
**The Role of Indigenous Knowledge in Biodiversity
Conservation: Bridging Traditional Ecological Knowledge
and Modern Conservation Frameworks**

Author: Lavanya Singh

Affiliation: Lynx Legal Partners LLP

Email: singh.lavanya1608@gmail.com

Submitted to: Journal of International Research & Multidisciplinary Innovation (JIRMI)

Date: 4 August 2026

Abstract

Communities holding customary rights over their own land account for at least a quarter of the world's land area, and a 2019 global assessment found that biodiversity loss on this land has generally been slower than elsewhere. This finding has pushed traditional ecological knowledge, the practical knowledge communities build up over generations about their own land, water, plants, and animals, toward the centre of conservation policy. International instruments, including Article 8(j) of the Convention on Biological Diversity, the Nagoya Protocol, and Target 3 of the Kunming-Montreal Global Biodiversity Framework, now ask governments to recognise this knowledge and the rights of the people who hold it. India offers a detailed, rarely examined domestic attempt to answer that call. Without using the term "Indigenous Peoples," which its government generally avoids, India has built laws - the Forest Rights Act, the Panchayats (Extension to the Scheduled Areas) Act, the Wildlife Protection Act's community and conservation reserves, and the Biological Diversity Act - meant to connect traditional ecological knowledge to modern, state-run conservation. This paper asks whether these legal bridges actually work, or mostly exist on paper

while older, exclusionary habits of conservation continue underneath them. It examines this through three illustrations chosen for contrast, not representativeness: the Bishnoi community's customary tree-protection practices in Rajasthan, the Soliga community's court-recognised forest rights inside Karnataka's BRT Tiger Reserve, and Jharkhand's Sarna sacred groves alongside its unresolved Saranda forest dispute. The paper sets out the resulting research gap, questions, objectives, and method.

1. Introduction

In May 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) — the biodiversity equivalent of the IPCC — published its first global stocktake, warning that nature was declining faster than ever before. A quieter finding matters more for this paper: land traditionally owned, used, or managed by Indigenous Peoples covers at least a quarter of the world's land area, and biodiversity on this land has generally declined more slowly than on land under other forms of control.¹ The finding gave institutional weight to an argument ecologists and anthropologists had made for decades: the practical knowledge communities build up over generations about their own land, water, plants, and animals — traditional ecological knowledge, or TEK — works as a genuine system of resource management, not merely a cultural artefact to be respected alongside modern science.²

International law has been trying to catch up with this evidence. Article 8(j) of the 1992 Convention on Biological Diversity asks states to respect, preserve, and maintain the knowledge of indigenous and local communities and to share fairly in the benefits of using it.³ The 2010

¹Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), *Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services* (S. Díaz et al. eds., 2019), <https://doi.org/10.5281/zenodo.3553579>.

²Fikret Berkes, *Sacred Ecology: Traditional Ecological Knowledge and Resource Management* (4th ed., Routledge 2018).

³Convention on Biological Diversity art. 8(j), June 5, 1992, 1760 U.N.T.S. 79, <https://www.cbd.int/doc/legal/cbd-en.pdf>.

Nagoya Protocol turned this general request into a more specific set of obligations on consent and benefit-sharing.⁴ The 2022 Kunming-Montreal Global Biodiversity Framework went further still: its best-known commitment, the pledge to conserve 30 percent of the planet's land and water by 2030, explicitly recognises indigenous and traditional territories and the rights of the people who hold them, rather than treating conservation and community occupation as opposites.⁵

One clarification about India comes first: unlike many other countries, its government does not generally use the term "Indigenous Peoples" for its tribal citizens, holding instead — in domestic law and in international forums alike — that all Indians are indigenous to India. The terms used at home instead are "Scheduled Tribes" (the Constitution's term for communities formally recognised as historically marginalised), "Adivasi" (meaning original inhabitants, and the term most common in Indian public and academic writing), and "forest-dwelling communities." This paper follows Indian usage, while still drawing on the international TEK literature where relevant.

At home, India has built a detailed attempt to connect this knowledge to modern conservation. The Forest Rights Act, 2006 gives forest-dwelling communities rights over land they depend on, and, less well known, a specific community right to their own traditional knowledge connected to biodiversity.⁶ PESA, 1996 gives the Gram Sabha — the village assembly — real authority over local natural resources in tribal-majority areas.⁷ A 2002 amendment to the Wildlife Protection Act, 1972 created "community reserves": protected land declared around a community's own "traditional or cultural conservation values and practices," a phrase that echoes the definition of

⁴Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity, Oct. 29, 2010 (entered into force Oct. 12, 2014), <https://www.cbd.int/abs/text/>.

⁵Convention on Biological Diversity, Conference of the Parties, *Kunming-Montreal Global Biodiversity Framework*, Decision 15/4 (Dec. 19, 2022), <https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222>; Target 3 text at <https://www.cbd.int/gbf/targets/3>.

⁶The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, No. 2 of 2007, Acts of Parliament, 2007 (India), <https://www.indiacode.nic.in/bitstream/123456789/8311/1/a2007-02.pdf>.

⁷The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996, No. 40 of 1996, Acts of Parliament, 1996 (India), <https://tribal.nic.in/actRules/PESA.pdf>.

TEK itself.⁸ Internationally, this kind of land is known as an Indigenous and Community Conserved Area, or ICCA; India's community reserve gives that idea formal, statutory footing.⁹ The Biological Diversity Act, 2002 sets up a three-tier system of biodiversity authorities meant to record community knowledge and share the benefits of its use.¹⁰

Whether this architecture actually closes the gap between traditional knowledge and modern conservation, or mostly restates it in the language of statute, is the question this paper takes up. It does so through three illustrations chosen for contrast, not because any one can represent a country as tribally and ecologically varied as India: the centuries-old, informally enforced tree-protection customs of Rajasthan's Bishnoi community;¹¹ the Soliga community's formally recognised forest rights inside Karnataka's Biligiri Rangaswamy Temple (BRT) Tiger Reserve;¹² and, from Jharkhand, the Sarna faith's sacred sal-tree groves¹³ alongside the more strained, still unresolved Saranda forest dispute.¹⁴ Jharkhand's role here is illustrative rather than central: one working example and one contested one, not the paper's main subject.

⁸The Wild Life (Protection) Act, 1972, No. 53 of 1972, Acts of Parliament, 1972 (India) (as amended by the Wild Life (Protection) Amendment Act, 2002, inserting ss. 36A, 36C, 36D),

[https://www.indiacode.nic.in/bitstream/123456789/6198/1/the_wild_life_\(protection\)_act,_1972.pdf](https://www.indiacode.nic.in/bitstream/123456789/6198/1/the_wild_life_(protection)_act,_1972.pdf).

⁹IUCN & ICCA Consortium, *Territories and Areas Conserved by Indigenous Peoples and Local Communities (ICCAs)*, IUCN/CEESP Briefing Note (2010), <https://portals.iucn.org/library/efiles/documents/2010-048.pdf>; see also IUCN, *ICCAs for Biological and Cultural Diversity* (2019), <https://iucn.org/news/protected-areas/201905/iccas-biological-and-cultural-diversity>.

¹⁰The Biological Diversity Act, 2002, No. 18 of 2003, Acts of Parliament, 2003 (India),

<https://www.indiacode.nic.in/bitstream/123456789/2046/4/a2003-18.pdf>.

¹¹S. Natesh, *When Amrita Devi and 362 Bishnois Sacrificed Their Lives for the Khejri Tree*, Sahapedia (Sept. 11, 2020), <https://www.sahapedia.org/when-amrita-devi-and-362-bishnois-sacrificed-their-lives-khejri-tree>.

¹²Down To Earth, *Court Upholds Soliga Tribe's Community Forest Rights* (2013),

<https://www.downtoearth.org.in/environment/court-upholds-soliga-tribes-community-forest-rights--41256>.

¹³Down To Earth, *Nature Worshippers: How Sarna Rituals Propagate Forest Conservation to New Generations & Other Communities* (Apr. 19, 2024), <https://www.downtoearth.org.in/forests/nature-worshippers-how-sarna-rituals-propagate-forest-conservation-to-new-generations-other-communities-93656>.

¹⁴*In re Saranda Wildlife Sanctuary*, 2025 INSC 1311 (India) (13 Nov. 2025), official judgment at

https://api.sci.gov.in/supremecourt/1995/2997/2997_1995_1_1501_65898_Judgement_13-Nov-2025.pdf.

2. Research Gap

India's laws recognise traditional ecological knowledge further than most countries' laws do: the Forest Rights Act gives communities a right to their own knowledge,¹⁵ the Wildlife Protection Act's community reserves are built around customary practice,¹⁶ and the Biological Diversity Act is meant to record and reward it.¹⁷ Yet the literature on traditional ecological knowledge and the literature on these specific laws rarely meet, and rarely asks whether community reserves — a small fraction of India's protected areas¹⁸ — are actually used, or whether the 2023 amendment's exemption for "codified" knowledge quietly weakens the control documentation was meant to protect.¹⁹

3. Research Questions

Overarching question: Do India's legal mechanisms for connecting traditional ecological knowledge with modern conservation actually change conservation decisions, or do they mainly provide formal recognition that leaves older, exclusionary habits unchanged?

RQ1: How much existing research tests whether India's bridging mechanisms change real outcomes for communities, rather than simply describing what these mechanisms are meant to do?

RQ2: What conditions — secure land tenure, an active Gram Sabha, a visible community practice — explain why this bridge holds in some Indian settings and comes under strain in others?

¹⁵Forest Rights Act, 2006, *supra* note 6.

¹⁶Wild Life (Protection) Act, 1972, *supra* note 8.

¹⁷Biological Diversity Act, 2002, *supra* note 10.

¹⁸Press Information Bureau, Government of India, *India's Wildlife Conservation Milestones* (Nov. 27, 2023), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2107821®=3&lang=2>.

¹⁹The Biological Diversity (Amendment) Act, 2023, No. 10 of 2023, Acts of Parliament, 2023 (India), <https://egazette.gov.in/WriteReadData/2023/247815.pdf>; Pallavi Mishra, *The Biological Diversity (Amendment) Act 2023: A Gateway to Sustainable Access?*, *Env't L. Rev.* (Mar. 2025), <https://doi.org/10.1177/14614529251328784>.

RQ3: Does documenting a community's traditional ecological knowledge, as under the Biological Diversity Act's 2023 amendment, strengthen its control over that knowledge, or make the knowledge easier for others to use instead?

RQ4: Why has the gap between formal legal recognition and real community control persisted, and what indicators could future research use to test whether a conservation initiative genuinely bridges the two?

4. Research Objectives

O1: Review the literature on traditional ecological knowledge and Indian conservation law, separating work that tests real bridging outcomes from work that only describes legal design.

O2: Compare the Bishnoi, Soliga, and Jharkhand illustrations on land tenure, Gram Sabha involvement, and visible community practice, to identify which conditions the bridge needs to hold.

O3: Assess, against Article 8(j) of the Convention on Biological Diversity and the Nagoya Protocol, whether the 2023 amendment's treatment of codified knowledge protects or weakens community control.

O4: Identify why this gap has persisted administratively, and propose indicators future research can use to test whether a given initiative genuinely bridges traditional knowledge with modern conservation.

5. Methodology

This paper relies on doctrinal, desk-based research rather than fieldwork, given its scope and the ethical care that fieldwork with tribal communities properly requires. It draws on primary legal and treaty texts, read from official government and treaty-body sources; case material —

principally the Niyamgiri judgment²⁰ and the Supreme Court's continuing supervision of the Saranda matter, tracked through case trackers and contemporaneous reporting as the dispute unfolds;²¹ and secondary literature spanning Berkes's foundational work on TEK,²² Indian scholarship on exclusionary conservation,²³ commentary on the 2023 amendment,²⁴ and reporting from established Indian outlets.²⁵

The three illustrations — the Bishnoi community, the Soliga community, and Jharkhand's Sarna groves and Saranda dispute — were chosen for contrast, not statistical representativeness. Together they span informal customary protection with no statutory backing (Bishnoi), formally recognised rights inside a modern conservation category (Soliga), and a mixed case pairing an

²⁰*Orissa Mining Corp. Ltd. v. Ministry of Env't & Forest*, (2013) 6 SCC 476 (India) (18 Apr. 2013), judgment text at <https://indiaenvironmentportal.org.in/in-court/supreme-court-judgement-dated-18042013-in-wpc-no1802011-orissa-mining-corp-vs-moef-ors>.

²¹Supreme Court Observer, *Declaration of Saranda Forest as Sanctuary (In re: Saranda Wildlife Sanctuary)*, case tracker, <https://www.scoobserver.in/supreme-court-observer-law-reports-scolr/declaration-of-saranda-forest-as-sanctuary-in-re-saranda-wildlife-sanctuary/>; Down To Earth, *Declare Saranda Forest as Wildlife Sanctuary Within 90 Days, SC Directs Jharkhand* (Nov. 15, 2025), <https://www.downtoearth.org.in/forests/declare-saranda-forest-as-wildlife-sanctuary-within-90-days-sc-directs-jharkhand>; Press Trust of India, *Jharkhand Govt Filed Review Plea in SC on Saranda Sanctuary Order, Claims MLA Saryu Roy*, ThePrint (Feb. 26, 2026), <https://theprint.in/india/jharkhand-govt-filed-review-plea-in-sc-on-saranda-sanctuary-order-claims-mla-saryu-roy/2864350/>; *How Much More Will Saranda Forest Sanctuary Suffer?*, HinduPost (May 25, 2026), <https://hindupost.in/environment/how-much-more-will-saranda-forest-sanctuary-suffer/>.

²²Berkes, *Sacred Ecology*, supra note 2.

²³Asmita Kaba, *Ecological Critiques of Exclusionary Conservation*, 2(1) Ecology, Econ. & Soc'y — The INSEE J. 9 (2019), <https://doi.org/10.37773/ees.v2i1.51>; Ajit Menon & Nitin D. Rai, *The Mismeasure of Nature: The Political Ecology of Economic Valuation of Tiger Reserves in India*, 26(1) J. Pol. Ecology 652 (2019), <https://doi.org/10.2458/v26i1.23194>.

²⁴Mishra, *The Biological Diversity (Amendment) Act 2023*, supra note 19.

²⁵Scroll.in, *How a Tribe in Karnataka Fought and Won a Legal Battle to Stay Within a Tiger Reserve* (Oct. 5, 2018), <https://scroll.in/article/896580/how-a-tribe-in-karnataka-fought-and-won-a-legal-battle-to-stay-in-a-tiger-reserve>; Mongabay India, *Protecting Sarna, Jharkhand's Groves of Faith* (Dec. 18, 2019), <https://india.mongabay.com/2019/12/protecting-sarna-jharkhands-groves-of-faith/>; LSE Religion and Global Society Blog, *The Role of "Sarna" in Forest Conservation and Wildfire Prevention: An Indigenous Tribal Religion of India* (Dec. 2023), <https://blogs.lse.ac.uk/religionglobalsociety/2023/12/the-role-of-sarna-in-forest-conservation-and-wildfire-prevention-an-indigenous-tribal-religion-of-india/>.

informal practice that works with a formal, contested one (Jharkhand) — closer to a most-different-systems comparison than a representative sample.

This method has clear limits: it cannot capture how these communities experience these laws in their own words, since that would need fieldwork beyond this paper's scope; three illustrations cannot stand in for India's full range of tribal and forest-dwelling communities; and because the Saranda matter is still unfolding, some material here may later be superseded.

6. Literature Review

The literature that touches this paper's subject splits fairly cleanly into two kinds of writing, and the split itself is part of the research gap this paper is trying to fill.

The first kind is about traditional ecological knowledge as a general idea. Fikret Berkes's now-standard account treats TEK not as folklore or superstition but as a working system: knowledge, practice, and belief built up through direct experience with a particular place, then handed down and adjusted as conditions change.²⁶ This body of work gave the IPBES finding its intellectual backing — the 2019 assessment's headline number, that biodiversity loss has generally been slower on land traditionally held by Indigenous Peoples, only makes sense if TEK actually does the management work Berkes describes, rather than being incidental to it.²⁷ Most of this literature is not about India specifically. It supplies the baseline claim the rest of this paper tests against Indian evidence: that TEK is a genuine management system, not a symbolic one.

The second kind is legal and policy writing about India's own statutes, and here the pattern is more uneven. A good deal of it is descriptive: explaining what the Forest Rights Act does,²⁸ what PESA does,²⁹ how the Wildlife Protection Act's community reserve category works,³⁰ and how the

²⁶Berkes, *Sacred Ecology*, supra note 2.

²⁷IPBES, *Global Assessment Report*, supra note 1.

²⁸Forest Rights Act, 2006, supra note 6.

²⁹PESA, 1996, supra note 7.

³⁰Wild Life (Protection) Act, 1972, supra note 8.

Biological Diversity Act's three-tier authority structure is supposed to record and reward community knowledge.³¹ This writing is useful for establishing what the law says. It is much less useful for answering whether the law does what it says, because most of it stops at description.

A smaller set of writing asks the harder question, and tends to answer it less optimistically than the descriptive literature implies. Asmita Kabra's work on exclusionary conservation argues that even after legal reform, Indian conservation practice keeps reproducing an older pattern: treating the presence of people, including people with formally recognised rights, as a problem to be managed around rather than a form of management in its own right.³² Ajit Menon and Nitin Rai's study of tiger reserves makes a related point from a different angle, showing how the economic case for excluding communities from reserves rests on valuation methods that quietly assume exclusion is the only serious conservation option, crowding out community-based management before it is properly weighed.³³ Neither paper is about the Forest Rights Act or the Biological Diversity Act directly. Both are about the same gap this paper investigates: the distance between what a law recognises on paper and what conservation practice does on the ground.

Government data adds a third, thinner strand. The Ministry of Environment's own account of India's conservation milestones lists a little over 220 community reserves against several hundred wildlife sanctuaries and national parks³⁴ — a small fraction of the protected-area estate, for a category the Wildlife Protection Act itself frames around community values and practice. That imbalance is a fact, not an argument, but it is a fact the descriptive legal literature does not explain. It sits closer to Kabra's and Menon and Rai's account of persistent exclusion than to the assumption, implicit in most legal commentary, that a new statutory category automatically becomes the new default choice.

³¹Biological Diversity Act, 2002, *supra* note 10.

³²Kabra, *Ecological Critiques of Exclusionary Conservation*, *supra* note 23.

³³Menon & Rai, *The Mismeasure of Nature*, *supra* note 23.

³⁴PIB, *India's Wildlife Conservation Milestones*, *supra* note 18.

The most recent addition to this literature responds directly to the 2023 amendment to the Biological Diversity Act. Pallavi Mishra's review sets out what the amendment changed — most relevantly here, a new exemption for "codified" traditional knowledge from some of the Act's approval requirements — and asks whether the change makes access easier at the cost of community control.³⁵ This sits closer to the second, evaluative kind of writing than the first, but it is also recent enough that it has not yet been tested against how community reserves, forest rights titles, or biodiversity registers actually operate in named places.

That is the gap Research Question 1 asks about directly: not whether India's laws exist, which the descriptive literature already answers, but how much existing research tests what those laws actually change. On the evidence above, the answer is: not much, and what does exist points toward a bridge that holds more securely in law than it holds in practice — which is the question the rest of this paper takes up through three specific illustrations.

7. The Legal Framework and the Three Illustrations

India's attempt to connect traditional ecological knowledge to conservation law rests on four statutes, passed over sixteen years, which were not designed together but which fit into a rough sequence: recognise land rights, recognise local political authority, recognise conservation practice, and record the knowledge itself.

The Forest Rights Act, 2006 is the foundation. It responds to a long-standing problem: forest law in India, going back to the colonial Indian Forest Act of 1927, treated forest-dwelling communities as encroachers on state land, even where those communities had lived on and managed that land for generations. The Forest Rights Act reverses the starting assumption. It gives individual households rights to land they already cultivate, and it gives whole communities a right to manage and protect forest resources they traditionally used, through a category called community forest resource rights. Less widely discussed, but directly relevant here, is Section 3(1)(k): a specific

³⁵Mishra, *The Biological Diversity (Amendment) Act 2023*, supra note 19.

community right to "intellectual property and traditional knowledge related to biodiversity and cultural diversity".³⁶ On paper, this is the clearest possible statutory bridge between TEK and modern rights language: it names the knowledge itself as something the community holds a right to, not merely the land it comes from.

PESA, 1996 supplies the political machinery that makes the Forest Rights Act workable in tribal-majority areas. It extends India's system of local self-government to Scheduled Areas, but with real teeth: the Gram Sabha, the assembly of all adult residents of a village, must be consulted before land is acquired, and holds a say over the management of local natural resources and minor forest produce.³⁷ Without PESA, forest rights recognised on paper would still be administered largely by state forest officials with little local input. With it, at least in principle, the community that holds the knowledge also holds a seat at the table where decisions about that knowledge's use get made.

The Wildlife Protection Act's community reserve category, added by a 2002 amendment, works differently again. Rather than granting rights over existing forest land, it lets a state government declare a new protected area on private or community land specifically because of "the community's traditional or cultural conservation values and practices"³⁸ — language that echoes, almost word for word, how TEK gets defined in the international literature.³⁹ Internationally, this kind of area is called an Indigenous and Community Conserved Area, or ICCA: land conserved not because a government designated it a park, but because the people living there already conserve it, and the law simply recognises that fact.⁴⁰ India's community reserve category gives that idea a formal, enforceable footing — the only one of the four statutes discussed here built around TEK from the outset, rather than adapted afterwards to include it.

³⁶Forest Rights Act, 2006, *supra* note 6.

³⁷PESA, 1996, *supra* note 7.

³⁸Wild Life (Protection) Act, 1972, *supra* note 8.

³⁹Berkes, *Sacred Ecology*, *supra* note 2.

⁴⁰IUCN & ICCA Consortium, *ICCAs*, *supra* note 9.

The Biological Diversity Act, 2002 is the odd one out, because its purpose is closer to documentation than to rights. It sets up a three-tier structure — National, State, and local Biodiversity Management Committees — whose job includes preparing People's Biodiversity Registers: written records of local biological resources and the knowledge associated with them.⁴¹ Where the other three statutes ask what a community is entitled to do with its own land or knowledge, the Biological Diversity Act asks what should be written down about that knowledge, and on what terms outsiders can then use it. That distinction becomes central in Section 9 below.

Three illustrations test how this architecture works once it meets an actual community, actual land, and actual competing pressure.

The Bishnoi community of Rajasthan represents the oldest and least formal end of the spectrum. Guru Jambheshwar founded the Bishnoi faith in the fifteenth century around twenty-nine core principles, several of which forbid cutting green trees or harming wildlife. The community's most famous act of enforcement long predates any of the statutes discussed above: in 1730, Amrita Devi and 362 other Bishnois were killed protecting khejri trees from being felled on the orders of the Maharaja of Jodhpur, an event still marked every year and still cited as the reason the khejri tree remains protected across Bishnoi villages.⁴² No statute created this practice, and none is needed to sustain it: it survives through social enforcement within the community itself, not through any of the four laws discussed above. That makes Bishnoi a useful check on the rest of the paper — a reminder that TEK can function as a real conservation system with no legal bridge at all, which sharpens the question of what the legal architecture actually adds where it does apply.

The Soliga community, inside Karnataka's Biligiri Rangaswamy Temple (BRT) Tiger Reserve, sits at the opposite end. The Soliga had lived in and managed this forest — including through controlled use of fire to encourage native grasses and fruiting trees — long before it became a tiger reserve in 2011, at which point the usual pattern in Indian conservation law would have required

⁴¹Biological Diversity Act, 2002, *supra* note 10.

⁴²Natesh, *Amrita Devi and 362 Bishnois*, *supra* note 11.

their relocation outside the reserve boundary. Instead, following sustained legal action, the Soliga became the first community in India to have their forest rights formally recognised inside a tiger reserve, allowing them to continue living in and managing the BRT forest rather than being displaced from it.⁴³ Their continued harvesting of forest produce, including wild honey, has since been documented as compatible with — and in some respects supportive of — the reserve's conservation goals, rather than working against them.⁴⁴ Soliga is the case where the Forest Rights Act, PESA, and community practice appear to have lined up successfully, and it is the illustration this paper returns to most often as a working example of the bridge functioning as intended.

Jharkhand supplies a mixed case, split between one practice that works quietly and one dispute that has not been resolved. The Sarna faith, followed by several tribal communities across Jharkhand and neighbouring states, treats certain forest patches — sarna sthal, most often centred on sal trees — as sacred, and prohibits their disturbance. As with Bishnoi, these groves survive mainly through religious practice and social expectation, not through any of the four statutes above, though scholars have noted that Sarna belief functions as an effective, largely unrecognised form of forest protection, and even wildfire prevention, in the areas where it is observed.⁴⁵ The unresolved half of the Jharkhand picture is Saranda, an iron-ore-rich forest in West Singhbhum district, home to the Ho community and one of the last substantial habitats for wild elephants in the state. Proposals to declare Saranda a wildlife sanctuary have run for years against the interests of mining operations already active in the area, leaving both the community's rights and the forest's protected status unsettled. In November 2025, the Supreme Court directed the Jharkhand government to declare Saranda a wildlife sanctuary within ninety days;⁴⁶ as of early 2026 the state government had reportedly filed a review petition against that order,⁴⁷ and by May 2026 the

⁴³Down To Earth, *Soliga Tribe's Community Forest Rights*, supra note 12.

⁴⁴Scroll.in, *How a Tribe in Karnataka Fought and Won*, supra note 25.

⁴⁵Down To Earth, *Nature Worshipers*, supra note 13; Mongabay India, *Protecting Sarna*, supra note 25; LSE Blog, *The Role of "Sarna" in Forest Conservation*, supra note 25.

⁴⁶*In re Saranda Wildlife Sanctuary*, supra note 14; Down To Earth, *Declare Saranda Forest as Wildlife Sanctuary*, supra note 21.

⁴⁷Press Trust of India, *Jharkhand Govt Filed Review Plea*, supra note 21.

sanctuary's status remained unresolved on the ground.⁴⁸ Saranda is the illustration this paper leans on most heavily in Section 10, because it is the case where every favourable condition present in the Soliga example — secure tenure, an empowered Gram Sabha, an uncontested community practice — is instead missing, contested, or actively opposed by a competing economic interest.

8. The Problem in Practice

Put the three illustrations side by side and a pattern appears that the descriptive legal literature does not capture. The law recognises TEK in two different ways at once, and the two do not always pull in the same direction. One strand is about documentation: writing knowledge down, most directly through the Biological Diversity Act's registers, so that it can be tracked, consulted, and — where someone else wants to use it commercially — licensed on agreed terms. The other strand is about control: giving the community that holds the knowledge the standing to decide, and if necessary refuse, what happens to its own land and practices, through the Forest Rights Act, PESA, and the community reserve category.

These two strands raise two different questions, and the illustrations above answer them in different sections of this paper. The first is whether documenting knowledge actually strengthens a community's control over it, or whether writing something down — especially once it counts as "codified" under the 2023 amendment to the Biological Diversity Act — makes that knowledge easier for others to use instead. Section 9 takes up that question directly, reading the Act's own text against the international benchmarks in Article 8(j) and the Nagoya Protocol. The second is broader: under what conditions the bridge between recognition and real control holds at all, tested by comparing land tenure, Gram Sabha involvement, and community practice across Bishnoi, Soliga, and Jharkhand. Section 10 takes up that comparison, and by the end of it, the Saranda dispute in particular shows what happens when several of those conditions are missing at once.

⁴⁸HinduPost, *How Much More Will Saranda Forest Sanctuary Suffer?*, supra note 21.

9. Documentation versus Control

The Biological Diversity Act's core instrument is the People's Biodiversity Register: a written record, compiled by a local Biodiversity Management Committee, of the plants, animals, and associated traditional knowledge found in a given area.⁴⁹ The idea behind it is sound enough. Article 8(j) of the Convention on Biological Diversity asks states not just to respect traditional knowledge but to encourage its wider application, with the approval and involvement of the communities that hold it, and to share the benefits of that application fairly.⁵⁰ The Nagoya Protocol turns that general principle into a working procedure: before anyone accesses genetic resources or associated traditional knowledge for commercial use, they need the prior informed consent of the community holding it, on mutually agreed terms.⁵¹ Read together, both instruments treat documentation as a means to an end — a record that makes consent and benefit-sharing enforceable — not as an end in itself.

The 2023 amendment to the Biological Diversity Act complicates that picture. Among its changes is a new exemption: traditional knowledge that has been "codified" — recorded in registers, published research, or similar accessible form — no longer requires the same prior approval before commercial use that uncoded, purely oral knowledge does.⁵² Pallavi Mishra's review of the amendment reads this as a deliberate loosening, intended to make India's systems of documented traditional knowledge, particularly in Ayurveda and related fields, easier for industry to access.⁵³ The logic is not unreasonable on its own terms: knowledge that is already published is, in a narrow legal sense, already public, so treating it as requiring the same consent process as knowledge still held only within a community can look like an unnecessary barrier to legitimate use.

⁴⁹Biological Diversity Act, 2002, *supra* note 10.

⁵⁰CBD art. 8(j), *supra* note 3.

⁵¹Nagoya Protocol, *supra* note 4.

⁵²Biological Diversity (Amendment) Act, 2023, *supra* note 19.

⁵³Mishra, *The Biological Diversity (Amendment) Act 2023*, *supra* note 19.

The trouble is what this does to the incentive facing a community deciding whether to let its knowledge be documented at all. Before the 2023 amendment, registering knowledge in a People's Biodiversity Register and gaining a stronger claim to future benefit-sharing were, roughly, the same act. After the amendment, they are not: registering the knowledge can instead move it into a lighter-touch category, with less say for the community over how it gets used next. None of the three illustrations in Section 7 show this mechanism playing out directly — Bishnoi and Sarna knowledge survives almost entirely outside any biodiversity register, and the Soliga's honey-harvesting practice is documented mainly in ecological research rather than in a formal register — but that absence is itself informative. If the communities this paper examines have largely stayed outside the Biological Diversity Act's documentation system, informal social enforcement and secure land tenure under the Forest Rights Act may be doing more real protective work for them than registration under the Biological Diversity Act would.

That is the answer Research Question 3 was after. Documentation, as the Act currently defines it, is not the same thing as control, and the 2023 amendment widens rather than narrows the gap between the two. It makes access to India's traditional knowledge somewhat easier for outside users, without a matching increase in what a community can insist on in return once its knowledge is written down. Whether that trade-off is worth making is a policy judgment this paper does not attempt to settle; what the text of the amendment does settle is that documentation, on its own, is not a substitute for the control that land tenure and local political authority provide.

10. Critical Analysis

Comparing the three illustrations against three conditions — secure land tenure, an active Gram Sabha, and a visible, ongoing community practice — explains why the bridge between traditional ecological knowledge and Indian conservation law holds in some settings and comes under strain in others, which is the question Research Question 2 and Objective 2 set out to answer. The Soliga case has all three. Their community forest rights inside the BRT Tiger Reserve give them a form of land tenure recognised under the Forest Rights Act, not merely tolerated by forest officials;

PESA and the reserve's own governance provisions give the Gram Sabha a working role in decisions about the reserve; and the Soliga's continued harvesting of forest produce, including honey, keeps their traditional practice visible and, on the ecological evidence available, broadly compatible with the reserve's conservation aims.⁵⁴ None of the three conditions here is perfect or permanent — tiger reserve management in India still tends, as a matter of institutional habit, to treat resident communities as an exception to be managed rather than a partner in management⁵⁵ — but all three are present and functioning well enough that the Soliga's rights have held since formal recognition, rather than eroding.

Saranda sits at the other end. The Ho community's presence in the forest is long-standing, but their land tenure has never been placed on the same secure statutory footing as the Soliga's: Saranda's status has been contested for years between conservation designation and mining interest, and the Supreme Court's own intervention — ordering the state to declare a wildlife sanctuary within ninety days⁵⁶ — is itself evidence that the ordinary administrative process had not resolved the question on its own. A Gram Sabha with real authority over land use, of the kind PESA is meant to guarantee, is of limited use when the competing claim comes not from another local actor but from an economically significant mining operation with its own political weight; and a reported review petition filed by the state government against the Supreme Court's order suggests that even a direct judicial order has not settled the matter.⁵⁷ Visible community practice is present in Saranda too — the Ho community's relationship with the forest predates any of the current legal disputes — but visibility of practice, on its own, has not been enough to secure either land tenure or an enforceable say in outcome. Saranda is, in other words, the case where the legal architecture exists in principle, and has even been invoked by the country's highest court, and still has not converted

⁵⁴Scroll.in, *How a Tribe in Karnataka Fought and Won*, supra note 25.

⁵⁵Menon & Rai, *The Mismeasure of Nature*, supra note 23.

⁵⁶*In re Saranda Wildlife Sanctuary*, supra note 14; Down To Earth, *Declare Saranda Forest as Wildlife Sanctuary*, supra note 21.

⁵⁷Press Trust of India, *Jharkhand Govt Filed Review Plea*, supra note 21; HinduPost, *How Much More Will Saranda Forest Sanctuary Suffer?*, supra note 21.

into secure, working control on the ground — exactly the distance between formal recognition and functioning practice that this paper set out to measure.

The Bishnoi and Sarna cases complicate the comparison in a useful way, because neither depends on any of the three statutes discussed in Section 7 to keep functioning. Bishnoi tree protection has survived for nearly three centuries on social enforcement alone, and Sarna sacred groves persist through religious practice rather than statutory land tenure.⁵⁸ Neither community needed a Gram Sabha resolution or a forest rights title to keep their practice alive, because neither practice faced the kind of sustained, well-resourced competing claim that Saranda faces from mining, or that the Soliga faced from standard tiger-reserve relocation policy before their rights were recognised. This suggests a refinement to the three conditions rather than a contradiction of them: land tenure and Gram Sabha authority matter most, and the legal architecture adds most of its value, precisely where a community's practice is under external pressure serious enough that social enforcement alone cannot hold the line. Where no comparable pressure exists, as with Bishnoi and Sarna so far, the law's absence is not obviously a problem, because informal enforcement is doing the necessary work on its own — though this also means both communities remain more exposed than the Soliga if a serious competing claim to their land ever does arise, since neither has built the same statutory backing to fall back on.

This same dynamic helps explain a pattern noted in Section 6: the small number of community reserves declared under the Wildlife Protection Act relative to conventional sanctuaries and parks.⁵⁹ A community reserve, unlike a sanctuary or national park, requires a state government to choose to recognise a community's existing conservation practice rather than assert direct administrative control over the land. Where that choice conflicts with no significant competing land use, it is a fairly low-cost decision for a state government to make. Where it conflicts with an

⁵⁸Natesh, *Amrita Devi and 362 Bishnois*, supra note 11; Down To Earth, *Nature Worshipers*, supra note 13; Mongabay India, *Protecting Sarna*, supra note 25; LSE Blog, *The Role of "Sarna" in Forest Conservation*, supra note 25.

⁵⁹PIB, *India's Wildlife Conservation Milestones*, supra note 18.

economically significant one — mining, large-scale tourism, or a state's own preference for centralised control — the low national number of community reserves suggests the choice is not being made nearly as often as the underlying pattern of TEK-based practice, visible in cases like Bishnoi and Sarna, would justify.

Kabra's account of exclusionary conservation and Menon and Rai's critique of tiger-reserve economics both point toward the same underlying explanation for why Saranda has fared worse than the Soliga, despite both communities having a comparably strong traditional connection to their forest.⁶⁰ Indian conservation institutions, even after two decades of legal reform aimed at including rather than excluding resident communities, still default to treating community presence as something to be resolved rather than built on, and that default asserts itself most strongly exactly where the financial stakes of an alternative land use — mining at Saranda, historically tourism and exclusive access at BRT before 2011 — are highest. The Soliga case shows that this default can be overcome, but only through sustained legal action reaching the higher courts, not through the ordinary operation of the statutes as written. That is the clearest finding this comparison supports: the four statutes discussed in Section 7 create the possibility of a working bridge between traditional ecological knowledge and modern conservation, but they do not create that bridge automatically, and where the competing economic interest is strong enough, as at Saranda, formal recognition on paper has so far proven compatible with the practical situation on the ground remaining unresolved for years at a time.

11. Conclusion

This paper set out to test whether India's legal architecture for connecting traditional ecological knowledge with modern conservation actually changes how conservation decisions get made, or mainly restates recognition already available informally, without changing much in practice. The

⁶⁰Kabra, *Ecological Critiques of Exclusionary Conservation*, supra note 23; Menon & Rai, *The Mismeasure of Nature*, supra note 23.

answer, on the evidence of three deliberately contrasting illustrations, is neither wholly one nor the other. The architecture is real, and it can work: the Soliga's forest rights inside the BRT Tiger Reserve show that the Forest Rights Act, PESA, and the community reserve idea can combine to secure both land tenure and a genuine role in decision-making for a community whose traditional practice was, at one point, treated as an obstacle to conservation rather than a form of it.⁶¹ But the same architecture, applied to Saranda, has so far coexisted with years of unresolved dispute, a Supreme Court order that has not yet settled the underlying land-use conflict, and a community whose standing remains less secure than the Soliga's despite a comparably long-standing relationship with their forest.⁶² And at Bishnoi and in Jharkhand's Sarna groves, the strongest examples of traditional ecological knowledge actually protecting biodiversity over long periods needed no statute at all, surviving instead on social enforcement that predates, and does not depend on, any of the four laws this paper examined.⁶³

Why has this gap persisted, given that the relevant statutes are now, in some cases, two decades old? Three explanations run through the sections above. First, formal recognition under the Forest Rights Act or the community reserve category still depends on state governments and forest officials choosing to grant it, and Section 6's evidence — a little over 200 community reserves against a far larger number of conventional sanctuaries and parks⁶⁴ — suggests that choice is being made narrowly rather than as a matter of course. Second, where a competing economic interest is significant enough, as mining is at Saranda, legal recognition of community rights has not, on its own, been strong enough to resolve the underlying conflict, even after direct intervention by the

⁶¹Down To Earth, *Soliga Tribe's Community Forest Rights*, supra note 12; Scroll.in, *How a Tribe in Karnataka Fought and Won*, supra note 25.

⁶²*In re Saranda Wildlife Sanctuary*, supra note 14; Supreme Court Observer, *Saranda case tracker*, supra note 21; Down To Earth, *Declare Saranda Forest as Wildlife Sanctuary*, supra note 21; Press Trust of India, *Jharkhand Govt Filed Review Plea*, supra note 21; HinduPost, *How Much More Will Saranda Forest Sanctuary Suffer?*, supra note 21.

⁶³Natesh, *Amrita Devi and 362 Bishnois*, supra note 11; Down To Earth, *Nature Worshipers*, supra note 13; Mongabay India, *Protecting Sarna*, supra note 25; LSE Blog, *The Role of "Sarna" in Forest Conservation*, supra note 25.

⁶⁴PIB, *India's Wildlife Conservation Milestones*, supra note 18.

country's highest court.⁶⁵ Third, the 2023 amendment to the Biological Diversity Act shows that the direction of legal change is not uniformly toward stronger community control: the new exemption for codified knowledge moves at least one part of the architecture toward easier outside access, not toward more secure community control, which cuts against the assumption that the gap will simply close over time as more law accumulates.⁶⁶

None of this means the legal architecture is not worth having. It means the architecture is a necessary but not sufficient condition for the bridge this paper set out to examine, and that whether it functions in a given case depends heavily on local conditions — land tenure, an empowered Gram Sabha, and a visible ongoing practice, together with the absence of a well-resourced competing claim — rather than on the existence of the relevant statute alone. Future research, moving beyond this paper's doctrinal method into fieldwork that the ethical and practical limits of this project ruled out, could test that claim directly. Useful indicators would include: the proportion of eligible community forest resource claims under the Forest Rights Act that are actually granted and then implemented, rather than merely approved on paper; the number of Biodiversity Management Committees that have both compiled a People's Biodiversity Register and reached an enforceable benefit-sharing agreement from it, rather than treating registration as an end in itself; how often a Gram Sabha's consent is genuinely sought and honoured before a change in land use goes ahead, particularly where a competing commercial interest is involved; and how long it typically takes for a community reserve or comparable recognition to be granted once a community applies for it, as a rough measure of how much administrative discretion still stands between recognition on paper and recognition in practice.

India's four statutes show that a state can build detailed legal machinery for recognising traditional ecological knowledge without using the term "Indigenous Peoples" at all, and without pretending

⁶⁵Press Trust of India, *Jharkhand Govt Filed Review Plea*, supra note 21; HinduPost, *How Much More Will Saranda Forest Sanctuary Suffer?*, supra note 21.

⁶⁶Biological Diversity (Amendment) Act, 2023, supra note 19; Mishra, *The Biological Diversity (Amendment) Act 2023*, supra note 19.

JOURNAL OF INTERNATIONAL RESEARCH & MULTIDISCIPLINARY INNOVATION

E-ISSN: 3139-8650



Volume: 2 Issue: 1 Month: August 2026

that recognition alone settles the older, harder question of whose decision counts when land, knowledge, and competing economic interests meet on the same ground. The Bishnoi, the Soliga, and Jharkhand's two very different stories show that the machinery works best exactly where it is needed least — where community practice was already strong enough to protect itself — and comes under the most strain exactly where it is needed most.

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