Reconciling Climate Change Law with Indigenous Knowledge: A Path Forward

Chiradeep Basak
Assistant Professor, West Bengal Education Service

"*We're fighting for soil, land, food, trees, water, birds. We're fighting for life.*"

– Gregorio Mirabal,
Indigenous leader and coordinator of the Coordinator of Indigenous Organizations of the Amazon Basin (COICA)

Abstract - In the face of an escalating ecological crisis, it is imperative that legal education in India evolve to address environmental justice at its core. This essay argues that until environmental law occupies a central role in India's legal pedagogy, the country's legal system will continue to fail in achieving meaningful ecological governance. The shift towards incorporating environmental law into the curriculum is not merely a curricular change but a paradigm shift, reflecting the critical role of law in tackling contemporary environmental challenges. India's constitutional mandate for environmental protection imposes a responsibility on legal education institutions to equip future lawyers with the necessary tools to enforce and expand environmental rights. However, the gap between constitutional jurisprudence and legal education practices weakens the realization of these rights. Comparative international analysis reveals that India lags behind in environmental legal education, which limits its influence in global environmental governance. This essay outlines a roadmap for reform, including the introduction of compulsory environmental law courses, interdisciplinary approaches, clinical programs, and institutional coordination. Such reforms would elevate India's role in international environmental law and strengthen domestic environmental governance. Furthermore, the essay underscores the urgency of aligning legal education reforms with the Sustainable Development Goals to ensure broader societal impacts. Despite challenges such as resource limitations and institutional resistance, the paper emphasizes that immediate reform is essential to address the climate crisis and ensure the sustainable future of India and the world.

I. Introduction: Harnessing Traditional Wisdom for climate law and policy

The academic trends of legal scholars towards climate change have primarily been on politico-legal aspects of global and national environmental decision-making with certain pre-

defined interests by ignoring the significant power of communities and their potential to bring change with their knowledge systems, core values and above all, their connection with nature itself. Climate adaptation strategies in response to potential and actual climate change can be categorised into 'resist', 'retreat' or 'rebuild' strategies.[1]

To the aspirations of indigenous knowledge, lies a cardinal value of a pious connection between man and nature and there also lies, several key solutions to the alarming issues of climate change.

The impact of climate change clearly impacts not only the current generation of Indigenous communities but also future generations.[2] The challenge of tying a protective rights framework to a rigid understanding of identity is that it risks excluding community members that do not fit into this frame.[3] Climate change adaptation and mitigation rely heavily on indigenous knowledge. For thousands of years, indigenous societies have lived in peace with their environment, developing unique methods of understanding, controlling, and sustainably utilising their natural resources. This information is profoundly embedded in indigenous peoples' local culture, customs, and beliefs, and it is passed down from generation to generation. Nevertheless, the significance of indigenous knowledge systems in understanding climate cannot be ruled out and instead their role should be ascertained with equal weightage and importance. This scholastic endeavour aims to highlight the relationship between traditional knowledge-bearing communities and climate change and its relevance in the decision-making at all spheres of governance by representing certain adaptive strategies of these communities and judgements of courts to combat climate change. This paper examines how indigenous knowledge can be reconciled with climate law and policy. It situates indigenous epistemologies with a broader theoretical framework of climate justice, sustainable development and human rights.

II. Indigenous Knowledge and Climate Adaptation Strategies

Indigenous communities often detect climate impacts earlier than formal scientific assessments. Shifts in animal migration, altered rainfall patterns, and seasonal changes are recorded and transmitted through oral traditions, rituals, and collective memory. These

[1] Scott M and Lennon M, (2020) Climate disruption and planning: resistance or retreat? *Planning Theory & Practice, 21*. 125.
[2] Higgins, N. (2022). Changing climate; changing life *Climate Change and Indigenous Intangible Cultural Heritage. Laws*, 11(3), 15.
[3] Kodiveri, A. (2021). Being, becoming and (un)becoming indigenous? indigeneity, human rights, and climate change in India. *Wisconsin International Law Journal, 38(2)*, 241.

observations provide culturally relevant insights that can strengthen early warning systems and local adaptation strategies. Although there is no single internationally binding definition of "traditional knowledge," instruments such as the Paris Agreement, UNDRIP, and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) emphasize the importance of knowledge systems developed by indigenous peoples, local communities, and pastoralists. Unlike conventional scientific methods, indigenous knowledge emerges from long-term observation, cultural transmission, and spiritual relationships with the environment. This epistemological distinction is vital for understanding why it must be integrated rather than subordinated in climate governance.

The integration of indigenous knowledge is not only a matter of recognition but also of resource allocation. Climate finance mechanisms—such as the Green Climate Fund and adaptation finance under the Paris Agreement—explicitly emphasize capacity-building and knowledge-sharing. Without channeling financial support toward indigenous-led adaptation strategies, recognition risks becoming symbolic rather than transformative. The crucial challenges of climate finance and the approach to equity and differential responsibilities have been repeatedly spearheaded by several like minded developing nations but resulted in utmost dismay and failure. However, one cannot deny the continuing endevaour of global rounds, which has lead to creation of "National Communications Module", "Fast Start Finance Module", "Global Environmental Facility Managed Module", and "Adaptation Fund Module". Nonetheless, the emphasis of developing nations and especially the vulnerable communities residing there have been to strengthen knowledge, practices, technologies related to address and respond climate change. In the backdrop of this, Decision1/CP.21 paragraph 135 of Paris Agreement clearly highlights the establishment of a platform for the exchange of experiences and sharing of best practices on mitigation and adaptation in a holistic and integrated manner.[4]

Subsequently, the adoption of an incremental approach to develop the local communities and indigenous peoples platform to ensure its effective operationalization was visualized during COP 2022. The Subsidiary Body of Scientific and Technical Advice (SBSTA) was thereafter requested to initiate a process dialogue by engaging multiple stakeholders.[5] An open multi-stakeholder dialogue on the operationalization of the local communities and indigenous poeples platform was created where the parties aimed to address the pertinent questions, which

[4] *See* Decision 1/CP.1 para 135, Paris Agreement 2015 (Jun. 20, 2025) https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf#page=2
[5] COP 2022 Report paragraph 167.

involved knowledge, climate change policies and actions and capacity for engagement as core focal points of deliberations. In addtion the cross cutting issues of resource allocations for the operationalization was also highlighted.[6] This lead to the adoption of the Decision 2/CP.23 of 2017 on the overall purpose and functions of the Platform.[7] Thereafter, the SBSTA agreed to continue consideration of the matter pertaining to the roles of the local communities and indigenous peoples platforms to combat climate change.

The Conference of Parties 24 decided to establish a Faciltative Working Group to operationalize the Local Communities and Indigenous Peoples Platform (LCIPP), in consonance with international law and United Nations Declaration on the Rights of Indigenous Peoples.

The United Nations Human Rights Council has a Special Rapporteur on the Rights of Indigenous Peoples, whose role is to monitor and report on the human rights situation of indigenous peoples worldwide, and to promote respect for their rights**.** According to the Report of the Special Rapporteur on the rights of indigenous peoples, Indigenous peoples are among those who have contributed least to the problem of climate change, yet they are the ones suffering from its worst impacts. They are disproportionately vulnerable to climate change because many of them depend on ecosystems that are particularly prone to the effects of climate change and extreme weather events such as floods, droughts, heatwaves, wildfires and cyclones.[8]

Despite the fact that traditional knowledge is stated in a variety of instruments and processes, there is no unified definition of it in international law. In contrast to so-called 'modern science,' international instruments use expressions such as 'traditional knowledge,' 'indigenous peoples' knowledge,' or 'local knowledge' to refer to knowledge that is often characterised by the subjects who hold it (e.g. indigenous peoples, local communities, traditional healers, pastoralists, etc.) and the processes through which it is produced.[9]

[6] *See* Open multi-stakeholder dialogue on the operationalization of the local communities and indigenous peoples (LCIP) platform World Conference Center (WCCB), Room Genf, Bonn, Germany, 16–17 May 2017 Agenda (Jun. 20, 2025) https://lcipp.unfccc.int/multi-stakeholder-dialogue-operationalization-local-communities-and-indigenous-peoples-platform.
[7] Decision 2/CP.23 paragraph 5. (2017).
[8] Human Rights Council, Rep. of the Special Rapporteur on the Rights of Indigenous Peoples, U.N. Doc. A/HRC/36/46 (Nov. 1, 2017).
[9] Savaresi, A. (2018). Traditional knowledge and climate change: new legal frontier. *Journal of Human Rights and the Environment, 9(1),* 36.

In the context of its mandate to "explore ways and means to bring different knowledge systems, including indigenous knowledge systems, into the science-policy interface," the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) has recently attempted to define the concept of traditional knowledge.[10]

Even in absence of any legal definition, the implication of Indigenous knowledge can provide useful insights into the effects of climate change, such as changes in seasonal weather patterns, shifts in animal migration patterns, and changes in natural resource availability. This knowledge can be used to create culturally relevant and environmentally sustainable adaptation and mitigation methods. Indigenous peoples have also created traditional methods that aid in the reduction of greenhouse gas emissions and the mitigation of climate change effects. Traditional agricultural practices, such as agroforestry and rotational farming, for example, encourage biodiversity and soil health, which can aid in carbon sequestration and climate change mitigation. Traditional plant knowledge and healing practices can also help long-term health and well-being by minimizing the demand for carbon-intensive medications and healthcare. However, indigenous knowledge is frequently suppressed and underestimated, and indigenous populations are disproportionately impacted by the effects of climate change. Recognizing and implementing indigenous knowledge into climate change policies and initiatives can lead to not only more effective and sustainable solutions but also to social justice and the empowerment of indigenous peoples to participate in decision-making processes.

Indigenous peoples are now acknowledged as "peoples" with the right to self-determination, which is a right to autonomy over their political, cultural, and socioeconomic institutions.[11] The struggle of the native communities and native nations to articulate a strategic measure to dismantle the legal status quo and internalize resistance to the settler colonial project of climate change and thereafter take significant steps to ensure the implementation of tribal codes and customary norms for the protection of their livelihood, their identities and climate, at large is still far from an effective reality.[12]

[10] *Ibid*. IPBES's definition.
[11] *Tsosie, R. (2019).* Indigenous sustainability and resilience to climate extremes: traditional knowledge and the systems of survival. *Connecticut Law Review, 51(4),* 1015.
[12] Thompson, G. E. (2017). Environmentalism and Human Legal Framework: The Continued Frontier of Indigenous Resistance. *Indigenous Peoples' Journal of Law, Culture and Resistance, 4,* 9.

The adaptive strategies of indigenous communities to combat the adverse impact of Climate Change are mostly based on their traditional knowledge associated with certain natural resources and natural phenomenon.

The report by the Special Rapporteur on Indigenous Rights in Climate Change and Indigenous Peoples identifies the importance of TK in climate change adaptation: "Indigenous peoples can assist in providing solutions to mitigate and adapt to the effects of climate change. The International Indigenous Peoples Forum on Climate Change and UNEP have noted that indigenous peoples can contribute to numerous potential adaptation activities by drawing on their traditional knowledge."[13]

A report by the World Resources Institute titled 'Securing Rights and Combating Climate Change 'advocates for securing community tenure rights of IPs and forest-dwelling communities as a cost-effective and proven way to mitigate climate change.[14]

Thereafter under the aegis of Paris Agreement, the significance of traditional knowledge to address climate change has further been strengthened. As per Decision V of the said Agreement, "The need to strengthen knowledge, technologies, practices, and efforts of local communities and indigenous peoples related to addressing and responding to climate change establishes a platform for the exchange of experiences and sharing of best practices on mitigation and adaptation in a holistic and integrated manner."[15] The Paris Agreement recognized the significance of Reducing emissions from deforestation and forest degradation (REDD+), which is a preventive measure that combines consideration of livelihood and reduction of poverty by compensating Indigenous communities for conserving forest areas and the stewardship of forests by forest dwelling communities is sought to be harnessed by the UN-REDD+ program in an effort to prevent deforestation and make the process more inclusive.[16]

Several such international legislative measures have recognized the mitigation and adaptation strategies of indigenous communities:

[13] Human Rights Council, Rep. of the Special Rapporteur on the Rights of Indigenous Peoples, U.N. Doc. A/HRC/36/46 (Nov. 1, 2017).
[14] Stevens, C. et al. (2014). Securing Rights, Combating Climate Change: How Strengthening Community Forest Rights Mitigates Climate Change, https://www.wri.org/research/securing-rights-combating-climate-change.
[15] Report of the Conference of Parties, Sesson 21st, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, FCCC/CP/2015/10 (Jan. 29, 2016), https://unfccc.int/resource/docs/2015/cop21/eng/10.pdf.
[16] *Supra* note 8, 251.

"*Governments recognized* "*the global interlinked crises of climate change and biodiversity loss, and the critical role of nature-based solutions and ecosystem-based approaches in delivering benefits for climate adaptation and mitigation.*"[17] However, the journey from marginalization to recognition of indigenous knowledge in climate decision making is not as smooth as it appears, especially when the friction that have emerged between several indigenous communities and States, all across the globe. These frictions have been quite multi-faceted, ranging from land rights, forest dwelling rights to rights associated with biological rights.

Initiatives such as the Climate and Land Use Alliance, which works to support indigenous peoples in protecting their forests and other natural resources, and the Indigenous Peoples Major Group for Sustainable Development, which provides a platform for indigenous peoples to engage in UN processes related to sustainable development, are examples of efforts to address the intersection of indigenous peoples' rights and climate change.

III. Judicial Recognition of Indigenous Knowledge in Climate Law

Indigenous sustainability's distinct normative character and historical context represent a distinct set of values that should be included into an intercultural environmental and climate policy discourse..[18] Governments across the globe from time to time, have encountered and embraced the values of self-determination by recognizing autonomy vis-à-vis the political, and cultural identities and socio-economic institutions through legislative measures. [19] Self-determination can be manifested in a variety of ways, including co-management of resources believed to be within the joint authority of Indigenous peoples and the Nation-state, as well as corporate forms of ownership such as Alaska Native Corporations. [20] From the judicial pronouncements of *Cherokee Nation* v. *Georgia*[21] and *Worcester* v. *Georgia*[22], the picture in the United States is quite clear that the American Indian nations possess a unique political status and are described as domestic dependent nations and such sovereign identity is not only

[17] COP26 Strengthens Role of Indigenous Experts and Stewardship of Nature, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE (Nov. 23, 2021), https://unfccc.int/news/cop26-strengthens-role-of-indigenous-experts-and-stewardship-of-nature.
[18] *Supra* note 6, 1013.
[19] *See* General Assembly. Resolution 61/295. Also *See* para 3-4, United Nations Declaration on the Rights of Indigenous Peoples (Sept. 13, 2007).
[20] Tsosie. R, (2011). Reconceptualizing Tribal Rights: Can Self-Determination Be Actualized within the U.S. Constitutional Structure? *Lewis & Clark Law Review, 15,* 923.
[21] 30 U.S. (5 Pet.) 1, 17 (1831);
[22] 31 U.S. (6 Pet.) 515, 555-56 (1832).

pre-constitutional but also extra-constitutional.[23] Although, the scenario is not quite uniform across the globe.

Kichwa People of Sarayaku v. *The Government of Ecuador*[24]

The Kichwa People of Sarayaku in Ecuador's Amazon won a landmark battle against the government in 2019 after it issued a permit for oil drilling on their ancestral territory. The court decided that the government had failed to consult with the Kichwa people and had failed to include their traditional knowledge in decision-making. The judgement recognised the Kichwa people's right to free, prior, and informed consent, as well as the value of their traditional knowledge in environmental protection and climate change mitigation.

The Inuit Circumpolar Conference et al. Petitioners v. *United States of America*[25]

Climate change has had a huge influence on the Inuit people of North America's Arctic regions. Climate change has caused melting sea ice, changes in animal migration patterns, and increased coastline erosion, according to Inuit leaders.

The landmark legal action taken by the Inuit Circumpolar Council (ICC) against the United States in 2005 is one prominent case involving the Inuit and climate change. The ICC, which represents Inuit communities in Canada, Greenland, Alaska, and Russia, petitioned the Inter-American Commission on Human Rights, citing a breach of Article 11 of the Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights.[26] The petition contended that the United States, as the greatest emitter of greenhouse gases, owed it a duty to reduce emissions and take steps to ameliorate the effects of climate change on vulnerable communities such as Inuit. The ICC said that climate change was endangering the Inuit way of life, including subsistence hunting and fishing, cultural traditions, and social and economic well-being. While the petition was eventually denied on procedural grounds, it attracted attention to the effects of climate change on indigenous populations and addressed critical considerations about industrialised countries' obligation to combat climate change while also protecting human rights. Other indigenous communities throughout the world have taken similar legal action in response to the case.

[23] Wilkinson, C. (1987). *American Indians, Time, and the Law*
[24] IACtHR, Case of the Kichwa Indigenous People of the Sarayaku v. Ecuador, Judgment of 27 June 2012 (Merits and Reparations), Series C, No. 245.
[25] Case No. P-926-05, Inter-American Commission on Human Rights, Petition filed December 7, 2005.
[26] Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights, Nov. 17, 1988, O.A.S.T.S. No. 69, reprinted in 28 I.L.M. 156 (1989)

Sami People of Norway v. *Government of Norway*[27]

The Sami People of Norway sued the government in 2016, arguing that the government's decision to allow further oil drilling in the Arctic violated their rights as indigenous people and would accelerate climate change. The case maintained that the Sami people's traditional knowledge of the Arctic environment and ecosystems, on which they had relied for ages, should have been considered in decision-making. While the case ultimately failed, it highlighted significant concerns about the role of indigenous knowledge in climate change policy. In October 2021, the Supreme Court of Norway issued a landmark ruling which upheld the rights of Indigenous people and dealt a significant blow to the country's renewable energy strategy. The 11-judge panel declared that the Roan and Storheia Wind Farms built on the Fosen Peninsula in central Norway violated the rights of Sámi reindeer herders, guaranteed under the International Covenant on Civil and Political Rights and that their licenses are void.[28]

Ioane Teitiota v. *Chief Executive Ministry of Business, Innovation and Employment*[29]: This case involved a man from Kiribati who sought asylum in New Zealand because of climate change on his home country. The court ultimately denied his claim, but the case highlighted the need to recognize the impact of climate change on indigenous communities.

Arctic Slope Regional Corporation v. *F.E.R.C*[30]: This case involved a dispute over oil and gas exploration in the Arctic. The court upheld the right of Alaska Native communities to be consulted and to provide input on decisions related to resource development in their traditional lands.

Standing Rock Sioux Tribe v. *U.S. Army Corps of Engineers*[31]: This case involved a dispute over the construction of the Dakota Access Pipeline, which would have crossed through sacred land and threatened the water supply of the Standing Rock Sioux Tribe. The court ultimately denied the tribe's request to halt construction, but the case raised important questions about the rights of indigenous communities to protect their land and resources.

These judicial experiences demonstrate that indigenous knowledge is gaining formal recognition, but unevenly. Some courts frame it as a procedural safeguard (through

[27] The Supreme Court of Norway, Case No. HR-2016-674-A, Decided on 22 June 2016.
[28] Kårtveit, B & Riseth, J. (2022, February 5). Norway must stop violating Indigenous rights. *Al Jazeera*., https://www.aljazeera.com/opinions/2022/2/5/norways-must-stop-violating-indigenous-rights.
[29] [2015] NZSC 107.
[30] 832 F.2d 158 (D.C. Cir. 1987).
[31] No. 20-5197 (D.C. Cir. 2021).

consultation and consent), while others treat it substantively—as a body of ecological expertise necessary for climate governance. This unevenness points to the need for a more systematic theoretical anchoring of indigenous knowledge within climate law, moving beyond piecemeal recognition to structural incorporation.

IV. Critiques and Challenges in Integrating Indigenous Knowledge into Climate Governance

With over 370 million indigenous peoples worldwide, they use 22% of the world's land surface and so preserve 80% of the planet's biodiversity in or next to 85% of the world's protected areas.[32] Governments frequently forget their responsibilities in protecting regions from environmental degradation, which has mostly gone unreported and undocumented until recently. As a result of such marginalisation, many globally sanctioned climate change mitigation programmes, such as mega-dam projects built under the Clean Development Mechanisms (CDM) framework, exacerbate the direct impacts of climate change on indigenous peoples, threatening their livelihoods even further.[33] Furthermore, poorly designed and implemented climate change adaptation programmes, such as REDD/REDD+ projects, frequently damage indigenous peoples' customary rights to their lands and natural resources, reducing their resilience. Indigenous peoples face these new problems at a time when their traditions and livelihoods are already under threat as a result of increased natural resource exploitation in their native locations as a result of trade liberalisation and globalisation.[34]

While there is increasing awareness of the importance of indigenous knowledge in combating climate change, there are also criticisms and obstacles that must be addressed. Here are points of fair criticism that has emerged over a period of time:

- Absence of scientific rigor- the climate scientists rely more on quantitative data out of systematic observations and proper verification. One of the key critics on application of indigenous knowledge rests on this argument of lack of scientific rigor vis-à-vis traditional knowledge. Integrating indigenous knowledge with scientific knowledge and data can be difficult, especially when it comes to concerns of validation and

[32] *See* United Nations Environment Program, Indigenous Peoples: The Unsung Heroes of Conservation, *Environmental Rights and Governance*, https://www.unep.org/zh-hans/node/477#:~:text=There%20are%20approximately%20370%20million,percent%20of%20the%20world%27s%20biodiversity.
[33] Gleb Raygorodetsky, (2011, December 13) Why Traditional Knowledge holds the key to Climate Change, *United Nations University Newsletter*, https://unu.edu/publications/articles/why-traditional-knowledge-holds-the-key-to-climate-change.html.
[34] *Ibid.*

verification but an integration of both, scientific and local knowledge have turned out to be significant in realizing certain climate hazards and develop early warning systems too.[35] While indigenous knowledge is frequently founded on actual observations and experience, it may not have received the same amount of scientific scrutiny and confirmation as other forms of knowledge;

- Transmission of inter-generational traditional knowledge is another key factor in this regard. Indigenous knowledge is at risk of extinction owing to factors such as language loss, cultural assimilation, and environmental deterioration, emphasising the importance of efforts to conserve and convey this information to future generations.[36]

Therefore, there are some key areas on which efforts are now given and should continue to be, if we wish to have a sustainable and resilient future. These areas are:

- The imbalance in the power configuration should be fixed. Indigenous communities frequently lack the political and economic clout to shape climate change policy and decision-making, limiting their ability to fully participate in climate change solutions. One such example of collaboration can be witnessed from Alaska. In Alaska, Alaska Native communities frequently have three local governing entities: a tribe government, a city government, and a village corporation established by the Alaska Native Claims Settlement Act with regulatory jurisdiction over certain land problems within a community. The successful development and implementation of this framework necessitates collaboration among various governing institutions. [37] Customary institutions that protect the integrity of Indigenous and local knowledge, effective empowering conversations, and shared governance are just a few of the important capacities that allow for the integration of different perspectives on sustainability in evaluations.[38]

[35] Hermans, T.D.G., Šakić Trogrlić, R., van den Homberg, M.J.C. et al. (2022) Exploring the integration of local and scientific knowledge in early warning systems for disaster risk reduction: a review. *Nat Hazards 114*, 1128. https://doi.org/10.1007/s11069-022-05468-8

[36] Khawaja M. (2021). Consequences and Remedies of Indigenous Language Loss in Canada. *Societies*. *11(3),* 89. https://doi.org/10.3390/soc11030089.

[37] Bronen R, Pollock D, *et al* (2020) Usteq: integrating indigenous knowledge and social and physical sciences to coproduce knowledge and support community-based adaptation, *Polar Geography*, *43:2-3*, 197.

[38] Hill, R., Adem, Ç., Alangui, W. V., Molnár, Z., Aumeeruddy-Thomas, Y., Bridgewater, P., Tengö, M., Thaman, R., Adou Yao, C. Y., Berkes, F., Carino, J., Carneiro da Cunha, M., Diaw, M. C., Díaz, S., Figueroa, V. E., Fisher, J., Hardison, P., Ichikawa, K., Kariuki, P., ... Xue, D. (2020). Working with indigenous, local and

- Create a multi-level and interdisciplinary governmental decision-making process, and ensure that nongovernmental actors understand the necessity, relevance, and right methodology for incorporating Indigenous knowledge into governance and adaptation decision-making. This will ensure a collaborative knowledge development and problem-solving process. Integration of knowledge and decision-making is common through practice within communities.[39]

- Building capacity is an effective tool that resolves several issues pertaining to marginalization and cultural appropriation. When non-indigenous actors seek to use or benefit from indigenous knowledge without due acknowledgement or recompense, they risk cultural appropriation. This issue can be eliminated only with effective and educative transmission of traditional knowledge and its relationship with the contemporary laws and policies. One such example is from Institute of Tribal Environmental Professionals- The Tribal Climate Change Resources Mind Map, which was launched in 2018, is an easily accessible "one-stop shop" aimed to show tribes how to find resources that will help them with their capacity building and adaptation planning in response to climate change;[40]

- Indigenous knowledge should not be considered as a replacement for scientific knowledge, but rather as a supplementary approach to scientific methods and facts. c. It is therefore plausible to conclude that the boundaries of climate change impact assessment should be opened up to accommodate the participation of ICK generators as a way to enhance understanding of climate change science.[41]

V. Collaborative Pathways: Integrating Indigenous Knowledge into Climate Law and Policy

To fully comprehend and address these critiques, it is critical to engage in dialogue and collaboration with indigenous communities, as well as recognise the value of indigenous knowledge as a critical component of a diverse and inclusive approach to addressing complex

scientific knowledge in assessments of nature and nature's linkages with people. *Current Opinion in Environmental Sustainability*, *43*, 8-20. https://doi.org/10.1016/j.cosust.2019.12.006.

[39] Wheeler, H. C., & Root-Bernstein, M. (2020). Informing decision-making with Indigenous and local knowledge and science. *Journal of Applied Ecology, 57(9),* 1640. https://doi.org/10.1111/1365-2664.13734

[40] Nursey-Bray, M., Palmer, R., Chischilly, A.M., Rist, P., Yin, L. (2022). Indigenous Adaptation – Not Passive Victims. In: Old Ways for New Days. SpringerBriefs in Climate Studies. Springer, Cham. https://doi.org/10.1007/978-3-030-97826-6_3.

[41] Chanza, N., Musakwa, W. (2022) Indigenous local observations and experiences can give useful indicators of climate change in data-deficient regions. *Journal of Environmental Studies and Sciences 12,* 534.

global challenges such as climate change. In this context the recent initiative of *Local Communities and Indigenous Peoples Platform* (LCIPP) is a plausible way forward. The LCIPP was created under the auspices of United Nations Framework Convention on Climate Change in 2017. This platform has three prime objectives, which involves: information/knowledge exchange, capacity building and integration of traditional knowledge into climate change strategies and policies. The LCIPP is regarded as a crucial step in recognising indigenous peoples' and local communities' roles in addressing climate change, as well as toward developing more inclusive and participatory climate change policies and decision-making processes. The adverse impacts of climate change out of human induced activities can only be adapted and mitigated with all the might and sight of available and relevant knowledge coming from all fronts of society. The laws and strategies can go hand in hand if there is an inclination towards inclusiveness and integration.