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LEGAL PARADIGMS IN PROTECTING BIODIVERSITY IN INDIA: A Pathway For A Sustainable Future

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ABSTRACT

This research paper analyses the crucial relationship between biological diversity and law in India, where there is rich biodiversity. The paper describes where the threats to species are currently and how those threats are manifested. As these threats grow, it becomes even more crucial to have proper and flexible legal instruments which will help protect such biologically diverse systems and promote rational usage of resources. The paper calls for a flexible approach to the legal system that would do justice not only to the purposes of species protection but also to the visions of the indigenous people and the general notions of ecological sustainability.

Keywords: Biodiversity, Biopiracy, Environment, Forests, Nature, Resources, Biodiversity Act.

1. INTRODUCTION

“Biodiversity is the greatest treasure we have... Its diminishment is to be prevented at all cost.”

— *Thomas Eisner*³

All types of life on Earth are referred to as biodiversity, which includes biological variation in all of its forms, including cultural diversity and the genetic makeup of biotic and abiotic. It hence refers to the variety of species in the environment,

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 3. Thomas Eisner, *For Love of Insects* 28 (The Belknap Press of Harvard University Press, Cambridge, Massachusetts and London, UK, 2004).

including plants, animals, and microorganisms, along with their genetic variations in the environment and includes species richness and species evenness. Being a megadiverse region of the world, India is home to around 7-8% of the global biodiversity.⁴ The country is in the conjuncture between economic growth, sustainable development, and biodiversity conservation. Preservation of biodiversity is required to maintain ecological stability, carbon sequestration, flood control, ecosystem services, and maintain the food cycle. Biodiversity also offers cultural, aesthetic, and recreational value to human beings. A lack of funds, limited knowledge, habitat loss and fragmentation, and climate change all pose threats to effective preservation against biodiversity loss. Yet the Earth is amid an unprecedented biodiversity crisis. Various laws and regulations are made across the world, with many multilateral agreements and conventions to safeguard biodiversity. Biodiversity has a greater role in providing utilitarian value to human beings, and hence, preservation is of utmost importance. The preservation of biodiversity and effective laws goes hand-in-hand. The legal framework must be robust and holistic to operate across various scales, from community level to global cooperation. The financial and political commitments must be realistic and adhered to maintain equilibrium in the environment. Besides the legal framework, steps at the ground level, like community management, will also help in engaging people and sharing traditional knowledge of biodiversity conservation and preservation based on a public-private partnership model. Attaching the role of religion to biodiversity can help in creating awareness and instilling a sense of responsibility among the people. A comprehensive role of the legislature to frame appropriate laws executive for better

Implementation, the judiciary to work as a watchdog against misuse of the laws and the public to create a sense of responsibility towards biodiversity is required.

Mythology and religion have always played a great part in influencing the human perception of nature and biodiversity over many centuries. Many cultures and religions view plants, animals, rivers, forests, and mountains as sacred parts of the web of life.

2. BIODIVERSITY RICHNESS AND MAJOR CONCERNS

The survival of biodiversity is inextricably linked with the survival of humanity. The idea of national sovereignty over natural resources is the cornerstone of

4. Government of India, "India's Fourth National Report to Convention on Biological Diversity" (Ministry of Environment and Forests, 2009).

international relations.⁵ Because states are entitled to the natural resources on their soil, they can protect, maintain, or even devastate them. States are sovereign entities with the authority to exploit their resources in accordance with their environmental policy.⁷ The duty is to ensure that matters falling within their purview or control do not negatively impact the environment of neighbouring states or areas beyond national borders.⁸ The States must ensure that there is judicious use of biodiversity and must take steps for the preservation of biodiversity. Concern has consistently increased about the need to preserve species and natural habitats amid the swiftly advancing dangers of various types. This major concern on the decline of biological variety encompasses two distinct aspects. Firstly, the anthropocentric viewpoint is centred on the idea that human activity has negatively impacted society, science, and future generations. Secondly, the broader loss of potential benefits, termed the ecocentric perspective (the ethical philosophy known as eco-centricity holds that all life and ecosystems are valuable in and of themselves), emphasizes the intrinsic value of biological diversity.⁹ This view asserts that while humanity may utilize these resources, it possesses no moral authority to obliterate them, given their essential role in sustaining the biosphere's life-supporting systems and the Earth's evolutionary potential.¹⁰ Numerous essential ecological functions that are ultimately required for human survival are supported by biodiversity.¹¹ In addition, the preservation of a wide range of species is also extremely important for medical advances as many pharmaceutical compounds are derived from natural products produced by myriad organisms, and thus, loss of biodiversity only serves to hamper future health innovation. Moreover, biodiverse ecosystems were revealed to have greater resistance and resilience to climate change as they are able not only to maintain their function in the face of perturbances but also to cope with or reduce damage from extreme weather events.

Another report¹² indicated that changes in land and sea usage, pollution, invasive

5. General Assembly, "Report of the United Nations Conference on Environment and Development" (August 1992).

6. *Ibid.*

7. The United Nations Charter Convention on Biological Diversity, 1993, Article 3.

8. *Ibid.*

9. Des Jardins and Joseph R., *Environmental Ethics: An Introduction to Environmental Philosophy* 185 (Wadsworth Publishing, Belmont, 6th Edn., 2007).

10. Sands, Philippe *et.al.*, *Principles of International Environmental Law* 45 (Cambridge University Press, Cambridge, England, 2003).

11. *Ibid.*

12. IPBES, "Report on Biodiversity, Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity" (May 2019) .

species introduction, direct exploitation of organisms, and climate change are the primary causes of biodiversity loss. The famous case *T.N. Godavarman Thirumulpad v. Union of India*¹³ has laid the foundation for the legal protection of forests with an emphasis on the preservation of biophysical diversification. Through the directions issued in *M.C Mehta v. Kamal Nath and Others*¹⁴, the importance of forests in sustaining biodiversity was highlighted by the Court's interpretation of the Forest Conservation Act, which states that no changes may be made to the usage of forest land without first obtaining approval from the Central Government. The Intergovernmental Panel on Climate Change (IPCC) has disclosed that increased temperatures, changes in precipitation, and other adverse and sobering phenomena negatively impact the existing living species.¹⁵ The Paris Agreement (UNFCCC, COP 21) signed in 2015 is a crucial global treaty that seeks to reign in global warming and fight climate change effects; therefore, it calls on countries as

India, to take action to conserve the bio-diversity. The case of *M.C. Mehta v. Union of India*¹⁶ has another broad theme of environmental pollution and its effect on biodiversity by declaring the stand of the judiciary in effectuating climate change relating to ecology.

The indigenous groups play a substantial role in the preservation of biodiversity due to the traditional knowledge of conservation they possess. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 was passed in order to acknowledge the rights of indigenous people in the administration of the forest area they controlled. The case of *Narmada Bachao Andolan v. Union of India*¹⁷ is important in this regard, in which it was pointed out that concepts of sustainable development should consider legal rights that apply to inhabitants of territories as well as the need to preserve biological diversity. The supply of biodiversity protection in India is also greatly aided by the culture and institutional endowment. The case of *M.K. Balakrishnan v. Kerala State*¹⁸ also emphasized on the involvement of the people of the area in the conservation, re-echoing the call for participation in managing the biological diversity. This aligns

13. *T.N. Godavarman Thirumulpad v. Union of India*, (1997) 2 SCC 267

14. *M.C Mehta v. Kamal Nath*, (1997) 1 SCC 388

15. IPCC, "Report on Climate Change 2021: The Physical Science Basis" (July, 2021)

16. *M.C Mehta v. Union of India*, (1987) SCR (1) 819

17. *Narmada Bachao Andolan v. Union of India*, (2000) 10 SCC 664

18. *M.K. Balakrishnan v. State of Kerala*, (2017) 7 SCC 810(2)

with Article 23 of the United Nations Declaration on the Rights of Indigenous Peoples, which addresses environmental protection.¹⁹

3. LEGAL FRAMEWORK FOR BIODIVERSITY CONSERVATION: INDIA, INTERNATIONAL AGREEMENTS, AND THE ROLE OF THE JUDICIARY

According to the Indian Constitution, the Government must take action to preserve and enhance the environment.²⁰ It is the responsibility of every person to preserve the nation's forests, wildlife, and ecosystem. A web of National Laws, court rulings, and treaty commitments make up India's legal framework for the preservation of biological variety, which aims to preserve the country's biological legacy while advancing its development objectives. The most important of these is the Biological Diversity Act of 2002, which aims to preserve biological resources, encourage their sustainable use, and fairly distribute the advantages that come from using them, especially those that come from the lands of indigenous peoples. The regulation of the use of biological resources by foreign individuals, businesses, and organizations is one of the Act's key elements. Before using Indian bioresources for research, commercialization, or patenting, entities must obtain prior approval from the NBA. India's obligations under the CBD are translated by this statute. Creating National Biodiversity Authority (NBA)²¹, State Biodiversity Boards (SBBs)²², and Biodiversity Management Committees (BMCs), these protocols seek to ensure that genetic resources are used appropriately and that biosafety procedures for genetically modified species are implemented, hence prohibiting biopiracy. India has a rich biodiversity of wildlife, which needs due protection. Wildlife (Protection)

Act 1972 aims at protecting wildlife species of the country and, hence, preserving biodiversity. To preserve biological diversity, ensure sustainable use of its constituent parts, and stop the extinction of species, this Act aligns with the provisions of the Biodiversity Act. To preserve habitats and biodiversity, it allows for the designation of protected areas. Like this, the Forest Conservation Act 1980 which prohibits changing land's use beyond forestry without the Central Government's prior written approval. It keeps the woods intact so that they may sustain a wide variety of plant

19. Anaya and S. James, *Indigenous Peoples in International Law* 120 (Oxford University Press, UK, 2004) 20 The Constitution of India, 1950, Article 48A.

20. The Biological Diversity Act, 2002 (Act 18 of 2003), Section 8

21. *Id.* Section 22

22. *Id.* Section 41

and animal species and avoid being destroyed for development purposes like mining, industry, and building roads and bridges. The Coastal Regulation Zone 2019 Notification is in effect to safeguard marine life. It regulates activities along India's coastlines to conserve mangroves, coral reefs, and other critical habitats. In *P.A. Jacob v. Superintendent of Fisheries*, the Kerala High Court²³ banned destructive trawling practices to protect marine biodiversity and sustainable fishing. India is also a signatory to international agreements such as the United Nations Convention to Combat Desertification (UNCCD), which regulates wildlife trade, the Ramsar Convention for the conservation of wetlands, and others that address sustainable development. Aiming to safeguard 30% of lands and oceans by 2030, the Kunming-Montreal Global Biodiversity Framework, which was adopted at the COP15 of the United Nations Biodiversity Conference in 2022, has emerged as the new framework. In support of the shift in business practices toward accountability and transparency, almost 500 companies pledged to account for their environmental impacts during COP16.²⁴ The enforcement of biodiversity law in India has been a historic role of the Indian judiciary to go beyond set legal provisions and expand the legal provisions to enforce the laws. Many prominent judicial cases have previously influenced India's approach to biodiversity conservation as due to their reaction to peculiar wilderness concerns. One of the most famous early cases is the *Silent Valley Case*²⁵ when the Kerala High Court vetoed the construction of a hydro-electrical project that was to be built in the Silent Valley tropical rainforest. The intervention averted the tragic loss of an unbeaten environment and more so fostered the recognition of environmental worth over raw development gains. In *T.N. Godavarman Thirumulpad v. Union of India*, the judiciary interpreted the term "Forest" and included the dictionary meaning of forest in the definition, which helped in the stringent implementation of the laws from the sides of forest conservation. Furthermore, the judiciary has incorporated environmental consideration in decision-making, having taken up the precautionary principle²⁶ and polluter pays principle²⁷. Where an Environmental Impact Assessment of projects that might harm ecosystems is under consideration, the courts have called for more stringent environmental regulation. For example, the *Essar Oil v. Halar*

23. *P.A. Jacob v. Superintendent of Fisheries*, (1992) 2 KER LT 238.

24. TNFD Global, Discussion Paper on Nature Transition Plans, Oct 2004, available at: <https://tnfd.global> (Last visited on January 13, 2025)

25. *Society for Clean Environment v. Union of India* (1992) 3 BOM CR 362.

26. *M.C Mehta v. Kamal Nath* (1997) 1 SCC 388

27. *Indian Council for Enviro-Legal action v. Union of India* (1996) SCC (3) 212.

*Utkarsh Samiti*²⁸ direction also mandated that EIAs could not be just a procedural exercise; rather, the exercise itself of preparing the report involved a consideration of impacts and risks to biological diversity. In *Samatha v. State of Andhra Pradesh*, without enabling those who live closest to nature, sustainable development cannot be accomplished,

the court noted.²⁹ India's Legal System is that it is a combination of Statutory Laws, International Treaties, and, more importantly, vibrant judicial activism. However, constraints in relation to compliance with the measures and implementation of the economic activities as well as social objectives persist. The world's biodiversity is seriously threatened by cases of biopiracy since it results in the exploitation of biological resources and knowledge without the true owners' knowledge. It damages the biodiversity of an area due to natural resource depletion and estranging indigenous populations from practices critical for maintaining and protecting the biosphere's wealth. It is for this reason that legal actions and statutes from national and global domains try to discourage the effects of biopiracy. The indigenous people who used resources within their territory with proper conservation measures may cancel those efforts if companies gain value from that knowledge without paying back. This results in a failure of the so-called

'welfare' owing to the breakdown of biodiversity stewardship. One such glaring example of biopiracy in India is the "*Neem Patent Case*." The EPO (European Patent Office) patented the antifungal property of neem oil to the "U.S Department of Agriculture and W.R. Grace."³⁰ The patent faced opposition from Indians, arguing that the properties of this plant – neem, had been known by them for centuries. The EPO pulled out the patent, which confirmed that Adivasis' knowledge should not be patented by anybody.³¹ This judgment enhanced the legal protection of biodiversity in the global arena as well as affirmed the need to protect the related traditional knowledge. The measure aimed at combating biopiracy is concerned with the protection of indigenous knowledge and biodiversity from access by transnational corporations and foreign users. Globally, nations are directed by the *Convention on Biological Diversity (CBD)* and the *Nagoya Protocol on Access and Benefit-Sharing (ABS)* when biological resources for business use are involved. These frameworks require that due compensation is provided to Indigenous people for their resources and knowledge being exploited by firms or researchers.

28. *Essar v. Halar Utkarsh Samiti* (2004) 2 SCC 392.

29. *Ibid.*

30. Vandana Shiva, *Biopiracy: The Plunder of Nature and Knowledge* 110 (South End Press, Boston, 1st edn., 1997).

31. *Ibid.*

India, for instance, has provided strict legislation through the BDA (2002) that thereby sends a message to any entity, especially a foreign corporation intending to gain access to and transmit biological materials, must first seek permission from the *National Biodiversity Authority* (NBA). The *Bt Brinjal case*³² is the best example of legal enforcement in which Monsanto and its associates have been charged with infringement of the Act with regard to using Indian Brinjal Varieties. Stakeholders have focused on adherence with Sections 3 and 4 of the Act, which bans the transfer of research relating to biological resources to foreign firms without authorization. It was for this reason that this case pointed to the need for more intense and effective regulation to counter collaborative agreements, which were in a real sense exploitative, although made to appear as simple non-profitable research entities. Other Indian legal approaches like the TKDL (Traditional Knowledge Digital Library), which aims at documenting Traditional Knowledge to stop any unauthorized patents, are also helpful.³³ But, issues remain, including enforcement gaps, corporate social power over IP, and the intricacy of the protection of indigenous knowledge systems and information as intellectual property. Transforming community participation and integrating domestic laws will still be crucial in the fight against bio piracy.

4. CHALLENGES IN THE CURRENT LEGAL FRAMEWORK

While India's legislation is solid and extensive within the scope of regulations for protecting biological diversity, the legislation hits several obstacles regarding enforcement, the division of powers, and the elaboration of conflict of interest regarding conservation and development. Major challenges include inconsistent implementation plans, bureaucracy, low awareness, the dilemma of developmental vs conservation approaches, and indigenous people's exclusion. Few of the challenges and lacunae are as follows:

1. **Access and Benefit Sharing Related Issues:** Benefit sharing regulations mostly rely on accessors self-disclosing their access or SBB and NBA taking enforcement action. This entire procedure is full of slip-ups. Benefit sharing is still heavily reliant on resources, and it is unclear how benefit sharing pertaining to access to people's knowledge should be governed. The basic

32. *Dr.K.Thiruthanikachalam v. Union of India* (2010) W.P.No.2442

33. Abha Nadkarni and Shardha Rajam, "Capitalising the Benefits of Traditional Knowledge Digital Library (TKDL) in Favour of Indigenous Communities" 9 *NUJS Law Review* (2016).

problem of determining who owns a resource is an under debate. An agreement with one tribe or user, for instance, might not be sufficient when multiple people use the same resource. An illustration of the Kani tribe in southern Kerala, who are aware of the anti-fatigue qualities of the amazing herb *Arogyapacha* (*Trichopus zeylanicus*), which thrives in their forests. This was discovered by Jawaharlal Nehru Tropical Botanic Garden and Research Institute scientists in 1987 through their *Kani* field helpers, prior to the CBD and its rules. By enlisting a group of *Kanis* from several villages and creating a trust for them to benefit from, the scientists created *Jeevani*, a medication that harnessed the plant's anti-fatigue qualities. However, *Kanis* from other villages who were not contacted disagreed, either because they were not asked about the benefits or to share their wisdom. Long-running patent disputes, a lack of communication between several state departments, the failure of marketing initiatives for *Jeevani*, and the failure of the *Kanis* trust are only a few of the causes.³⁴

2. **Commercial Interest v/s Research:** Section 3 (1) of the Act stipulates that “No person (who is not a resident citizen of India) shall, without previous approval of the *National Biodiversity Authority* (NBA), obtain any biological resource occurring in India or knowledge associated thereto for research or commercial utilisation or for Bio-survey and Bio-utilisation.” Biodiversity laws that follow the *Convention on Biological Diversity* (CBD) prioritize biodiversity's economic worth over its ecological and scientific significance³⁵. Concerns have also been raised about the CBD and the Nagoya Protocol impeding conservation research. In the journal *Science*, scientists from 35 nations, supported by 172 co-signatories, stated in 2018 that it was getting harder to get field permits to use specimens for non-commercial study. A group of scientists from around the world who work in the biological sciences recently wrote a Policy Forum article in *Science Magazine* claiming that the *Convention on Biological Diversity* (CBD) and the national laws it has spawned in several nations are stifling collaborative international biological research³⁶.

34. Aathira Perinchery, “BioResource Access and Benefit-Sharing: How Far Have We Come in India?” *Mongabay* 09.04.2020 available at: <<https://india.mongabay.com/2020/04/india-bioresource-access-andbenefit-sharing-how-far-have-we-come/>> (Last visited on January 15, 2025)

35. Aathira Perinchery, “A Big Problem in Ecology Research: You May or May Not Get Your Permit”, *Wire*, 08.12.2021, available at: <<https://science.thewire.in/politics/government/wildlife-field-research-permitsbureaucracy-chief-wildlife-wardens/>> (Last visited on January 14, 2025).

Similarly, the *Deepor Beel Wetland* case³⁶ exhibits defections in the conservation of wetlands and encroachment issued with bird shelters. While the Ramsar Convention³⁷ requires that wetlands be protected, protection at the national level has been considerably low. India's Biodiversity Act sometimes overlaps other wildlife and environmental legislation that is currently in place, including the Wildlife Protection Act 1972, the Forest (Conservation) Act, 1980, and the Environmental Protection Act, 1986. This leads to ambiguity and time-consuming in decision-making. Courts have assumed importance for dealing with these inadequacies; however, institutional changes are necessary to establish the coherence of institutional structures and the consequent effectiveness of enforcement.

- 3. Biological Resources Uncertainty:** There is uncertainty about the kind of biological resources that are covered by the act. For instance, while edible items like wheat, rice, or oil bought from the market that have been made after milling need NBA certification as seeds or natural produce themselves constitute a biological resource.³⁸ When the applicant pays the value of the edible item or any natural product used by the trader or manufacturer's store at the time of purchase, there is uncertainty as to whether the applicant should be required to share advantages with the NBA. Around 13 cases were brought against the Madhya Pradesh State Biodiversity Board (SBB) in 2013 by a number of private Indian companies, including those involved in Ayurveda medications, oil, paper, coal extracting, liquor, cosmetics and flavours, and food and industrial processors, alleging that the raw materials utilized by the aforementioned companies were Indian biological resources under Section 7 of the Act and there was uncertainty as to whether the applicant should be responsible for paying the NBA's benefit sharing amount on a case-by-case basis or for paying the value of the item used to the trader's store at the time of purchase. In response to the corporations' approach to the *National Green Tribunal* (NGT), the authority was instructed to develop the ABS guidelines. In *Divya Pharmacy v. State of Uttarakhand*, the court ruled that the Uttarakhand SBB had the authority to demand a benefit-

36. *Pramod Kalita v. Union of India* (2023) GAHC/PIL/18

37. UNESCO, *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* (February 02, 1971)

38. Vijaya Choudhary, "Indian Biodiversity Act and Model ABS Agreement-Related IPR issues," *LexOrbis* June 04, 2020, available at: <<https://www.asiaiplaw.com/article/indian-biodiversity-act-and-model-abs-agreementrelated-ipr-issues>> (Last visited on January 13, 2025) 46 AIR 2016 Writ Petition (M/S) No. 3437 47.

sharing amount from Divya Pharmacy, making it clear that domestic businesses that purchase biological resources are subject to the same benefit-sharing requirements under Section 3(2) of the ABS Guidelines, 2014 as foreign entities. When it comes to biological resources that are exempt under the legislation, there is a procedural gap. The patent application process may be delayed if words such as value-added goods and processed biological resources are not clear. Even if laws like the Forest Rights Act, 2006, and the Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA) confer rights to indigenous communities for maintaining biodiversity, the laws are not effectively being practiced. The Niyamgiri Hills case³⁹ established that local people should give or refuse their consent to a project; the Supreme Court affirmed the *Dongria Kondh's* right to do the latter against a mining project. However, many of these communities still struggle to assert their rights with administrative hurdles. Indian legislation for biodiversity conservation has particularly centered on forest and protected areas with little regard toward urban and aquatic systems.

4. **Traditional Practitioner Exemption:** Ayush practitioners are free from the Biological Diversity Act, 2002's provisions under the Biological Diversity (Amendment) Act, 2023, which also makes it easier for the Indian traditional medicine industry to acquire biological resources and traditional knowledge. However, legal professionals have voiced worries that loosening regulations for the industry would harm the environment and violate the idea of sharing economic rewards with native populations.⁴⁰ Allowing the Ayush sector to access biodiversity and traditional knowledge without the state biodiversity boards' knowledge or consent could lead to commercial use without benefit-sharing with knowledge owners.
5. **Overlapping of Laws:** There are legal issues resulting from the overlap between the WPA⁴¹ and the BDA⁴¹, especially when it comes to the regulation of biological resources. The primary goal of the WPA is to conserve wild animals and their ecosystems; Section 9 forbids hunting, and Section 49B

39. *Orissa Mining Corporation Ltd v. Ministry of Environment*, (2013) 6 S.C.R. 881

40. Jayashree Nandi, "Biodiversity Funds Hardly Spent on Its Conservation," *Hindustan Times*, May 09, 2023, available at: <<https://www.hindustantimes.com/india-news/analysis-reveals-state-biodiversity-board-funds-notbeing-used-for-conservation-in-new-delhi-raising-concerns-about-allocation-disparities101683570661396.html>> (Last visited on January 13, 2025)

41. The Wildlife (Protection) Act, 1972 (Act 53 of 1972) 51 The Biological Diversity Act, 2002 (Act 18 of 2003)

regulates the trade in wildlife goods. By contrast, Section 3 of the BDA governs the use and access to biological resources and traditional knowledge for research and commercial reasons, requiring prior authorization from the National Biodiversity Authority. The Supreme Court stressed the significance of cooperation between various environmental legislation in the *Indian Council for Enviro-Legal Action (ICELA) v. Union of India*⁴², which is significant in this regard. However, the ruling did not elucidate the jurisdiction between the WPA and BDA. It becomes more difficult to allow access to biological resources and enforce conservation measures when there are unclear criteria that lead to overlapping authority. Furthermore, the BDA, the FRA,⁴³ and the FCA⁴⁴ overlap further. Forest-dwelling communities are granted rights over forest resources, including biological resources, under Section 3(1) of the FRA, while Section 2 of the FCA limits the diversion of forest land for applications other than forests. But even these communities are required by Section 7 of the BDA to obtain permission before using biological resources for commercial purposes. Conflict arises from this overlap when communities that live in forests are torn between the BDA's compliance requirements and their FRA rights. An instance where the Supreme Court highlighted the tensions between FRA and economic development but did not explicitly address them is the Niyamgiri Hills Case⁴⁵. The BDA and the EPA⁴⁶ also have similarities, especially when it comes to biodiversity preservation and environmental conservation. Section 3(1) of the EPA gives the central government the authority to take action to safeguard and enhance the environment, including biodiversity. The BDA, on the other hand, regulates access to biological resources and the advantages that come from using them.

This regulatory overlap was made clear in “*Vellore Citizens Welfare Forum v. Union of India*”, in which the Supreme Court addressed environmental preservation but left open the question of how the BDA and EPA should work together to preserve biodiversity. Industries frequently encounter dual compliance requirements under the EPA and the BDA when they apply for approval to exploit resources in ecologically vulnerable areas, which can result in legal ambiguities and inefficiencies.

42. AIR 1996 Supp. (1) S.C.R. 507

43. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (Act 2 of 2007)

44. The Forest (Conservation) Act, 1980 (Act 69 of 1980)

45. *Orissa Mining Corporation v. Ministry of Environment & Forest & Others* (2011) Writ Petition (Civil) No. 180

46. Environment Protection Act, 1986 (Act 29 of 1986) 57 AIR 1996 Supp. (5) S.C.R. 241.

The BDA's overlap with the Patents Act of 1970 and the PPVFR Act⁴⁷ further complicates the legal environment. IPR on biological resources must be filed with the NBA's prior approval under Section 6 of the BDA, while the Patents Act's Section 10(4)(d)(ii) requires disclosure of the biological material's geographical origin but does not require adherence to the BDA. This is pertinent to the *Novozymes A/S v. Union of India* case, in which the court determined that compliance with the BDA's access and benefits-sharing clauses was necessary for the patenting of biological material produced from Indian resources. This case clarified the necessity of adhering to the BDA prior to patenting biological resources, but it also brought to light the ambiguity surrounding the coordination between the BDA and the "Patents Act," specifically with regard to whether patents issued under the Act automatically meet BDA requirements. In summary, the BDA presents serious legal issues because of its overlapping requirements with other intellectual property and environmental legislation, such as the Patents Act, the WPA, the FCA, and the EPA. The cases considered highlight the necessity of more precise legal frameworks and improved interoperability across these Laws in order to clear up any misunderstandings and guarantee successful biodiversity conservation while upholding the rights of stakeholders and local populations.

6. **Monetary Punishable:** The Act decriminalizes the offenses and imposes monetary penalties ranging from Rs 1 lakh to Rs 50 lakh, with an extra penalty of up to Rs 1 crore imposed for persistent violations. Additionally, the Act stipulates that an adjudicating officer will conduct an investigation and determine the appropriate penalty. Thus, the monetary punishment is too low, and there is no punishment provided for such offences. According to experts, biodiversity law is unclear about which offenses should carry which penalties.⁴⁸
7. **Funding Issues:** The State Biodiversity Boards (SBBs) and the National Biodiversity Authority (NBA) are not equipped to adequately monitor compliance. State Biodiversity Boards have disclosed that money given to them by the Federal Government and State Governments is rarely utilized for the conservation of biodiversity, which is their main objective. Even though

47. The Plant Variety Protection and Farmers Rights Act, 2001 (Act 53 of 2001) 59 AIR 2013 6 SCC 1

48. Tanvi Deshpande, "Weekend Forest, Biodiversity Laws Impact India's Environment In 2023", *IndiaSpend*, Dec 27, 2023, available at: <https://www.indiaspend.com/explainers/weakened-forest-biodiversity-laws-impactindias-environment-in-2023-887117> (Last visited on January 14, 2025) 61.

the Act and its implementing rules don't specify how much NBA must give to any given state or how that amount must be determined, the disparity between the states is concerning.⁴⁹

- 10. Interference in Indigenous peoples' lives:** India's great biodiversity of plant genetic resources directly supports the traditional livelihoods of millions of rural communities. As the search for traditional and genetic resources intensifies with the help of policy and regulatory reforms, the livelihoods of Indigenous people, particularly those living in forest-dependent communities, have been particularly impacted in recent years⁵⁰. The privatization of genetic resources or biodiversity is growing. Research reveals that the public sector has a significantly lower number of patents than the private sector, indicating that multinational corporations dominate the commercialization of biodiversity. As a result, the cost of necessary and life-saving medications has increased. Another example is that where the ecological and cultural heritage of Adivasi people in Odisha was at risk due to extensive mining initiatives in the Niyamgiri Hills; yet, local protests were frequently ignored in favour of the mining's Financial gains. This demonstrates the difficulty in striking a balance between conservation initiatives and community rights and the state's larger economic growth ambition.

5. CONCLUSION

Natural Resource Management and Protection are crucial because of the connection between biodiversity and the law. Due to increasing threats posed by habitat destruction, climate change, and species overexploitation worldwide, robust laws will provide critical means for ensuring the biological diversity of the planet. India, with its vast and varying bio-geographical zones, has progressed considerably in evolving a legal regime for the protection of biodiversity. Crossborder conservation and compliance with global biological conventions are crucial for conserving and restoring transboundary genetic resources and creating a common vision for

49. Jyotika Sood, "Biodiversity Authority Needs Autonomy", *Down To Earth*, March 05, 2014, available at: <<https://www.downtoearth.org.in/environment/biodiversity-authority-needs-autonomy—43675>> (Last visited on January 14, 2025).

50. Krishna Sood, "Changes in Biodiversity Law and Its Impact on Regulation", *IMPR*, Jan 10, 2022, available at: <<https://www.impriindia.com/insights/biodiversity-law-regulation>> (Last visited on January 14, 2025).

protecting the Earth's biotic resources.⁵¹ Given the complexity and multifaceted nature of biodiversity conservation, an integrative strategy that promotes collaboration between the state, local government, and private players is essential in biodiversity laws. This method acknowledges that no one entity's isolated efforts will be sufficient to effectively preserve biodiversity. It is necessary to consult the local communities, the indigenous peoples, or the other interested parties who have unlimited knowledge of the biological resources while drafting any legislation affecting their rights and their life. It is necessary to develop forums for continuous communication between government departments and interested groups as well as local communities to obtain their views on present acts and potential modifications, for example, promoting people's participation in biodiversity survey exercises through survey studies where several individuals offer their services in documenting a certain region's flora and other wildlife. Effective environmental conservation depends on the state and local communities working together. Ethical benefit-sharing, sustainable resource management, and biodiversity protection can all be achieved by combining state policies and legal frameworks with local knowledge, rights, and practices. The BDA, FRA, and WPA are just a few of the laws in India that have been created to empower local communities and make it easier for them to participate in environmental conservation. Sustainable Development and Ecosystem preservation can be greatly aided by the cooperation of these regulations and community involvement. Further, it is necessary to promote sustainable harvesting practices, for example, the conservation of timber and non-timber forest products through certification for sustainable production and sparing destruction of resources that negatively impact conservation.

There is a need for elaborate and explicit guidelines for the local bodies and BMCs to determine ABS norms. India can adopt a multi-tiered system for zoning and protected area designation from the USA, where distinct zones such as national parks, wildlife refuges, wilderness areas, etc., have varied levels of restriction and specific conservation goals. India would be better equipped to strike a balance between sustainable human activity and conservation priorities as a result. Like the US model, India could also use a variety of funding sources, such as grants, entry fees, and public-private partnerships. Communities in the UK directly participate in habitat restoration, species conservation, and ecological monitoring with LNPs

51. Boris Erg, Maja Vasiljevic, *et.al.*, *Initiating Effective Transboundary Conservation: A practitioner's guideline based on the experience from the Dinaric Arc*. Gland 06 (IUCN, Gland, Switzerland and Belgrade, Serbia, 2012).

(Local Nature Partnerships) and BAPs (Biodiversity Action Plans). By combining these strategies, India may create a model for biodiversity conservation that is socially inclusive, economically viable, and technically sound. Further, there is a need to relax the rules for permission for research activities even the scientific community as a whole agrees to relax the rules that the types belong to science and should be made available to legitimate researchers upon request. To promote cross-border research and knowledge exchange regarding Indian biological resources, certain provisions that are conducive to researchers must be included.