



THE UNSEEN GUARDIANS OF LAND: INDIGENOUS COMMUNITIES, ENVIRONMENTAL LAW AND THE PATHWAY TO SUSTAINABLE COEXISTENCE

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Abstract— Indigenous communities have since long been stewards of the land, possessing a deep understanding of their local ecosystems and practicing sustainable ways of resource management. However, their role as unseen guardians of the environment is often overlooked by mainstream society. This article delves into the crucial role of indigenous communities in environmental stewardship and explores how integrating indigenous knowledge with contemporary environmental law can pave the way for sustainable coexistence between humans and nature.

Key legal instruments, such as the International Labour Organization (ILO) Convention No. 169 and the United Nations Declaration on the Rights of Indigenous people (UNDRIP), recognize Indigenous rights, yet inconsistent implementation continues to pose challenges. This paper examines the global significance of Indigenous-managed lands, which cover 22% of the Earth's surface, and how international agreements, like the Paris Climate Accord, acknowledge their contribution to environmental preservation.

National legal frameworks, such as India's Forest Rights Act (FRA), 2006, and the Panchayats (Extension to Scheduled Areas) Act (PESA), 1996, highlight both opportunities and obstacles for Indigenous communities in protecting their lands. Case studies from Yellowstone National Park (USA), the Amazon Rainforest (Brazil), and the Great Bear Rainforest (Canada) are explored to demonstrate the successes and ongoing struggles in collaborative conservation initiatives.

The paper argues that environmental laws must respect Indigenous sovereignty, safeguard their traditional lands, and incorporate Indigenous knowledge systems. By emphasizing the importance of legal reforms and environmental justice, this research advocates for inclusive decision-making processes that ensure Indigenous communities can actively participate in sustainable coexistence efforts. Overall, the paper concludes that empowering Indigenous communities through stronger legal protections and collaborative conservation strategies

is crucial for both environmental sustainability and cultural preservation.

Keywords— Indigenous people, Traditional Ecological Knowledge (TEK), Environmental law, Biodiversity conservation, Sustainable coexistence

I. INTRODUCTION

Indigenous People include various social and cultural groups with common ancestral ties to the land and natural resources on which they live, inhabit, or have been displaced. However, there is no clear designation of Indigenous people under international law, which leads to dispossession, oppression, and the establishment of reliance.

The United Nations (UN) system has evolved a modern understanding of 'who is Indigenous' is based on multiple elements¹. The United Nations Permanent Forum on Indigenous Issues, defines Indigenous people as having -

- i. Historical Continuity - Association with a specific region or part of a region prior to colonization or annexation.
- ii. Self-Identification and Community Acceptance - Identify themselves as indigenous and are recognized as such by their community.
- iii. Strong Links to Territories - Maintain strong connections to their territories, surrounding natural resources and ecosystems.
- iv. Distinct Social, Economic, and Political Systems - Preserve unique social, economic, and political systems.
- v. Distinct Languages, Cultures, and Beliefs - Maintain distinct languages, cultures, beliefs, and knowledge systems.

¹ The United Nations Permanent Forum on Indigenous Issues, Indigenous peoples, Indigenous voices, https://www.un.org/esa/socdev/unpfii/documents/5session_facsheet1.pdf



- vi. Commitment to Identity and Institutions - Resolve to sustain and further develop their identity and distinct social, economic, cultural, and political institutions.
- vii. Non-Dominant Sector - Often form non-dominant sectors of society.

Self-identification² as Indigenous as well as recognition and acceptance as a member of the group, is crucial. This is well established, including in the International Labour Organization Convention, 1989 (No. 169)³, the Committee on the Elimination of Racial Discrimination⁴ and in Article 33 of UNDRIP⁵, adopted in 2007 by the UN General Assembly. Other key indicators of Indigenous status include a deep connection to territory and natural resources, as well as distinct social, economic, or political systems.

Indigenous knowledge embodies a rich source of traditional wisdom, skills, and worldviews that have evolved within social communities over generations. Especially for rural communities, indigenous knowledge acts as a valuable resource for important aspects of everyday life, such as environmental monitoring techniques.

The world's indigenous and ethnic people have learned to exist in some of the most difficult environments in the cosmos. The most intriguing aspect of these indigenous and ethnic groups is that they reside in areas with extremely high biodiversity. There are more than 476 million indigenous people residing in 90 countries across the world which represents about 6.2% of the global population.⁶ In India, there are 705 ethnic groups recognized as Scheduled Tribes, which are often referred to as Adivasis, meaning "Indigenous people".⁷ Indigenous people

² Mr. José Martínez Cobo, Study of the Problem of Discrimination Against Indigenous Populations Final report submitted by the Special Rapporteur, United Nations, Department of Economic and Social Affairs,

<https://social.desa.un.org/publications/martinez-cobo-study>

³ Indigenous and Tribal Peoples Convention, 1989, No. 169, International Labour Organisation,

https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169

⁴ Committee on the Elimination of Racial Discrimination, United Nations Human Rights Treaty Bodies,

<https://www.ohchr.org/en/treaty-bodies/cerd>

⁵ United Nations Declaration on the Rights of Indigenous Peoples, United Nations,

https://www.un.org/development/desa/indigenouspeoples/wpc/ontent/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

⁶ Indigenous Peoples, Respect, NOT Dehumanization, Fight Racism, United Nations, <https://www.un.org/en/fight-racism/vulnerable-groups/indigenous-peoples#:~:text=There%20are%20over%20476%20million,th>

[e%20world's%20estimated%207%2C000%20languages.](https://www.un.org/en/fight-racism/vulnerable-groups/indigenous-peoples#:~:text=There%20are%20over%20476%20million,th)

⁷ Indigenous peoples in India, IWGIA,

<https://www.iwgia.org/en/india.html#:~:text=Posted%20in%20India->

own, occupy, or use about 22% of the world's land.⁸ While nature in some places degrades more slowly than in others⁹ but the effects of climate and ecosystem change have a direct influence on regional lives.

Several Indigenous communities describe concepts similar to 'sustainability' as a holistic approach to healthy living, integrating skills, reflexivity, and emotional, spiritual, economic, and social well-being to promote respectful coexistence.¹⁰ Sustainability for these communities involves managing local natural resources to ensure the survival and interdependence of both their members and the environment. While Indigenous people may not always be termed conservationists, their environmental impact has generally been lower compared to other contexts, as indicated by the IPBES global assessment, which shows that biodiversity within Indigenous communities has not declined as it has elsewhere.¹¹ This lower impact may be attributed to their traditional practices and limited access to production technologies and markets.

The significance of integrating indigenous knowledge into mainstream discussions, underscores its contribution to developing culturally appropriate solutions for indigenous populations. Utilising traditional ecological knowledge can enhance environmental monitoring initiatives, making conservation strategies more culturally relevant and successful. This approach can lead to increased community involvement and responsibility for environmental protection.

[In%20India%2C%20705%20ethnic%20groups%20are%20recognized%20as%20Scheduled%20Tribes.8.6%25%20of%20the%20total%20population.](https://www.un.org/development/desa/indigenouspeoples/wpc/ontent/uploads/sites/19/2018/11/UNDRIP_E_web.pdf)

⁸ International Day of the World's Indigenous Peoples, UNESCO, <https://www.unesco.org/en/international-day-worlds-indigenous-peoples#:~:text=Indigenous%20Peoples%20live%20in%20all,of%20the%20world's%20cultural%20diversity.>

⁹ Media Release: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating', Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), May 6th 2019, <https://www.ipbes.net/news/Media-Release-Global-Assessment>

¹⁰ Pirjo Kristiina Virtanen, Laura Siragusa, Hanna Guttorm, Introduction: toward more inclusive definitions of sustainability, Volume 43, Current Opinion in Environmental Sustainability, Pages 77-82, April 2020, <https://www.sciencedirect.com/science/article/pii/S1877343520300300>

¹¹ Ishan Kukreti, Nature better off with indigenous people, indicates global report, DownToEarth, May 6th 2019, <https://www.downtoearth.org.in/wildlife-biodiversity/nature-better-off-with-indigenous-people-indicates-global-report-64359>



1. HISTORICAL CONTEXT - INDIGENOUS COMMUNITIES AND THEIR RELATIONSHIP WITH THE LAND

Indigenous and local communities contribute in many significant ways to biodiversity by creating habitats that are much more diverse and species-rich than typical agricultural landscapes.¹² The majority of the natural habitats on land managed by Indigenous People are ecologically equivalent to formally conserved land areas; deforestation is lower and biodiversity declines more slowly in these areas; however, at least 16% percent of Indigenous-managed land faces significant risks from future development and resource extraction¹³.

Traditional Ecological Knowledge (TEK), also known as Native Science or Indigenous Knowledge, represents the wisdom and practices that Indigenous people have developed over centuries through their interactions with the environment. This field of study is a part of anthropology which examines how people engage with their surroundings. TEK includes the accumulation of knowledge, customs, and beliefs passed down through generations, reflecting people's worldview encompassing ecology, spirituality, and relationships with humans and animals.

The intergenerational transfer of knowledge, language, culture, and land-based protocols ingrained in ceremonial practice and political structures has allowed indigenous people to maintain a close connection to the land. It directs how they engage with all other living things in the surroundings. Their environmental obligations must be viewed from a holistic perspective; they cannot be divorced from who they are.

Colonization has profoundly affected Indigenous land rights by displacing Indigenous legal norms with colonial laws. This process resulted in significant loss of land due to discriminatory policies and armed conflicts. Indigenous people face heightened vulnerability to expropriation without effective protection of their land and resource rights. They are often excluded from decision-making processes, which are controlled by dominant nation-states, and are impeded from pursuing self-determined development. Colonization also caused cultural genocide, leading to the erosion of language, culture, and intergenerational trauma. Furthermore,

¹² Kathleen Ciola Evans & Eva Perry, [The role of indigenous knowledge and land management practices in conservation](https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation#:~:text=Indigenous%20and%20local%20communities%20contribute,to%20formally%20conserved%20land%20areas), UMD Department of Entomology [Land Acknowledgement](https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation#:~:text=Indigenous%20and%20local%20communities%20contribute,to%20formally%20conserved%20land%20areas), <https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation#:~:text=Indigenous%20and%20local%20communities%20contribute,to%20formally%20conserved%20land%20areas>.

¹³ Kathleen Ciola Evans & Eva Perry, [The role of indigenous knowledge and land management practices in conservation](https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation), UMD Department of Entomology [Land Acknowledgement](https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation), <https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation>

Indigenous people frequently experience forced displacement to urban areas, where they encounter increased marginalization, poverty, disease, and violence.¹⁴

2. ENVIRONMENTAL LAW - PROTECTING MARGINALIZING INDIGENOUS COMMUNITIES

Indigenous people have a rich history of environmental management, with their knowledge and practices handed down through generations. Their profound connection to the land is reflected in their cultural, linguistic, and land-based protocols, emphasizing environmental responsibilities as integral to their identity. They possess unique, sustainable resource management practices that have preserved and evolved ecosystems for centuries. Indigenous communities are crucial in conserving delicate ecosystems such as rainforests, arid lands, and mountains. Recognizing their right to self-determination is essential for safeguarding their traditions and unique characteristics. Increasingly, there is interest in integrating Indigenous Traditional Ecological Knowledge (TEK) with Western science for effective land management.¹⁵

Contemporary environmental law has made significant strides towards protecting natural resources and ecosystems. However, it frequently lacks the intricate understanding of the environment embedded within indigenous knowledge. By integrating traditional ecological wisdom with legal frameworks, we can harness the collective genius of indigenous communities to enhance environmental protection.

Many indigenous communities have maintained their cultural connection to the land for generations but have often faced displacement and dispossession due to development projects or inadequate legal recognition. Indigenous land rights not only secure the rights of these communities but also protect important natural habitats from unsustainable exploitation.

Ethnic and indigenous people have significantly contributed to environmental management and eco-restoration through their traditional knowledge, which has fostered a harmonious relationship with nature. Often residing near forests, these communities, including indigenous tribes, have since long managed and conserved their local ecosystems. They utilize forest resources, such as edible plants, timber, and fuelwood, with practices that include consuming flowers and fruits raw, and cooking tubers, leaves, and seeds. Their deep connection with the forest reflects a long-standing attachment and

¹⁴ Middleton-Moz, J., Mishna, F., Martell, R., Williams, C., & Zuberi, S. (2021). Indigenous trauma and resilience: pathways to 'bridging the river' in social work education. *Social Work Education*, 42(7), 968–985.

<https://doi.org/10.1080/02615479.2021.1998427>

¹⁵ Eugenia Recio, Dina Hestad (Dr.), Indigenous Peoples: Defending an Environment for All, International Institute on Sustainable Development, April 22th 2022, <https://www.iisd.org/articles/deep-dive/indigenous-peoples-defending-environment-all>



sustainable living practices that benefit both the environment and their way of life.

When land is owned, managed or occupied in a traditional way, the word “traditional” refers to a knowledge that stems from centuries-old observation and interaction with nature.¹⁶ This knowledge is frequently incorporated in a cosmology that honours the unity of life, regards nature as sacred, and recognizes humans as a part of it. It also includes practical techniques to maintain the balance of the environment in which they live so that it can continue to supply the services, such as water, rich soil, food, shelter, and medicine to them.

Indigenous stewardship practices can also inform sustainable development plans and environmental regulations. By incorporating indigenous knowledge into decision-making processes, we can develop strategies that prioritize the preservation of biodiversity, protection of sacred sites, and the use of sustainable resources.

Developing a sustainable future for each and every person depends on the traditional wisdom and knowledge of Indigenous People. Respecting and promoting their collective rights to land, self-determination, and consent is critical to strengthening and enhancing their role as nature's guardians. Indigenous people's lands still contain 80% of the remaining world's forest biodiversity¹⁷.

Indigenous people's engagement in international environmental discussions must move beyond tokenism and into meaningful integration of their worldviews and expertise. The total number of climate change cases has almost been doubled since the issue was first reported, rising from 884 in 2017 to 2,180 in 2022, according to a recent UNEP estimate.¹⁸ The report did not break down the number of claims filed by Indigenous People, but it does indicate that they, too, are increasing.

The majority of these claims are around human rights issues, with Indigenous People claiming that environmental degradation threatens their culture, access to food and water, and lives. Indigenous people are initiating a number of lawsuits to hold governments responsible for violating

¹⁶ Siham Drissi, *Indigenous Peoples and the nature they protect*, updated on September 19th 2023,

<https://www.unep.org/news-and-stories/story/indigenous-peoples-and-nature-they-protect>

¹⁷ Eugenia Recio, Dina Hestad (Dr.), *Indigenous Peoples: Defending an Environment for All*, International Institute on Sustainable Development, April 22th 2022, <https://www.iisd.org/articles/deep-dive/indigenous-peoples-defending-environment-all>

¹⁸ Cases for climate justice more than doubled globally since 2017, finds UNEP, DownToEarth, 27 Jul 2023, <https://www.downtoearth.org.in/climate-change/cases-for-climate-justice-more-than-doubled-globally-since-2017-finds-unep-90862#:~:text=As%20climate%20litigation%20increases%20in,2022%20from%20884%20in%202017.>

obligations made under International Environmental Agreements such as the Paris Climate Change Agreement¹⁹.

Indigenous people have launched climate-related challenges in Argentina, Australia, Ecuador, France, New Zealand, and the United States, among other locations, resulting in significant triumphs. In 2017, the Colombian Constitutional Court ruled that diverting a river for mining purposes violated the rights of the Wayúu people. The court further ruled that it would jeopardize the Wayúu's food security due to climate change's impact on its flow.²⁰

In the mid-1980s, Bardiya National Park in Nepal witnessed the eviction of around 300 Geruwa households and 274 Tharu community members²¹, who were denied access to natural resources, settlement rights, and land cultivation within the park's boundaries. Similarly, in Malaysia, indigenous communities were displaced from their ancestral lands to facilitate the construction of dams aimed at minimizing the impact on society at large²². Despite their deep-rooted traditions of sustainable land management and environmental stewardship, the indigenous populations have often been marginalized by framing environmental policies and regulations, which frequently overlook their crucial role in protecting the ecosystems and combating the climate change.

Environmental Laws sometimes can have complex and conflicting effects on Indigenous people, serving as both tools and barriers. The impact of these laws depends on their design, implementation, and the specific context in which they are applied. Here's a breakdown of how Environmental Laws can function in these dual roles -

3.1 Environmental Laws as a Tool for Indigenous People

Environmental laws serve as crucial tools for Indigenous people by protecting their lands and resources from damaging activities such as mining and deforestation, recognizing their traditional ecological knowledge, and ensuring their participation in decision-making processes. These laws can create legal frameworks for the protection of Indigenous territories, integrate traditional knowledge into environmental management, mandate consultations and consent for projects affecting their lands. Additionally, they can provide funding

¹⁹ The Paris Agreement, United Nations Climate Change, <https://unfccc.int/process-and-meetings/the-paris-agreement>

²⁰ As climate crisis alters their lands, Indigenous Peoples turn to the courts, United Nations Environment Programme, 08 Aug 2023, <https://www.unep.org/news-and-stories/story/climate-crisis-alters-their-lands-indigenous-peoples-turn-courts>

²¹ Violations in the name of conservation, https://www.amnesty.be/IMG/pdf/20210809_rapport_nepal.pdf

²² Ashley Yeong, *Malaysian court shuts down hydroelectric dam project on Indigenous land*, September 12th 2024 <https://news.mongabay.com/2024/09/malaysian-court-shuts-down-hydroelectric-dam-project-on-indigenous-land/>



and resources for Indigenous-led conservation efforts and set legal precedents to enhance future protections of Indigenous rights and interests. Together, these measures support sustainable environmental stewardship and empower Indigenous communities.

3.2 Environmental Laws as a Barrier for Indigenous People

Despite their potential benefits, Environmental Laws often pose challenges for Indigenous communities. Inadequate consultation and consent processes can undermine Indigenous sovereignty and ignore their knowledge. While laws that establish protected areas, might displace communities or restrict their access to traditional lands and resources, disrupting their cultural practices. Bureaucratic complexities can further hinder Indigenous participation and access to environmental programs. Conflicts arise when laws prioritize scientific or economic criteria over traditional ecological knowledge, leading to ineffective management. Additionally, legal ambiguities and conflicts with existing rights or treaties can result in disputes and undermine previously recognized Indigenous rights.

3.3 Navigating the Dual Nature of Environmental Laws

To effectively balance the environmental laws with Indigenous rights, it is crucial to actively involve Indigenous communities in development and enforcement of laws, honour their sovereignty and treaty-rights within the legal frameworks and integrate traditional ecological knowledge with scientific methods for more holistic management. Additionally, to enable meaningful participation of Indigenous communities, providing financial and technical support is essential to benefit them from environmental programs. Addressing these factors will ensure that Environmental Laws 'support' rather than 'hinder' Indigenous people, fostering more equitable and effective environmental stewardship.

4. INDIGENOUS LAND RIGHTS AND ENVIRONMENTAL CONSERVATION

4.1 International Legal Frameworks

4.1.1 United Nations Declaration on the Rights of Indigenous people (UNDRIP)²³: Adopted in 2007, UNDRIP outlines global standards for the protection of Indigenous rights, including land rights. It emphasizes on the right to self-determination, land and natural resources. India voted in favor of UNDRIP, which provides guidelines on recognizing Indigenous rights, including land and resources. However, the application of these principles in Indian law is uneven.

²³ United Nations Declaration on the Rights of Indigenous Peoples, United Nations, https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

4.1.2 International Labour Organization (ILO) Convention No. 169²⁴: The Indigenous and Tribal Peoples Convention (1989) addresses Indigenous people's rights, including land and resource rights, and emphasizes the need for consultation and participation. India has not ratified ILO Convention No. 169, which might otherwise influence national policies on Indigenous and Tribal Rights.

4.2 Human Rights Treaties

4.2.1 International Covenant on Civil and Political Rights (ICCPR)²⁵: Article 27 of the ICCPR protects the rights of ethnic, religious, or linguistic minorities to enjoy their own culture, practice their own religion, and use their own language.

4.2.2. International Covenant on Economic, Social and Cultural Rights (ICESCR)²⁶: This covenant supports the rights of Indigenous people to participate in cultural life, including access to their lands and resources.

4.3 International Environmental Agreements

4.3.1 Convention on Biological Diversity (CBD)²⁷: Includes provisions that recognize the role of Indigenous people in conserving biodiversity and managing natural resources.

4.3.2 Paris Agreement on Climate Change²⁸: Acknowledges the importance of Indigenous knowledge in addressing climate change and emphasizes the need for their inclusion in climate action.

4.4 Indian Perspective

4.4.1 Constitutional Provisions

The Indian Constitution provides special protection to Scheduled Tribes (STs), recognizing their distinct cultural identity and unique historical circumstances. Articles 15(4)²⁹

²⁴ Indigenous and Tribal Peoples Convention, 1989, No. 169, International Labour Organisation, https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169

²⁵ International Covenant on Civil and Political Rights, General Assembly resolution 2200A (XXI), December 16th 1966, <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights>

²⁶ International Covenant on Economic, Social and Cultural Rights, General Assembly resolution 2200A (XXI), December 16th 1966, <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-economic-social-and-cultural-rights>

²⁷ The Convention on Biological Diversity, <https://www.cbd.int/convention/text>

²⁸ Paris Agreement, https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english.pdf

²⁹ INDIA CONST. art. 15 cl. 4

and 46³⁰ focus on promoting their welfare and protecting them from discrimination.

4.4.2 Fifth and Sixth Schedules³¹: The Constitution includes provisions for the administration and control of tribal areas through the Fifth Schedule (for States) and the Sixth Schedule (for certain Northeastern States like Assam, Meghalaya, Tripura, and Mizoram). These schedules provide for the creation of Tribal Advisory Councils and safeguard the tribal land rights.

4.5 Land and Forest Rights Legislation

4.5.1 Forest Rights Act (FRA), 2006³²: Officially known as the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, this landmark legislation aims to recognize and vest forest rights in Forest-Dwelling Communities, including STs. It provides for individual and community rights over forest land and resources.

4.5.2 Panchayats (Extension to Scheduled Areas) Act (PESA), 1996³³: This act extends the provisions of the Panchayati Raj system to Scheduled Areas and grants greater autonomy to tribal self-governance. It empowers tribal communities to manage their local resources and decide on matters affecting their land and livelihood.

4.6 Land Acquisition and Development

4.6.1 Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013³⁴: This Act regulates land acquisition for development purposes and includes provisions for compensation, rehabilitation, and resettlement of affected people. However, its effectiveness in protecting tribal land rights has been questioned, especially regarding adequate compensation and consent.

4.7 Case Studies

4.7.1 Yellowstone National Park (USA)

Yellowstone National Park, established by President Ulysses S. Grant nearly 150 years ago, has a rich history of human interaction stretching back over 11,000 years. Indigenous tribes, including the Crow, Blackfeet, Flatheads, and Kiowa, among others, explored and utilized the region long before Euro-American settlers arrived. Known for its natural resources, such as bighorn sheep and obsidian, Yellowstone

was both an economic and cultural hub for these tribes. The Tukudika, or Sheepeaters, were the park's only known permanent residents, relying on bighorn sheep for sustenance and crafting tools from their horns. Obsidian from Yellowstone's Obsidian Cliff was a prized material for making arrowheads, traded across the continent as far as Ohio and Michigan.^{35,36}

Ongoing Tensions: Efforts to restore bison populations in Yellowstone have sometimes clashed with Indigenous hunting rights and practices.

4.7.2 Great Bear Rainforest (Canada)

The 2023 Great Bear Rainforest Land Use Order and the 2016 Great Bear Rainforest (Forest Management) Act³⁷ resulted from years of negotiations between the Coastal First Nations, Nanwakolas Council, and the Province of British Columbia. These agreements aim to protect 85% of the Great Bear Rainforest and 70% of its old-growth forests while promoting both ecological integrity and economic benefits for local communities³⁸.

Key outcomes include:

- i. Preservation of 3.1 million hectares of forest and 295,000 hectares of land off-limits to logging.
- ii. Support for First Nations' cultural, social, and economic goals.
- iii. Increased protection of wildlife habitats, including for species like the grizzly bear and marbled murrelet.
- iv. Enhanced First Nations' participation in the forest sector and allocation of carbon credits for development projects.

Additionally, the agreements focus on marine ecosystems, with four Marine Plans complementing the land protection. The Ecosystem-Based Management (EBM) approach, used for both land and marine areas, is the largest of its kind globally. The initiative also includes climate action efforts, sustainable

³⁵ "Land of burning ground": The history and traditions of the indigenous people in Yellowstone, [Yellowstone Volcano Observatory](https://www.usgs.gov/observatories/yvo/news/land-burning-ground-history-and-traditions-indigenous-people-yellowstone), July 25th 2021,

<https://www.usgs.gov/observatories/yvo/news/land-burning-ground-history-and-traditions-indigenous-people-yellowstone>
³⁶ Richard Grant, The Lost History of Yellowstone, <https://www.smithsonianmag.com/history/lost-history-yellowstone-180976518/>

³⁷ Great Bear Rainforest (Forest Management) Act, [SBC 2016] CHAPTER 16, Act of Victoria, British Columbia, Canada

³⁸ Great Bear Rainforest - Land use decision resources, August 1th 2024, <https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions/west-coast/great-bear-rainforest>

³⁰ INDIA CONST. art. 46

³¹ INDIA CONST. Sch. V & VI

³² The Scheduled Tribes And other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Act No. 2 of 2007, Acts of Parliament, 2006 (India).

³³ The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 Act No. 40 OF 1996, Acts of Parliament, 1996 (India).

³⁴ The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, Act No. 30 OF 2013, Acts of Parliament, 2013 (India).



aquaculture projects, and the development of Guardian Watchmen Programs to monitor and manage the environment. Significant investments have been made to support First Nations' conservation, stewardship, and business development, aligning with the principles of the UN Declaration on the Rights of Indigenous people³⁹. This process highlighted both the potential for collaboration and the challenges of reconciling conservation goals with Indigenous land use practices.

Collaborative Management: The agreement includes provisions for co-management, recognizing Indigenous rights and integrating Traditional Knowledge into conservation efforts.⁴⁰

4.8 Challenges and Issues -

4.8.1 Implementation Gaps: Despite progressive laws, implementation thereof often falls short. There are frequent reports of delays, lack of awareness among tribal communities, and bureaucratic hurdles in recognizing and enforcing land rights under the Forest Rights Act, 2006⁴¹ and Panchayats (Extension to Scheduled Areas) Act, 1996⁴².

4.8.2 Land Alienation and Encroachments: There are ongoing issues with land alienation, where tribal lands are encroached upon or converted for non-tribal uses without proper consent or compensation. This undermines the objectives of the Forest Rights Act, 2006 and other protective laws.

4.8.3 Conflict with Development Projects: Large-scale development projects, such as mining and infrastructure projects, often lead to displacement of tribal communities. Balancing development needs with tribal land rights often remains a contentious issue.

4.8.4 Legal Ambiguities: Conflicting interpretations of laws and the overlap between various legal frameworks create ambiguities in the protection and recognition of tribal land rights.

4.9 Strategies for Resolving Conflicts

To improve conservation efforts, environmental policies should focus on inclusive decision-making by ensuring

³⁹ United Nations Declaration on the Rights of Indigenous Peoples, United Nations,

https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

⁴⁰ Great Bear Rainforest agreement highlights,

<https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/great-bear-rainforest/gbr-agreement-highlights>

⁴¹ The Scheduled Tribes And other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Act No. 2 of 2007, Acts of Parliament, 2006 (India).

⁴² The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 Act No. 40 OF 1996, Acts of Parliament, 1996 (India).

meaningful consultation with Indigenous communities/organizations and integrating their rights to free, prior, and informed consent (FPIC). Co-management agreements should blend Indigenous knowledge with conservation strategies. Respecting and incorporating Traditional Ecological Knowledge into planning and employing adaptive management strategies can enhance effectiveness and cultural sensitivity. Legal reforms must strengthen protection for Indigenous land rights & practices and establish conflict resolution mechanisms like mediation or advisory committees. Increasing education and awareness among conservationists and policymakers about Indigenous land use and cultural stewardship, is also crucial.

5. CLIMATE CHANGE AND INDIGENOUS COMMUNITIES: CHALLENGES AND RESPONSES

Climate change-induced displacement of Indigenous communities is a multifaceted challenge. Aside from the obvious environmental risks, forced relocations undermine traditional government, cultural practices, and religious beliefs. This disruption frequently leads to mental health problems, such as depression, anxiety, and, unfortunately, suicide.

5.1 Climate Change and Its Impact on the Kalash Community in Chitral, Pakistan⁴³

In the Chitral district of Pakistan, approximately 5,000 people belonging to the Kalash community are grappling with the profound impacts of accelerated climate change. Of the 3,044 glacier lakes in northern Pakistan, are thought to be at high danger of bursting, exacerbating the threat of glacial floods that have changed entire landscapes. These floods offer significant risks, such as soil erosion, species displacement, and food shortages.

5.2 Climate Displacement and Structural Inequities: The Munda Community in the Sundarbans⁴⁴

By 2050, an estimated 50 million people in Bangladesh are anticipated to be displaced as a result of climate change, with those in coastal areas being the most vulnerable.

Within the world's largest mangrove forest, the Sundarbans, the Munda community has resided for two centuries, yet they remain disadvantaged due to their minority status, lacking

⁴³ Aarti Lila Ram, Eric Shahzar, Land, loss and liberation: Indigenous struggles amid the climate crisis, Feb 9th 2024, <https://www.weforum.org/agenda/2024/02/indigenous-challenges-displacement-climate-change/>

⁴⁴ Aarti Lila Ram, Eric Shahzar, Land, loss and liberation: Indigenous struggles amid the climate crisis, Feb 9th 2024, <https://www.weforum.org/agenda/2024/02/indigenous-challenges-displacement-climate-change/>



access to microfinance, benefits and employment opportunities available to others.

Razu Bala Munda, a 75-year-old widow from the Munda community, is eligible for a widow payment of BDT500 (\$6) per month and an old age pension of BDT800 (\$9) per month, yet she receives neither, underlining structural inequities and neglect in the community. Putting Indigenous knowledge at the center of climate policymaking is more than just an issue of justice; it is a strategic imperative. Indigenous groups contribute a wealth of traditional knowledge, adaptive strategies, and a deep grasp of their ecosystems. This knowledge, honed over ages, can drive policies that are both effective and respectful of various ways of life. However, in order to fully exploit the potential of Indigenous knowledge, existing gaps must be addressed. Improved data gathering systems are required to properly comprehend the complex effects of climate-induced relocation on Indigenous people.

Equally important is the need to actively listen and learn from those directly affected people, ensuring their voices shape the policies intended to support them.

In countries where ancestral lands lack official recognition, the challenges are aggravated. Without recognized properties, Indigenous populations are more vulnerable to land grabbing for commercial exploitation. Recognizing and honouring Indigenous perspectives is more than just an act of inclusivity; it acknowledges the intricate relationship between culture and ecology. As we stand at the crossroads of the environmental crisis, it is crucial to understand the agency of Indigenous communities, inviting them to co-author the narrative of our planet's future.

To enhance the effectiveness of environmental laws and policies for Indigenous communities, a multifaceted approach is essential. First, strengthening legal and institutional frameworks is crucial. This includes recognizing Indigenous land and resource rights in national constitution and ensuring that all environmental policies respect Indigenous sovereignty and self-determination. Implementing Free, Prior, and Informed Consent (FPIC) principles ensures that Indigenous communities are fully informed and can approve or reject projects affecting their lands. Co-management frameworks should be developed to integrate Indigenous knowledge with the State and scientific management practices, establishing Joint Decision-Making Bodies with equal representation of Indigenous communities.

6. PATHWAYS TO SUSTAINABLE COEXISTENCE

To enhance the effectiveness of environmental laws and policies for Indigenous communities, a multifaceted approach is essential. First, strengthening legal and institutional frameworks is crucial. This includes recognizing Indigenous land and resource rights in national constitution and ensuring that all environmental policies respect Indigenous sovereignty and self-determination. Implementing Free, Prior, and Informed Consent (FPIC) principles ensures that Indigenous communities are fully informed and can approve or reject

projects affecting their lands. Co-management frameworks should be developed to integrate Indigenous knowledge with the State and scientific management practices, establishing Joint Decision-Making Bodies with equal representation of Indigenous communities. Integrating indigenous knowledge into environmental management is equally important. Traditional Ecological Knowledge (TEK) should be incorporated into environmental assessments and conservation strategies, recognizing it as complementary to scientific knowledge. Supporting Indigenous-led research and promoting collaborative research partnerships can further enhance the effectiveness of environmental initiatives.

Promoting collaborative decision-making involves engaging Indigenous communities early in the planning and policy development processes and establishing advisory councils with Indigenous representatives to provide input on environmental matters. Enhancing capacity building by providing resources, training, and technical support will empower Indigenous communities to participate effectively in environmental management.

Fair compensation and benefits are essential for Indigenous communities. Benefit-sharing mechanisms should ensure fair compensation for conservation and resource management activities, while protecting cultural heritage and incorporating cultural preservation into environmental plans. Regular review and revision of policies, addressing land tenure issues, and facilitating education and awareness about Indigenous cultures and rights are critical for improving environmental policies.

Monitoring and evaluating the impact of policies on Indigenous communities will help ensure transparency and adaptability. Fostering sustainable development by promoting practices that align with Indigenous values and encouraging innovative solutions can address environmental challenges. Strengthening international cooperation through engagement in frameworks like the United Nations Declaration on the Rights of Indigenous people (UNDRIP)⁴⁵ and sharing best practices can further support inclusive and effective environmental management.

7. ENVIRONMENTAL JUSTICE - ENSURING EQUITY FOR INDIGENOUS PEOPLE

7.1 The Concept of Environmental Justice as It Applies to Indigenous Communities

Environmental justice ensures that all communities, particularly marginalized and disadvantaged groups, share equally in environmental benefits and burdens. For Indigenous communities, this means equitable access to clean air, water, and natural resources, without disproportionate exposure to environmental hazards. It involves recognizing and upholding

⁴⁵ United Nations Declaration on the Rights of Indigenous Peoples, United Nations,

https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf



their rights to self-determination and control over traditional lands, respecting their sovereignty, and integrating traditional knowledge into environmental management. Additionally, it requires addressing historical injustices, such as land dispossession and forced relocations, which have marginalized Indigenous communities. By valuing Indigenous knowledge and addressing past wrongs, environmental justice aims to create fairer and more inclusive environmental policies and practices.

7.2 The Importance of Public Participation and Access to Justice for Indigenous people

Public participation and access to justice are pivotal for achieving environmental justice for Indigenous communities. Inclusive decision-making is key, requiring active involvement of Indigenous people in environmental assessments, planning, and policy development. Establishing participatory mechanisms, such as advisory councils or community forums, ensures that Indigenous voices are heard and considered in decision-making processes. Access to relevant environmental information and data is essential for informed participation, while transparency in governance fosters trust and effective advocacy. Legal aid and support enable Indigenous communities to challenge unjust environmental practices and seek redress. Support structures, including legal aid programs and Indigenous-led organizations, empower these communities to protect their rights. Capacity building through training and education enhances their ability to engage in governance and advocacy. Additionally, integrating cultural respect and sensitivity into environmental policies, by acknowledging traditional knowledge and practices, fosters equitable outcomes and strengthens relationships between Indigenous communities and policymakers.

Promoting environmental justice for Indigenous people involves addressing the historical and ongoing inequities that have led to disproportionate environmental harms. By integrating legal protections, fostering inclusive decision-making, and ensuring access to justice, governments and organizations can work together towards achieving equity and respect for Indigenous rights. Ensuring that Indigenous communities are active participants in environmental governance and that their traditional knowledge is valued and incorporated into environmental policies is essential for achieving sustainable and just outcomes for all.

II. CONCLUSION

Conservation has historically been an exclusive field, characterized by its rejection of the idea that people and their activities may coexist in healthy, sustainable ecosystems and its defense of "pristine" natural areas from human interference. Our conservation framework should uphold Indigenous people's rights to land stewardship and integrate locally-specific, Indigenous Sustainable Land Management

Techniques that draw on millennia of traditional knowledge.⁴⁶ It is critical that we include and elevate Indigenous perspectives in science in order to counteract the loss of biodiversity and the implications of climate change while also safeguarding those who are most susceptible to its effects.

The role of indigenous communities as guardians of the land cannot be underestimated. The integration of indigenous knowledge and practices with contemporary environmental law is essential to achieving sustainable coexistence between humans and the natural world. Recognizing and supporting indigenous rights to land and resources is not only a matter of justice and human rights but is also crucial for long-term environmental sustainability and the preservation of biodiversity. It is time to acknowledge and celebrate the unseen guardians of the land and work together towards a future of sustainable coexistence.

Sustainable coexistence is the harmonious balance between human activities and the natural environment, where both can thrive. Achieving this requires recognizing and supporting indigenous rights to land and resources. Indigenous communities hold invaluable knowledge that can help us adapt to changing environmental conditions and create resilient ecosystems.

To foster sustainable coexistence, governments and policymakers must engage in meaningful dialogue and collaboration with indigenous communities. Indigenous people's practices, knowledge, and perspectives should be integrated into environmental policies and management plans. This approach recognizes indigenous communities as active stakeholders in environmental decision-making processes and ensures that their voices are heard.

Furthermore, initiatives are needed to strengthen the capacity and empowerment of indigenous communities. By providing support for education, training, and resources, we can enable indigenous communities to continue their vital roles as environmental guardians and share their knowledge with future generations.

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⁴⁶ Kathleen Ciola Evans & Eva Perry, [The role of indigenous knowledge and land management practices in conservation](https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation), UMD Department of Entomology [Land Acknowledgement](https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation), <https://entomology.umd.edu/news/the-role-of-indigenous-knowledge-and-land-management-practices-in-conservation>



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