



Challenges and Opportunities for Indigenous Peoples' Sustainability

THREATS TO INDIGENOUS PEOPLES' LIVELIHOODS AND TRADITIONAL KNOWLEDGE

Climate change is the greatest challenge facing humanity today. Its effects, however, are disproportionately distributed, in particular affecting vulnerable and socially marginalized population groups. Indigenous peoples are among the first to face the direct impacts of global warming on the ecosystems or landscapes they inhabit, owing also to their dependence upon, and close relationship with the environment and its resources. Examples of the negative impacts include diseases associated with increasing temperatures such as, vector-borne and water-borne diseases; drought and desertification leading to forest fires and the loss of forests; excessive rainfall resulting in the damage of grasslands, seedlings and other crops; rising of rivers and melting mountain snow, glaciers and sea ice due to higher temperatures affecting livelihoods; increase of new types of insects and lengthened life spans of endemic insects exacerbating food insecurity; and coastal erosion by rising in sea level affecting the economies of small island States. Furthermore, many indigenous peoples are becoming environmental refugees due to the increased frequency and intensity of these and other climatic hazards such as floods, hurricanes and typhoons that destroy indigenous peoples' land and property. They also suffer serious human rights abuses due to the expropriation of lands for biofuel plantations or due to the implementation of climate change mitigation projects such as carbon sinks and renewable energy projects.¹

Indigenous peoples are stewards of the world's biodiversity and cultural diversity. Although they account for only around 5 percent of the world's population, they effectively manage an estimated 20-25 per cent² of the

¹ E/C.19/2008/10, paragraph 5 a-m

² Estimates of indigenous lands in the Earth surface are put at 20% (State of the World's Indigenous Peoples, Volume I, 2009, p 84) and 22% (World Resources Institute (WRI) in collaboration with United Nations Development Programme, United Nations Environment Programme, and World Bank. 2005.

Summary

Climate change, deforestation, pollution, development and loss of diversity are serious threats to indigenous peoples due to their dependence on the environment and the resources of the lands and territories. It causes the loss of traditional knowledge, disintegrating traditional governance structures and their cultures.

This policy briefing provides examples of the holistic perspective of indigenous peoples on resource governance, land rights, mitigation of climate change impact on their environment and resilience-building through the use of their traditional knowledge. It also highlights the benefit of indigenous peoples' full participation, in particular, indigenous women in decision-making processes to prevent conflict. It notes the importance of upholding the rights of indigenous peoples as enshrined in international law and full respect for the right of indigenous peoples' decision to not to engage in the global economy. Further, it points to the need to promote dialogue among indigenous peoples, local communities, scientists, including meteorologists and climate experts, policymakers and other relevant actors, to enable co-production of knowledge, and sharing of sustainable strategies to overcome risks and strengthen resilience to climate change.

Earth's land surface. This land coincides with areas that hold 80 per cent of the planet's biodiversity and about 40 per cent of all terrestrial protected areas and ecologically intact landscapes. Indigenous peoples therefore play a key role in efforts to protect the planet and biodiversity.

Although indigenous peoples' resilience is threatened by their vulnerability to the negative effects of climate change, often they have been able to adapt to these changes by the continued practice of traditional knowledge, often encoded in indigenous languages and passed between generations. Through such practices, indigenous

peoples have managed and used the natural resources to ensure their conservation into the future. In this context, indigenous peoples can contribute to mitigation and adaptation strategies. Some contributions include, indigenous peoples' successful struggles against deforestation, mineral, oil and gas extraction in their ancestral lands; their fight against further expansion of monocrop plantations; their promotion of sustainable production and consumption systems through traditional knowledge and values of reciprocity with nature, and the effective stewardship over indigenous women and men's lands and territories.

International instruments have recognized the value and significance of traditional knowledge. Indeed, the Intergovernmental Panel on Climate Change, which is the international body responsible for assessing the science related to climate change. It has observed that indigenous knowledge is not consistently reflected in existing adaptation efforts. The Paris Agreement also makes reference to indigenous peoples' rights and acknowledges the centrality of traditional knowledge to overcome the negative impacts of climate change. The Convention on Biological Diversity (CBD) also recognizes the close ties of indigenous peoples and local communities to biological resources, and the contributions that traditional knowledge can make to the Convention and sustainable biological diversity (Article 8 (j)). These instruments supported by the UN Declaration on the Rights of Indigenous Peoples can guide, provide orientation, build relationships and promote respect for the self-determination of indigenous peoples. In spite of such contributions and recognition of the critical solutions offered by indigenous peoples, the climate action strategies often fail to respect individual and collective indigenous peoples' rights, or to include the genuine participation of indigenous peoples in decision-making processes at all levels.

THREATS OF ECONOMIC DEVELOPMENT TO BIODIVERSITY AND ECOSYSTEMS

As a result of the growing global demand, the exploitation of resources has accelerated the loss of biodiversity and degradation of ecosystems. As a consequence, there is a growing displacement, loss of land, water and livelihood, and increased militarization, violence and repression for the appropriation of resources where indigenous peoples inhabit. These violations occur with no concern for the harmful impacts to the environment, territories and peoples. In spite of these challenges, indigenous peoples continue to advocate for environmental protection and

cultural integrity against their respective States' desire to prioritize fossil fuel-based economic development whose carbon emissions also adversely affect the environment. Indigenous peoples increasingly advocate for the resistance to these threats against the environment. In 2020, two hundred and eighty-seven indigenous environmental and human rights defenders were killed.³

An illustrative example is the case of the Standing Rock Sioux Nation in North and South Dakota (USA), who resisted the construction of the Dakota Access Pipeline. Megaprojects such as this, disrupt ecosystems, contaminate drinking water resulting in health problems, including birth defects and cancers. The rights of indigenous women are also violated, often resulting in physical violence, sexual exploitation, and murder by transient construction personnel. Indigenous rights defenders, including water protectors have endured militarized crackdowns, police brutality, and intimidation for defending their individual and collective rights.

Many indigenous communities rely on their natural environment for everything — from food and water to their livelihoods and culture. For instance, indigenous peoples in the Ecuadorian Amazon used to take advantage of rainy seasons that cause flooding along the river systems utilizing their traditional knowledge to optimize their fishing practices. Now, due to fossil fuel-based economic growth and climate change, the increased magnitude of the flood is submersing the communities and their farms further upriver, which are not prepared for the influx of water. Therefore, these floods affect the crops, thus increasing food insecurity amongst indigenous peoples.⁴

The Aboriginal and Torres Strait Islander people in Australia have also been disproportionately impacted by climate change, and will become through the rising sea levels, climate change refugees. Their islands are confronting dynamic and erratic changes such as raising water levels, tidal surges, coastal erosion and inundations. As a result, buildings, roads and even sacred burial grounds have been washed away because the high tide and strong winds.⁵

Categorically, fossil fuel-based economic development and climate change exacerbates the challenges

³ Global Analysis , Front Line Defenders. Available at https://www.frontlinedefenders.org/sites/default/files/flld_global_analysis_2020.pdf, page 4

⁴ Indigenous leaders: To tackle climate change, 'we must first address racial inequality'. Available at <https://www.conservation.org/blog/indigenous-leaders-to-tackle-climate-change-we-must-first-address-racial-inequality>

⁵ Available at <https://www.theguardian.com/australia-news/2019/may/13/torres-strait-islanders-take-climate-change-complaint-to-the-united-nations>

facing indigenous communities including political and economic marginalization, loss of land and resources, human rights violations, and discrimination and unemployment. For instance, prior to November 2020, when hurricanes Eta and Iota devastated indigenous communities in Central America, especially Honduras, Guatemala and Nicaragua, these communities were already suffering from discriminatory violence, the negative effects of extractive industry and energy projects, over-development from tourism, cattle ranching, monoculture export crop plantations, and the impact of the COVID-19. Climate change has undeniably contributed further to the already dire situation of indigenous communities,⁶ whose interests for migrating to the United States have increased in recent years.

OPPORTUNITIES FOR INDIGENOUS PEOPLES' SUSTAINABILITY

Indigenous peoples contribute in a myriad of ways to respond sustainably to climate change. For example, the Kichwa Sarayaku people in Ecuador have prepared the proposal *Kawsay Sacha*⁷ (Living Forest), which is an indigenous-led solution in order to protect the forests and keep fossil fuels in the ground based on the life-plans⁸ developed within their own community. It is a proposal for living together with the natural environment that stems from the traditional knowledge of the indigenous peoples who inhabit the Amazonian rainforest. Recent scientific studies have validated and further solidified the effectiveness of the traditional knowledge based approaches to sustainable environmental recovery. The proposal was presented at the Twenty-third Conference of the Parties (COP23) to the United Nations Framework Convention on Climate Change in Bonn, Germany.

The growing demand for biofuels by developed countries is leading to the development of vast monocrop palm plantations that destroy the tropical forests across Asia, Latin America and West Africa. Around the world, in places such as Indonesia and Malaysia, upwards of 90 per cent of the palm oil trees are unsustainably grown, thus devastating the surrounding plant ecosystems and animal species⁹ as orangutans. Palm oil production also leads to

the forced relocation of indigenous peoples from their lands. Overall, the expansion of agro-industrial production of monocultures for export (mainly soybean, grain corn, sunflower and sorghum) and extensive livestock (beef) production threatens not only biodiversity, contributing to climate change, but also violates collective and individual rights of indigenous peoples.

Traditional practices such as rotational agriculture, a practice that increases the overall health of forest and jungle ecosystems are critical strategies for the mitigation of global warming. These strategies, refined over time and through traditional knowledge are still practiced by the Igorot of the Philippines, the Karen of China, Myanmar and Thailand, and the Achiks of India.¹⁰ The resilience of indigenous peoples is further highlighted by the Agroforestry Research Project in Kenya. The International Council for Research in Agroforestry (ICRAF) established a project in the Machakos District of Kenya in 1981. The expansion of the project in 1983, revealed knowledge gaps in the research in areas such as soil management and draught/famine survival. This was a direct result of the exclusion of indigenous women from the planning and testing elements of the research project. Upon inclusion and full participation of the indigenous women, with their traditional and gender specific knowledge of the natural environment, an improved action research programme was established. This allowed for the dissemination of sustainable and effective agroforestry knowledge to be used by all in the Machakos District.¹¹

Many countries are taking steps toward acquiring a clean energy future including wind, solar, hydrothermal, and bioenergy in order to mitigate and adapt to the challenges that lie ahead with an ever more populous, warming planet. While renewable resources are an important aspect of combatting climate change, a prerequisite must be the meaningful participation of indigenous peoples to obtain their free, prior and informed consent before any project is planned and implemented on their lands. Renewable energies cannot continue with the exploitative frameworks of implementation that fossil fuel and other megaprojects have adopted.

Further, the increased demand for wind and solar power often put pressure on indigenous peoples to provide the resources, such as land for such energy

⁶ Preliminary report November 2020, Consequences of the Hurricane 2020 Season on Indigenous Communities in Central America. Available at <https://indigenascovid19.red/wp-content/uploads/2020/12/Preleminary-report-IP-and-ETA-IOTA-hurricanes-.pdf>

⁷ Sarayaku, Living Forest, available at <https://kawsaksacha.org/en/>

⁸ Life Plans are sustained by the three foundational pillars of the Sumak Kawsay Plan: Fertile Land (Sumak Allpa); Living in Community (Runaguna Kawsay); and Forest Wisdom (Sacha Runa Yachay). As a space for the development of Sumak Kawsay, the Living Forest proposes another way to think about wealth.

⁹ Available at <https://www.worldwildlife.org/industries/palm-oil>

¹⁰ Available at <https://unesdoc.unesco.org/ark:/48223/pf0000375025> paragraph 18

¹¹ African Indigenous Knowledge and its Relevance to Environment and Development Activities. https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/904/African_Indigenous_Knowledge_and_its_Relevance_to_Environment_and_Development_Activities.pdf?sequence=1 Also see http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-14_EN.pdf

endeavours. However, meaningful participation and consultation to obtain the consent of indigenous peoples in the development and implementation of such energy alternatives is typically neglected. Even so, the 2018 Briefing Paper by the Indigenous Peoples Major Group¹² highlights key examples of indigenous participation in the planning, development and implementation of renewal energy projects. The Briefing Paper highlights successful examples throughout South East Asia. The Cordillera region of the Philippines through the Community-Based Renewable Energy Systems (CBRES) has resulted in a number of community-led micro-hydro power developments that have had profound impacts on sustainable development. These indigenous-led and funded initiatives have reduced the dependence on wood for lighting and even allowed for a reduction on the work burden for women through the use of a water-powered rice pounder.¹³

THE KEY ROLE OF TRADITIONAL KNOWLEDGE TO OVERCOME CLIMATE CHANGE

Traditional knowledge plays a critical role in protecting the planet's biodiversity and of maintaining the overall health of the ecosystems. For indigenous peoples, their knowledge of plants, animals, microorganisms, ecosystem management, among others, is essential in conserving and using biodiversity, food, their health needs and practicing their sacred rituals and ceremonies. Often, indigenous peoples' heritage, cultural expressions, plant, animal, microorganism and human genetic materials are found in public and private gene banks, research and health institutes, museums, botanical parks, and in the laboratories and databases of universities and corporations. The misuse and misappropriation of their knowledge can cause severe physical or spiritual harm to the custodians of the knowledge or to entire communities or peoples.¹⁴

Furthermore, this traditional knowledge that is transmitted across generations helps indigenous peoples to not only protect their existence as peoples but to also to promote and thrive collectively. The maintenance and transmission of traditional knowledge depends on the sophisticated sets of understandings, interpretations and meanings that are communicated through indigenous

languages. The traditional knowledge of indigenous peoples plays a central role in mitigation and adaptation actions against climate change.¹⁵

For indigenous peoples, one of the potential adverse effects of misuse of traditional knowledge is synthetic biology.¹⁶ Biotech crops offer a solution to decrease greenhouse gases and therefore mitigate climate change. However, if their free, prior and informed consent is not obtained before these biotech crops are released into the environment, it can compromise the knowledge, experience and perspectives of indigenous peoples. For instance, genetically modified potato plants have been proposed to assist in the mitigation of a prevalent fungal disease, named the late potato blight. The Andean indigenous communities have the greatest potato diversity and have been managing the fungal disease through their traditional knowledge for centuries. When the diversity shrinks, the fungal strains multiply. Thus, the synthetic biological recommendation of reducing the potato diversity would be detrimental to the natural plethora of potato genus in the area and causes a greater vulnerability and spread of the late potato blight.¹⁷

Given the above, traditional agricultural methods remain as important assets to not only mitigate climate change but also enhance agricultural sustainability. In Bangladesh in the districts of Gopalganj, Barisal and Pirojpur, the peoples turned to the traditional method of cultivation called dhap, or known locally as baira. These are ancestral floating vegetables gardens – artificial islands that rise and fall with the swelling waters. These are landscapes that combine agricultural biodiversity, resilient ecosystems and cultural heritage.¹⁸

While indigenous peoples have accumulated valuable traditional knowledge about nature and sustainable practices, this knowledge often is not recognized as an important tool to protect the environment and to enhance resilience. For instance, climate change is most intense in the Arctic and surrounding regions. The Sami peoples, residing across four northern Nordic countries, represent a tightly intertwined human and environmental culture and community. Sami reindeer herding relies heavily on their ecosystem for the biannual migrations that move the animals between geographically separate summer and winter pastures. During normal migrations, both the reindeer

¹² Available at <https://indigenouspeoples-sdg.org/index.php/english/who-we-are/about-the-ipmg>

¹³ Doing it Right! Sustainable energy and indigenous peoples, Briefing paper by the Indigenous Peoples Major Group. Available at <https://www.indigenouspeoples-sdg.org/index.php/english/all-resources/ipmg-position-papers-and-publications/ipmg-submission-interventions/83-doing-it-right-sustainable-energy-and-indigenous-peoples/file>

¹⁴ Biodiversity, traditional knowledge and rights of indigenous peoples, Victoria Tauli-Corpuz, Third World Network, 2003.

¹⁵ President of the 73rd session of the General Assembly.

¹⁶ Available at <https://www.iucn.org/resources/issues-briefs/synthetic-biology-and-its-implications-biodiversity-conservation>

¹⁷ Available at <https://www.gmwatch.org/en/news/latest-news/19342-andean-and-african-farmers-condemn-misuse-of-digital-sequence-information-of-potatoes-from-centres-of-origin>

¹⁸ <https://www.bbc.com/future/article/20200910-the-remarkable-floating-gardens-of-bangladesh>

and herders must cross frozen bodies of water. However, due to climate change, the waters freeze over much later, which affects the migration to the winter-grazing lands. In addition, forestry activities have led to a considerable reduction in tree-hanging lichen, the primary staple of a reindeer diet. The traditional herders have reported that the traditional knowledge of herding, which has been developed over centuries, has slowly been losing applicability to the changing landscape. Previously unknown phenomena such as drastic temperature variations over short periods of time are occurring at an alarming rate and the ancestral weather indicators given through traditional knowledge are no longer reliable.¹⁹ Therefore, it is undeniable that climate change is threatening every aspect of life for the Sami, as a people.²⁰

There is an urgency to establish international frameworks to protect traditional knowledge to extend protection beyond national borders. Even where national and regional laws protect traditional knowledge and promote reciprocity in the treatment of traditional knowledge, dialogue and cooperation between indigenous peoples and decision-makers in public and private sectors, such laws have limited impact. A good practice was the establishment of the Indigenous Circle of Experts (ICE) in 2016 in Canada. ICE was comprised of indigenous and non-indigenous citizens of Canada, who together make progress for conservation of biodiversity by the use of traditional knowledge in accordance to the Pathway to Canada Target 1²¹. This was in response to the Strategic Plan for Biodiversity adopted by Canada at the Convention on Biological Diversity (COP10) to achieve the Aichi Targets by 2020. The Pathway process underscores the protection and conservation of areas identified and managed in partnership with indigenous governments, consistent with the principle of free, prior, and informed consent as expressed in the United Nations Declaration on the Rights of Indigenous Peoples. It was further designed to reflect renewed relationships that respect the rights, responsibilities and priorities of indigenous peoples. This demonstrates that traditional knowledge of indigenous peoples can be preserved and protected to better their environment in collaboration with States.

Traditional knowledge and modern resources can strengthen each other to respond current climate crisis. In Australia, Aboriginal Peoples have skilfully utilized fire

usage for the promotion of food resources, maintaining open vegetation, and creating habitat for game species. For instance, a prime motive for burning savannas is to regenerate lands and territories. One of the results of this is the attraction of kangaroos to nutrient-rich grass that grows after fire. Due to colonialism and its impact on the landscape, the practice of fire burning has been largely eliminated. Although, the traditional knowledge remains. There is an opportunity to involve Aboriginal Peoples in fire management across the country. Although, climate change is compounding wild bushfire problems, the adaptation of indigenous traditional knowledge and modern equipment could provide a strategy to improve fire management and biodiversity outcomes across Australia.²²

THE VITAL CONTRIBUTION OF INDIGENOUS WOMEN

If a gap is present for all women between the rights enshrined in the law and the exercise of those rights in real life, for indigenous women, this gap is even greater due to the multiple forms of discrimination based on their gender, ethnicity and socioeconomic situation. Furthermore, they suffer discrimination from within their own communities and from external rural and urban areas.

The loss of traditional occupations, combined with climate change and the resulting degradation of agricultural land and natural resources, are major factors behind indigenous men's migration for outside opportunities for wage labour. Thus, there is a growing number of indigenous women assuming greater responsibility for the management and governance of community lands. Therefore, it is of the utmost importance to ensure the inclusion, legal recognition, and meaningful participation of indigenous women in land ownership and governance at all levels.

Environmental violence has increased against indigenous women as their actions are challenging the systems of the patriarchy, colonization, imperialism and capitalism. Indigenous women are guardians of the languages, customs and traditions of their peoples. For indigenous women the potential loss of traditional knowledge and the activities involved are not taken into consideration when environmental projects are planned or implemented. In Peru for example, Maxima Acuña is defending her territory located in Tragadero Grande, Cajamarca from the largest gold producer in the world; USA-based Newmont Mining Cooperation. Maxima's land as well

¹⁹ Facing the limit of resilience: perceptions of climate change among reindeer herding Sami in Sweden, available at <https://doi.org/10.3402/gha.v4i0.8417>

²⁰ Study: Sámi more vulnerable to the impact of climate change than before, Inger-Elle Suoninen, available at <https://thebarentsobserver.com/en/ecology/2018/11/study-sami-more-vulnerable-impact-climate-change>

²¹ We Rise Together, 2018 Available at <https://www.conservation2020canada.ca/home>

²² Aboriginal Fire Management - Part of the Solution to Destructive Bushfires. <https://theconversation.com/aboriginal-fire-management-part-of-the-solution-to-destructive-bushfires-55032>

as four lagoons are near the mining grounds. The mining company wants to expand with the intention to consume her plot and everything that it entails (the aquifers, forests, stones, gullies, hills, bushes). Maxima is not only defending her property, she is refusing the exploitation of this part of nature because her intrinsic relationship to the territory.

It is important to highlight that both indigenous women and men are important agents to combat climate change. Indigenous women's and men's perspectives, roles and information are complementary to one another. Despite indigenous women's unique contribution to ensuring safe environments, achieving food security and enhancing spiritual well-being, their traditional knowledge is not valued properly and in some cases, has even been made invisible.

At the same time, indigenous women have shown remarkable resilience to build alternative sustainable models and solutions to these challenges. For example, indigenous women have adapted their traditional food growing practices and ecological wisdom to produce their own food. They play a key role in the selection of seeds and decisions on what to plant for harvest. The workshop report "Mobilizing Indigenous and Local Knowledge Solutions" provides many examples, such as older indigenous women having specific roles and knowledge, including locating underground water resources and averting strong rains.²³

Indigenous women have a vital role in facilitating the healing of families and communities as well as nation building. For example, Mapuche women have a vast knowledge of healing, the use of traditional plants and medicines, a knowledge transmitted orally from mother to daughter for generations. Although, all Mapuche women have this knowledge to cure minor pain only some will

be chosen by Ngenechén (supreme deity) to become Machi's are holders of specialized and sacred knowledge, linked to the female-male duality, a magical-traditional knowledge that returns harmony to the individual and community as well as mother earth.

POLICY RECOMMENDATIONS

To Governments, Representative Institutions, United Nations Entities, Private Sector and other stakeholders:

- Ensure that the UN Declaration on the Rights of Indigenous Peoples serves as a key framework in the planning and implementation of programmes related to climate mitigation, adaptation and climate finance²⁴ to foster full respect for indigenous peoples. Further, ensure the full participation of indigenous peoples, including indigenous women, in the formulation of such programmes at all levels.
- Develop policies in line with the UN Declaration on the Rights of Indigenous Peoples to adequately protect them from misappropriation of indigenous traditional knowledge and recognition of indigenous peoples as equal stakeholders and the legitimate holders of their knowledge.
- Provide technical support on how to enhance the adaptive capacity and mitigation competence of indigenous peoples, with inclusive sector-specific programmes, considering the gender, values and economic conditions of the communities.
- Undertake genuine gender analyses to make explicit which part of indigenous natural resource management is undertaken by men and women respectively, or the extent to which indigenous environmental knowledge is differentiated by gender.

²³ Available at <https://unesdoc.unesco.org/ark:/48223/pf0000375025>

²⁴ <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance/introduction-to-climate-finance>