, until the adoption of chemical-based commercial vegetable production. This new land-use and associated technologies is 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[kkk].

Communities used the emerging data to draw up action plans. What ought to be done varies from village to village.

[iii] Tebtebba, jointly with MRDC had a pilot project applying the ecosystem-based approach jointly with communities in Tinoc , Ifugao

[jjj] Community-based monitoring was based on CBD indicators on traditional knowledge adopted by COP.

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

In the Wangwang community, where data showed that the forest area is largely intact, the aim of the community is to upgrade their traditional knowledge and to strengthen customary sustainable use and customary law.
In Tukucan, the data showed big reduction in the land allocated for watershed. Much of the forest had been cleared for vegetable farming and the range of foods eaten by the community was less diverse. The community here aims to reclaim the watershed area, some of which had been privatized, to assist in forest regrowth and to 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 assessment. As a result, a peoples' covenant to arrest environmental degradation and promote peoples' wellbeing was agreed on and eventually a Comprehensive Land Use Plan 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.

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 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.[195,200,201] This network has made linkages with the Biodiversity Indicators Partnership, the International Partnership on the Satoyama Initiative (IPSI)[152] 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'[70]. 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."[202] 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."*

Opportunities and recommended actions to enhance implementation of the target

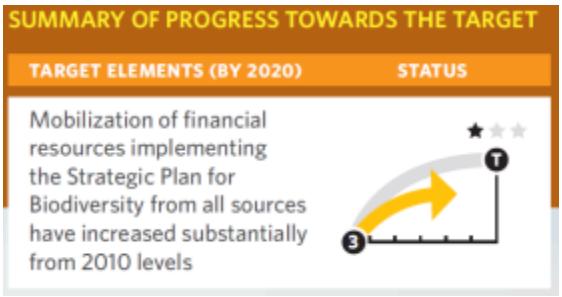
Inasmuch as global strategies and commitments pose challenges for governments to adopt national implementation plans, monitoring frameworks and indicators, the same can be said for IPLCs who face huge and growing inequalities in access to data and information and in the ability to use it. A wide gap 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
- 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"
- Resource Book on Indicators Relevant for Indigenous Peoples
- Tebtebba Journal Report on CBMIS
- CBD Reports on CBMIS

TARGET 20: Financial resources from all sources increased



By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

Key message: Allocating financial resources to priority initiatives of indigenous peoples and local communities (IPLCs) is an exemplary way of supporting the contributions of IPLCs towards multiple Aichi biodiversity targets. Local initiatives have generally proven to be very cost-effective and partnerships with IPLCs can make resource-intensive initiatives more viable. Many IPLCs initiatives are already benefitting from existing biodiversity funding, but these funding processes can be too complicated and demanding to be fully accessible for small grassroots organisations. Safeguards need to be applied to address the potentially harmful effects of biodiversity funding on IPLCs and their lands and territories. Positive recognition of the contributions of the collective actions of IPLCs to the implementation of the Convention is welcome, but more work is needed with regards to reporting and measurement.

Introduction

GBO4 noted that there was insufficient data on finance mobilisation, especially on domestic funding for biodiversity initiatives, but that estimates suggest that significantly more funding is needed to enable the successful achievement of Strategic Plan for Biodiversity 2011-2020.[30]

Resource allocation to initiatives of IPLCs helps to exemplify how contributions at the local level are important for achieving all of the Aichi Biodiversity Targets, not just Target 18, and to enhance these contributions. Examples identified in this report include: community conservation actions; community-based cultural and environmental mapping; monitoring and documentation; development and use of local sustainable land-use plans; and also funding to ensure effective participation in NBSAPs and national reports.

In response to the need for implementation of the plan of action on customary sustainable use of biological diversity, COP12 invited Parties, other Governments, international organizations, programs and funds to provide funds and technical support to developing country Parties and indigenous peoples and local communities for implementation of programs and projects that promote customary sustainable use of biological diversity.[203]

Box 33: Standing with Indian Country - President Obama's Fiscal Year 2017 Budget

President Obama's 2017 budget strongly supports the sustainable stewardship of tribal trust lands, natural resources, and the environment in Indian Country, including the protection and restoration of ecosystems and important landscapes; stewardship of land, water, ocean, and energy resources; resilience in the face of a changing climate; and clean and sustainable energy development. The Budget provides $377 million for the Bureau of Indian Affairs (BIA) to support tribes in managing

resources and for trust real estate services, representing a $33 million increase over the 2016 enacted level for stewardship of fisheries, wildlife, forests, water, and tribal lands.[204]

A strong argument for further and continued investment in local initiatives is that outcomes often serve multiple policy objectives – community development, environmental recovery and cultural well-being, combined with being very cost-effective and offering good value for money. Recent research conducted on the viability and costs of local monitoring of forest degradation and biomass in Tanzania, India and Madagascar demonstrated that IPLCs forests monitoring can be done as effectively as by trained scientists but at half the cost. IPLCs actions can help make viable otherwise unaffordable or technologically draining initiatives through their traditional knowledge and on-the-ground presence.[205]

Contributions and experiences of IPLCs towards the target

Inclusion and involvement of IPLCs in current biodiversity funding

The main financial mechanism for the CBD is the Global Environment Facility (GEF), which has adopted its "GEF Principles and Guidelines for Engagement with Indigenous Peoples".[206]

To date, GEF has supported 160 full and medium sized projects involving indigenous peoples. Two-thirds of these projects were either designed exclusively to benefit indigenous Peoples, many of them executed by indigenous organizations, or had distinct components and/or sub-projects benefiting and targeting indigenous peoples. The GEF Small Grants Programme (SGP) is another funding modality enabling GEF to partner with indigenous peoples globally. Approximately 15 per cent of the GEF-SGP projects target and involve indigenous peoples.[206,207]

Box 34: Examples of GEF Small Grants Programme funding for IPLCs

At CBD COP12 the German government, the GEF-SGP and the United Nations Development Programme (UNDP) announced a new partnership to create the largest global fund for territories and areas conserved by indigenous peoples and local communities (ICCAs) with a contribution of 12 million Euros for 5 years, as a contribution to the achievement of Targets 11, 14 and 18, working in at least 26 countries.

Through country programmes, SGP supported the Community-Based Adaptation (CBA) program with the Australian Government and the Community Development and Knowledge Management (COMDEKS) on sustainable use of biodiversity in production landscapes and seascapes under the Satoyama Initiative together with the Japan Biodiversity Fund. The GEF-SGP reports that SGP's cumulative portfolio since its inception includes over 19,770 community-based and CSO-implemented projects in 132 countries. In the biodiversity focal area, SGP projects have influenced 299 Indigenous and Community Conserved Territories and Areas (ICCAs) including Locally Managed Marine Areas (LMMAs) in 2014-2015.[208]

Existing funding mechanisms' accessibility for IPLCs

Current principles and guidelines recommend that GEF-SGP use a flexible and streamlined project cycle, and flexible disbursement terms to accommodate culture, customs and seasonal movements, and that it accept proposals in national languages and in non-traditional formats, including video and community theatre.[206,207]

Feedback from indigenous organisations whose proposals were selected for inclusion in existing GEF-SGP projects reveals that, in reality, the processes can be very complicated, strict and demanding. For small grassroots organisations, with limited staff and resources and no fluent English proficiency, requests, expectations and conditions that have to be complied with in order to receive

the funding present a significant hurdle. It seems that certain safeguards, financial and accountability and grievance policies which were designed to apply to large projects are also applied to small projects, thus causing challenges for indigenous or local project holders.[lll]

An important and accessible resource for IPLCs is the IFAD Indigenous Peoples Assistance Facility (IPAF) which provides small grants of between US$20,000 and US$50,000 to small-scale projects designed and implemented by indigenous peoples' communities and their organizations, many of which are related to traditional knowledge and customary use.[209] Since 2011, 31 projects have been approved in 26 countries with USD 1,138, 000 awarded overall. IFAD have made efforts to increase the participation of IPLCs by transferring decision-making powers to regional indigenous organizations, giving them increased responsibility for the selection and implementation of projects.

The CBD LifeWeb Initiative launched at CBD COP 9 to help bridge the funding gap for achieving Aichi Biodiversity Target 11 by acting as a match-making facility between countries and actors seeking funding for protected areas and donors interested in supporting them. Submissions of "Expressions of Interest" can be made by indigenous or local community groups, accompanied by an endorsement letter from a Focal Point for the Programme of Work on Protected Areas. A limited number of projects focusing on community-based solutions were submitted and partially funded through the initiative.[210]

Mitigating risks and harmful impacts of biodiversity funding on IPLCs and their territories

The International Indigenous Forum on Biodiversity (IIFB) has called for caution regarding the potential harmful impacts of biodiversity funding on IPLCs and their lands and territories, pointing out the risks of biodiversity public-private partnerships in areas inhabited by indigenous peoples and the importance of FPIC and social safeguards to protect indigenous peoples' life and Mother Earth.[211]

The Swedio 'Biodiversity financing and safeguards: lessons learned and proposed guidelines', a submission to COP 12, recommended a holistic approach to safeguards which acknowledges the importance of the interplay between the unique local context, including different ecosystem functions of biodiversity, and international or national processes. The report also recommends scaling up biodiversity funding in order to achieve the Aichi Biodiversity Targets, while recognising the potential impacts funding can have on both biodiversity and people's livelihoods, and emphasising that IPLCs must be consulted and participate in the design of financing mechanisms which affect them.[212]

Collective Actions and non-monetary contributions towards implementation of the Strategic Plan:

Decision XII/3 on resource mobilization recognizes the role of "collective action" by indigenous peoples and local communities, referring to how their customary sustainable governance and management contributes to biodiversity conservation and to the utilization and maintenance of biodiversity. Many examples of such collective actions are included in the various chapters of this report. How best can these contributions of collective actions be described and measured in ways that are recognized and understood by a diversity of actors, through the CBD Financial Reporting Framework, and in National Biodiversity Strategies and Action Plans (NBSAP)?

The Dialogue Workshop on Assessment of Collective Action in Biodiversity Conservation (held in Panajachel, Guatemala, June 2015) set out to address some of these questions and to discuss available methodologies for assessing and evaluating the contribution of collective action.[213]

[lll] Based on anonymised personal communication, 2016.

Participants stressed that in some cases, the benefits of collective action can be reported in monetary terms, but in most cases these need to be reported as non-monetary contributions. Several questions and challenges related to the methodologies of measurement of the contributions of collective action are not easily solved and require time to clarify. It was suggested that further work be carried out, together with IPLCs on a list of non-monetary indicators, taking into consideration the problem of putting economic valuations on traditional knowledge. At the grassroots level, clearer information on this issue is needed. It was also recommended that, rather than aggregating data on collective action under Target 20 for resource mobilization, it should be addressed and visualized under all the targets in the Strategic Plan, as has been done in this "Outlooks on Biodiversity" report.[7]

Opportunities and recommended actions to enhance implementation of the target

Parties, governments and donors to:

- provide increased funding to IPLC initiatives that contribute to the Strategic Plan for Biodiversity

Parties to:

- acknowledge contributions from collective action in their reporting on all targets

Funding mechanisms to:

- be culturally appropriate and accessible for community-based organisations and respect IPLC rights

IPLCs to:

- continue indicating their funding needs and gaps

Key resources

- Further reading on GEF and Indigenous Peoples, including the resources
  - Partnership in Practice: Engagement with Indigenous Peoples (2014)
  - User Guide: Indigenous Peoples and GEF Project Financing (2016)
  - https://www.thegef.org/gef/indigenous-peoples
- Further reading on funding for indigenous-partnered projects: http://thephilanthropist.ca/2016/07/drops-in-the-soil-not-in-the-bucket-the-case-for-borderless-indigenous-philanthropy/

Further reading on collective action: https://www.cbd.int/financial/collectiveaction.shtml and https://www.cbd.int/financial/collectiveworkshop.shtml

3. DISCUSSION OF KEY ISSUES – FORTHCOMING

4. CONCLUSION - FORTHCOMING

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