

When Nature Raises Its Voice: From Anthropocentrism to Biocentrism and the Judicial Expansion of Article 21 in Reviving Ecological Rights in India's Climate Change Jurisprudence

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Abstract

The development of Indian environmental jurisprudence has shifted from anthropocentrism to biocentrism, particularly in the context of climate change litigation. The paper will evaluate the constitutional changes to Article 21 that extended its defense of autonomous mental and physical rights to encompass environmental protections. While environmental laws and policies have long served as crucial tools for protecting ecosystems, they often struggle to adapt to the rapidly evolving threats. Though court decisions have protected natural ecosystems even when they lack benefits for human beings. Judicial decisions from today demonstrate the court's backing of climate justice in their pursuit of sustainable development. This paper evaluates court-established environmental rights that stem from the application of intergenerational equity enabled by precautionary principles and public trust doctrine principles. The object of this paper is to explore how advocacy of biocentrism through legal support can build national and global dialogues about ecological rights. Through the expansion of Article 21, judicial decisions can transform climate change issues, which emerge through establishing a framework based on nature-related rights. The research methodology for this article is doctrinal in nature.

Keywords: Anthropocentrism, Climate change, Biocentrism, Article 21, Judicial approach, IPR.

Introductions

The transition from anthropocentrism to biocentrism represents a significant shift in environmental ethics, moving from a human-centred perspective to one that values all living beings.¹ Anthropocentrism, which places humans at the centre of moral consideration, has been critiqued for legitimising practices that contribute to ecological crises, such as climate change. On the other hand, Biocentrism recognises that

¹ E. Tokay, "Climate Change, Environmental Philosophy, and Anthropocentrism", in *Encyclopedia of Environmental Philosophy and Ethics* (Springer International Publishing, (2023) 361–376.

every form of life has value in its own right, not merely because it serves human needs, promoting a harmonious relationship between humans and nature. Embracing this perspective is essential for addressing environmental challenges and ensuring that our interaction with the natural world remains balanced and sustainable for future generations.² In India, this transition is reflected in the Judicial expansion of Article 21 of the Constitutions which guarantees the right to life and personal liberty. Over the years, the Indian courts have expanded the meaning of Article 21 and made it clear that the right to life is not limited to mere survival. It also includes the right to live in a healthy environment, with clean air, safe drinking water, and protection from environmental harm. Through these interpretations, the judiciary has gradually strengthened the idea that environmental protection forms an important part of ecological rights.³ Indian Environmental jurisprudence shows a gradual shift from a human-centred approach to one that also respects the value of nature in itself. By widening the scope of Article 21, the Judiciary has played an important role in environmental and climate-related cases, directing authorities to fulfil their duties toward environmental protection. By interpreting constitutional provisions to include ecological rights, Indian courts have transformed environmental commitments from broad policies into enforceable duties. However, this shift brings important concerns in a country like India, where economic growth is essential for poverty alleviation and improved living standards. There is also a need to incorporate ecological rights into economic policies and to promote cooperation among government, business and civil societies. It also highlights the importance of intellectual property rights in encouraging the development of green technologies and sustainable innovations to reduce environmental harm. By supporting research and protecting new inventions, India can respond to environmental challenges while continuing economic growth. This study seeks to contribute to a legal framework that balances environmental protection with human and developmental needs to secure a sustainable future.⁴

Anthropocentrism and Biocentrism

The transition from anthropocentrism to biocentrism represents a significant shift in environmental ethics, moving from a human-centred perspective to one that values all living beings. Anthropocentrism, which places human beings at the centre of moral considerations, has been criticised for encouraging and contributing to ecological crisis such as climate change.⁵ Biocentrism, on the other hand, recognises that all living beings have value in themselves. It supports a respectful and balanced relationship between humans and nature. Adopting this view is important for responding to environmental problems and promoting long-term sustainability.

Anthropocentrism:

Anthropocentrism views humans as the central or most significant entities in the universe, often leading to the exploitation of nature for human benefits.⁶ Many critics argue that this perspective has contributed

² A. Kothari and T. Patel, “Ecological Jurisprudence in India: From Anthropocentrism to Biocentrism”, (2020) 11(2) *Journal of Indian Law and Society* 45

³ Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India: Cases and Materials* (4th edn., Oxford University Press, (2021).

⁴ A. Jain, A. Gurtoo, E. Eppinger, P. Vimalnath and F. Tietze, “Exploring the Interplay between Intellectual Property Models and Sustainability Transitions: A Multi-Level Analysis”, *Business Strategy and the Environment* (2024).

⁵ E. Tokay, “Climate Change, Environmental Philosophy, and Anthropocentrism”, in *Encyclopedia of Environmental Philosophy and Ethics* (Springer International Publishing, 2023) 361–376.

⁶ A. Mosolov, “Competition and Integration in the Search for a New Paradigm for Maintaining Biodiversity and Ecosystem Stability”, (2023) 390 *E3S Web of Conferences* 07036.

to environmental degradation and ecological imbalances.⁷ Environmental anthropocentrism presents a balanced approach to the relationship between humans and nature. It accepts that human beings may use natural resources to meet their needs, but such use must be careful and responsible. This view does not support the reckless exploitation of the environment. Instead, it recognizes that while human interests are important, they should be pursued in a way that maintains ecological balance and protects nature from serious harm.⁸

Biocentrism:

Biocentrism is a nature-centered ethical perspective that holds that all living beings have inherent value and deserve moral consideration. The term was popularised by the American philosopher Paul W. Taylor in his work “Respect for Nature: A Theory of Environmental Ethics. According to these views, humans are not the only beings with intrinsic worth; every form of life has value in its own right.”⁹ This idea contrasts with Anthropocentrism, which places human at the centre and treats nature mainly as a resource for human use. Biocentrism instead emphasises that human are part of a broader ecological community where all species are interconnected and equally important. It challenges the human-nature dichotomy by promoting the idea that nature is not merely a resource for human use but has intrinsic value.¹⁰ This perspective aligns with the principles of “Reverence for life,” highlighting the interdependence of all life forms.¹¹ The perspective is closely link with Deep Ecology which highlight the interdependence of all forms of life on earth. While biocentrism presents an important alternative to the human-centered view of nature, it also faces certain criticisms. Some scholars argue that this perspective may underplay the unique abilities and responsibilities of human beings in addressing environmental problems and protecting ecosystems. Moreover, moving from an anthropocentric outlook to a biocentric one requires considerable changes in social attitudes, ethical thinking, and cultural practices, which may not be easily accepted by societies that have long prioritized human interests. Despite these concerns, the increasing attention given to biocentric ideas shows their relevance in current environmental debates, particularly in encouraging more responsible and sustainable ways of interacting with the natural world.¹² By encouraging respect and responsibility toward nature, biocentrism promotes the protection of biodiversity, conservation of ecosystems, and a more balanced relationship between humans and the natural world.

Significance

The significance of this study lies in examining the transformation of environmental jurisprudence from a purely human-centred approach to a broader life-centred perspective that recognizes the inherent value of nature. This shift reflects an emerging understanding that the environment should not be viewed only as a resource for human use but as a living system that deserves protection in its own right. In India, the judiciary has played a vital role in this development by interpreting Article 21 of the Constitution of India to include the right to a healthy environment, such as access to clean air, safe water, and a stable ecological balance. Through various decisions, courts have also addressed issues related to climate change and have

⁷ E. Tokay, “Climate Change, Environmental Philosophy, and Anthropocentrism”, in *Encyclopedia of Environmental Philosophy and Ethics* (Springer International Publishing, 2023) 361–376.

⁸ Ibid

⁹ Paul W. Taylor, *Respect for Nature: A Theory of Environmental Ethics* (Princeton University Press, 1986)

¹⁰ A. Mosolov, “Competition and Integration in the Search for a New Paradigm for Maintaining Biodiversity and Ecosystem Stability”, (2023) 390 *E3S Web of Conferences* 07036.

¹¹ Ibid

¹² Rita Fortuna, Matthieu Paquet et al., “Maternal Allocation in Relation to Weather, Predation and Social Factors in a Colonial Cooperative Bird,” (2021) 90(5) *Journal of Animal Ecology* 1122–1133.

encouraged greater environmental responsibility from the state. Climate change litigation therefore, shows how constitutional interpretation can bridge the gap between environmental policy and practical action. By emphasizing ecological protection along with development, this approach also supports the idea of intergenerational equity, ensuring that future generations inherit a healthy and Sustainable planet.

Review of literature

Suna Rani Paul (2023) Highlight that the Indian judiciary has interpreted Article 21 to encompass the right to a clean environment, emphasising rights to potable water and pollution-free air. Landmark judgments highlight the judiciary's role in safeguarding environmental interests amidst climate change challenges.¹³ Christopher Campbell-Duruflé, Bernard Duhaime (2024) in their work, emphasizes that States have an obligation under Article 21 to prevent significant environmental harm, which includes protecting rights to life and personal integrity, directly linking judicial responses to climate change mitigation and adaptation efforts.¹⁴ Franco Vivian(2023) discusses the shift from anthropocentrism, viewing humans as superior, to biocentrism, recognizing humans as one among many living beings. This transition emphasizes the moral worth of all animals and the need for a more inclusive ethical perspective.¹⁵ Ela Tokay(2023) highlighting its role in climate change and presenting biocentrism as a non-anthropocentric alternative. It emphasizes the need to recognize values upheld by proposed solutions, suggesting a shift towards biocentric perspectives for addressing environmental issues.¹⁶ Parul Kumar and Abhayraj Naik (2024) discuss the Supreme Court's judgement in *M.K. Ranjitsinh* expands Article 21 by establishing a constitutional right to be free from climate change effects, thereby reviving ecological rights in India and enhancing constitutional climate litigation's evolution.¹⁷ Deepa Badrinarayana(2009) highlights that climate change challenges constitutional rights in India, particularly Article 21, emphasizing the need for judicial expansion to protect ecological rights. It argues that existing legal frameworks struggle to address these rights amid international complexities.¹⁸ Sam Adelman (2020) discusses the need for a legal paradigm shift towards climate justice, emphasizing the inadequacies of current laws that perpetuate anthropocentrism. It highlights the importance of new materialist legal theory in recognizing the interconnectedness of humans and nature, which aligns with the revival of ecological rights. While it does not specifically address Article 21 in India, it advocates for legal frameworks that reflect the co-dependence of ecosystems and living entities, promoting a biocentric approach in climate litigation.¹⁹ Eduardo Gomes Salgado et al. (2023) studies the Green Patents Program in Brazil exemplifies how intellectual property rights (IPR) can encourage the development of environmentally sustainable technologies. By expediting the examination of patent applications related to green technologies, the program fosters innovation aimed at addressing

¹³ S. R. Paul, "Climate Change and Renewable Energy Consumption Obligations: Response of the Indian Judiciary", (2023) 5(2) *GLS Law Journal* 45

¹⁴ Christopher Campbell-Duruflé and Bernard Duhaime, "Amicus Curiae Brief Presented to the Inter-American Court of Human Rights in Relation to its Advisory Opinion on the Climate Emergency and Human Rights" (Toronto Metropolitan University).

¹⁵ F. Viviani, "From Anthropocentrism to a Cosmopolitan Biocentrism: Reflections on Animal Ethics", (2023) 6(1) *Annals of Advanced Biomedical Sciences*.

¹⁶ E. Tokay, "Climate Change, Environmental Philosophy, and Anthropocentrism", in *Encyclopedia of Environmental Philosophy and Ethics* (Springer International Publishing, 2023) 361–376.

¹⁷ P. Kumar and A. Naik, "India's New Constitutional Climate Right" (2024).

¹⁸ D. Badrinarayana, "The Emerging Constitutional Challenge of Climate Change: India in Perspective" (2009),

¹⁹ S. Adelman, "The Sustainable Development Goals, Anthropocentrism and Neoliberalism", in *Sustainable Development and International Law* (Edward Elgar Publishing, 2018).

environmental issues. This mechanism not only stimulates the creation of solutions that mitigate environmental degradation but also supports socioeconomic growth and sustainable development, benefiting both current and future generations. Thus, IPR serves as a vital tool in combating environmental challenges.²⁰ Usama Al-mulali, et.al (2024) in their study highlights that introducing patents on environmental technologies is crucial for encouraging collaboration in technology development aimed at addressing global climate change. By promoting intellectual property rights (IPR) in this context, it can stimulate innovation in green technologies, thereby mitigating environmental degradation. The study emphasizes that renewable energy, green finance, and patents play significant roles in reducing carbon emissions and ecological consequences, particularly in E7 countries, underscoring the importance of IPR in fostering sustainable environmental practices.²¹ Modupe Oluyemisi Oyebanji, et.al (2022) in their literary work Encourage intellectual property rights (IPR) as a mechanism to curb environmental degradation is supported by the study's findings, which indicate that patents on environmental technologies enhance sustainability in Spain. The research suggests that expanding patent protection can facilitate the rapid development of eco-friendly technologies, thereby reducing energy consumption and CO₂ emissions. Policymakers are advised to promote collaboration between public and private sectors in environmental technologies, which can lead to improved environmental quality and economic development.²² Akriti Jain, Anjula Gurtoo, et.al (2024) in their work, “Exploring the interplay between intellectual property models and sustainability transitions: A multi-level analysis” suggests that leveraging broadly open outbound IP models alongside closed or selectively open models can balance widespread use with access control, thereby achieving significant social sustainability. By encouraging firms to share their intellectual property (IP) for the diffusion of sustainable innovations, it creates a platform for prescribing sustainable IP incentives. This approach can effectively contribute to curbing environmental degradation by promoting collaborative efforts and enhancing the accessibility of sustainable technologies across various sectors.²³

Research Gap

Although environmental jurisprudence and climate change litigation have received growing scholarly attention, there is still limited research examining the relationship between environmental law, judicial activism, and intellectual property rights (IPR) together. In the Indian context, courts have gradually moved from a purely human-centred understanding of environmental protection toward a broader perspective that recognises the importance of protecting all forms of life. However, detailed studies on how this shift is reflected in judicial decisions and how it contributes to the development of ecological rights remain limited. The interpretation of Article 21 of the Constitution of India by Indian courts has expanded the scope of the right to life to include environmental protection, yet its connection with the global movement advocating rights of nature has not been examined in depth. This gap is particularly significant for India, where rapid industrial growth and the impacts of climate change continue to place

²⁰ E. G. Salgado and R. A. da S. Franchi, “Green Technologies: The Role of Green Patents for Innovation, Preservation and Sustainable Development”, (2023) 17(8) *Revista de Gestão Social e Ambiental (RGSA)*.

²¹ U. Al-mulali, A. Raboshuk, R. L. Ibrahim and B. Saboori, “Evaluating the Asymmetric Effect of Patents Driven Environmental Technologies on Environmental Degradation in the E7 Countries: An Extended Model of STIRPAT”, (2024).

²² M. O. Oyebanji, R. A. Castanho, S. Y. Genç and D. Kirikkaleli, “Patents on Environmental Technologies and Environmental Sustainability in Spain”, (2022) 14(11) *Sustainability* 6670.

²³ A. Jain, A. Gurtoo, E. Eppinger, P. Vimalnath and F. Tietze, “Exploring the Interplay between Intellectual Property Models and Sustainability Transitions: A Multi-Level Analysis”, *Business Strategy and the Environment* (2024).

increasing pressure on natural resources. Another area that requires closer study is the role of intellectual property rights in addressing environmental challenges. While IPR systems are designed to encourage innovation, there has been limited discussion on how these legal frameworks can be used to promote technologies that help reduce environmental damage. In many cases, the focus of IPR protection remains largely commercial, with less attention given to environmental sustainability. This creates a gap between technological development and ecological protection. The present study, therefore, seeks to explore how IPR policies can better support the development of environmentally friendly technologies and sustainable practices, thereby aligning intellectual property regulation with broader environmental goals.

Judicial expansion of Article 21

Respect for nature has long been part of India's cultural traditions. Ancient texts such as the Atharvaveda reflect this idea by describing the Earth as a place blessed with nature's gifts and reminding human beings to live in harmony with it. This cultural understanding is also reflected in the Constitution of India, which provides a framework for the protection and preservation of the environment. Without a healthy natural environment, the enjoyment of life itself becomes difficult.²⁴ The Indian judiciary has played a major role in developing environmental law by expanding the meaning of Article 21 of the Constitution of India. Originally, Article 21 only guaranteed the protection of life and personal liberty. However, through judicial interpretation, the Supreme Court gradually broadened its scope to include environmental rights. The Court recognised that the right to life cannot be meaningful without a healthy environment.²⁵ As a result, rights such as access to clean air, safe drinking water, and a pollution-free environment have been treated as essential parts of the right to life. Over time, this interpretation has also linked environmental protection with ecological balance and even climate stability. Through several landmark judgments, the judiciary has therefore made environmental protection a constitutional concern and strengthened the foundation of environmental jurisprudence in India. The legal transformation evidences a complete shift from human-centred to nature-first perspectives, which recognise essential value in both biological elements alongside human needs.²⁶ The expansion of Article 21 of the Constitution of India to include environmental protection has played an important role in strengthening ecological rights in India. However, some scholars point out that giving too much emphasis to ecological rights through judicial interpretation may create challenges in balancing environmental protection with present social and economic needs. As a developing country, India must also focus on economic growth, poverty reduction, and improving living standards. Therefore, environmental protection should not rely only on judicial decisions. The legislature, executive authorities, businesses, and society must also work together to create balanced and effective environmental policies. Such cooperation can help develop solutions that protect nature while also supporting economic development and the well-being of communities.²⁷

²⁴ Press Information Bureau, Government of India, "Environment Protection under Constitutional Framework of India," 4 June 2014, available at: <https://www.pib.gov.in/newsite/printrelease.aspx?relid=105411> (last visited Mar. 14, 2026).

²⁵ Anubhav Pandey, "Article 21 of the Constitution of India: Right to Life and Personal Liberty," *Lawctopus* (Academike Blog), available at: <https://www.lawctopus.com/academike/article-21-of-the-constitution-of-india-right-to-life-and-personal-liberty/> (last visited Mar. 14, 2026)

²⁶ A. Kothari and T. Patel, "Ecological Jurisprudence in India: From Anthropocentrism to Biocentrism", (2020) 11(2) *Journal of Indian Law and Society* 45.

²⁷ R. Sharma, "Corporate Social Responsibility and Environmental Sustainability in India: A Legal Perspective", (2020) 163(4) *Journal of Business Ethics* 599.

Judicial development

The Indian judiciary has played a pivotal role in expanding the scope of Article 21 to include environmental rights, recognizing that a clean and healthy environment is essential for the enjoyment of life and personal liberty in various instances:

- **M.C. Mehta vs. Union of India (1987)**

The Supreme Court held that the right to life under Article 21 includes the right to a clean and healthy environment. This case set a precedent for future environmental litigation, emphasising the importance of environmental protection for human well-being. The court's interpretation of Article 21 has been instrumental in addressing issues such as air and water pollution, deforestation, and wildlife conservation.

²⁸

- **Subhash Kumar v. State of Bihar (1991)**

The Supreme Court of India explicitly recognized that the right to life under Article 21 of the Constitution includes the right to a pollution-free environment. The Court held that environmental degradation directly affects the quality of life, thereby bringing environmental protection within the ambit of fundamental rights. This judgment marked a significant step in expanding Article 21 to encompass ecological rights, emphasizing the state's duty to safeguard the environment for its citizens.²⁹

- **Vellore Citizens Welfare Forum v. Union of India (1996)**

The Supreme Court further advanced environmental jurisprudence by introducing the principle of sustainable development. The Court ruled that the right to life under Article 21 includes the right to a healthy environment and stressed the need to balance economic development with ecological sustainability. This landmark judgment reinforced the "polluter pays" principle and highlighted the judiciary's role in ensuring environmental justice, setting a precedent for future climate change and environmental litigation in India. Both cases underscore the judiciary's pivotal role in interpreting Article 21 to address environmental challenges.³⁰

- **Indian Council for Enviro-Legal Action v. Union of India (1996)**

This judicial proceeding focused on the environmentally polluted industrial sector while it studied the implementation of environmental statutes. According to Article 21 of the Constitution, the right to life comprises the fundamental right to a pollution-free environment and the Court now requires manufacturing industries to enforce pollution control practices. Through this judgment, the authorities established the "polluter pays" principle to enhance environmental governance.³¹

- **T.N. Godavarman Thirumulpad v. Union of India (1996)**

The Supreme Court of India used Article 21 of the Constitution to discuss both deforestation issues and forest protection measures against the right to life during this case. The Court adopted two essential principles: strong forest management principles and national measures aimed at biodiversity protection for coming generations.³²

- **Arjun Gopal v. Union of India (2016)**

The court examined how Diwali firecracker emissions produced atmospheric pollution in this particular case. Air pollution health risks against children moved the Court to demand firecracker usage and selling

²⁸ M.C. Mehta v. Union of India (1987) 1 SCC 395

²⁹ Subhash Kumar v. State of Bihar (1991) 1 SCC 598.

³⁰ Vellore Citizens Welfare Forum v. Union of India (1996) 5 SCC 647.

³¹ Indian Council for Enviro-Legal Action v. Union of India (1996) 3 SCC 212

³² T.N. Godavarman Thirumulpad v. Union of India, AIR 1997 SC 1228.

limitations based on Article 21. Through this judgment the court showcased its ability to handle environmental health matters.³³

- **M.K. Ranjitsinh v. Union of India (2024)**

The Supreme Court recognized a constitutional right to be free from the adverse effects of climate change, drawing upon Articles 14 and 21. This landmark judgment underscores the judiciary's commitment to addressing climate change as a fundamental rights issue. The court's decision reflects a broader global trend towards recognising the impacts of climate change on human rights and the need for legal frameworks to address these challenges.³⁴

The judicial expansion of Article 21 has transformed it into a powerful tool for environmental advocacy in India. By interpreting the right to life to encompass environmental rights, the judiciary has reinforced the state's duty to protect natural resources and ensure sustainable development. This progressive interpretation has not only strengthened India's environmental jurisprudence but also empowered citizens to hold authorities accountable for environmental governance.

Recognition of Ecological Rights

In recent years, Indian environmental jurisprudence has gradually moved toward recognizing the importance of protecting nature beyond purely human interests. One emerging idea in this context is environmental personhood, which suggests that elements of nature such as rivers, forests, and animals should be treated as legal entities with certain rights. This perspective challenges the traditional human-centered approach to environmental protection and reflects a broader shift toward ecological justice. An important step in this direction can be seen in the decision of the Supreme Court in *Animal Welfare Board of India v. A. Nagaraja* (2014). In this case, the Court emphasized that animals also possess intrinsic value and should be protected from cruelty and exploitation. The judgment interpreted the spirit of Article 21 of the Constitution of India along with constitutional principles on compassion for living creatures, thereby highlighting that the protection of animals forms an important part of India's constitutional commitment to environmental and ethical values.³⁵ The Indian judiciary has also contributed to discussions on the rights of nature. In certain judicial pronouncements, courts have recognized rivers and other natural resources as entities that deserve legal protection in their own right. For instance, the High Court in *Mohd. Salim v. State of Uttarakhand* declared the Ganga River and Yamuna River as legal persons, acknowledging their ecological significance and the need for stronger protection.³⁶ Such developments highlight the growing recognition that human well-being is closely connected with the health of ecosystems. By acknowledging this relationship, Indian courts have contributed to the gradual development of a more nature-respecting and ecologically conscious legal framework.

Climate Litigation and Environmental Governance

Climate litigation in India has increasingly contributed to the development of environmental governance. Courts have played an important role in interpreting constitutional provisions in a manner that links environmental protection with fundamental rights. Through judicial interpretation, the right to life under Article 21 of the Constitution has been expanded to include the right to a clean and healthy environment.

³³ Arjun Gopal v. Union of India, (2019) 13 SCC 523.

³⁴ M.K. Ranjitsinh v. Union of India, 2024 SCC OnLine SC 570.

³⁵ Animal Welfare Board of India v. A. Nagaraja, (2014) 7 SCC 547 (SC).

³⁶ Mohd. Salim v. State of Uttarakhand, Writ Petition (PIL) No. 126 of 2014, decided on 20 March 2017.

Judicial Approach in Climate-Related Matters

Indian courts have often adopted an active approach in environmental cases. By addressing issues such as pollution, ecological degradation, and climate change, the judiciary has helped shape environmental accountability. Landmark decisions such as *M. C. Mehta v. Union of India*³⁷ laid the foundation for the development of principles like absolute liability and strengthened environmental protection through judicial interpretation. More recently, *M. K. Ranjitsinh v. Union of India*³⁸ highlighted the connection between climate change and fundamental rights, emphasizing the responsibility of the State to take measures for environmental protection.

Influence on Environmental Policy and Legal Frameworks

Judicial decisions in environmental and climate-related cases have also influenced the development of policy and regulatory frameworks in India. Court directions and interpretations have encouraged governments to strengthen environmental regulations and implement measures addressing climate change. In this process, the judiciary has underscored the importance of coordinated action among governmental institutions, industries, and civil society in dealing with environmental challenges.

Balancing Development and Environmental Protection

The judicial expansion of Article 21 to include ecological rights represents an important step toward recognising the intrinsic value of nature. However, this development also raises significant questions regarding the balance between environmental protection and economic development. In a country like India, where developmental needs remain pressing, courts and policymakers often face the difficult task of reconciling environmental concerns with projects aimed at economic growth.

- **Tension Between Development and Environmental Conservation:**

Several judicial decisions reflect the continuing tension between development and environmental protection. In some cases, courts have permitted large infrastructure or development projects despite environmental concerns. For instance, the decision relating to the *Narmada Bachao Andolan v. Union of India*³⁹ concerning the Sardar Sarovar Dam illustrates how developmental priorities have sometimes been given greater weight. The case demonstrates the challenge of balancing ecological preservation with the need for infrastructure, electricity generation, irrigation, and economic progress. This tension highlights the complexities involved in pursuing ecological justice within a rapidly developing society.

- **Need for a Balanced and Sustainable Approach:**

Given these challenges, it becomes necessary to adopt an approach that carefully balances environmental protection with human development. Protecting ecological systems while ensuring economic progress requires thoughtful policymaking and responsible governance. Strengthening environmental regulations, encouraging the use of cleaner and sustainable technologies, and promoting greater public participation in environmental decision-making can contribute to this balance. Such an approach recognises that long-term development cannot be separated from environmental sustainability and that both must progress together to ensure social welfare and ecological stability.

³⁷ *M. C. Mehta v. Union of India*, supra note 28.

³⁸ *M. K. Ranjitsinh v. Union of India*, supra note 34.

³⁹ *Narmada Bachao Andolan v. Union of India*, (2000) 10 SCC 664 (SC).

IPR as a Mechanism to promote Environment Sustainability

Intellectual Property Rights (IPR) can play a significant role in curbing environmental degradation by promoting the development and dissemination of green technologies. The strategic use of patents and other IP mechanisms can incentivize innovation in environmentally sustainable technologies, which are crucial for addressing global environmental challenges such as climate change, biodiversity loss, and pollution. By protecting and encouraging the development of green technologies, IPR can contribute to sustainable development and environmental preservation.

Green Patents and Innovation

- Green patents are instrumental in stimulating the creation and development of technologies that reduce environmental impacts. Programs like Brazil's Green Patents Program expedite the examination of patent applications related to environmental technologies, thereby fostering innovation and sustainable development.⁴⁰
- In Spain, patents on environmental technologies have been shown to enhance environmental sustainability by promoting the development of eco-friendly technologies that reduce carbon emissions and resource consumption.⁴¹

Intellectual Property and Biodiversity

- The Access and Benefit Sharing (ABS) mechanism, under the Convention on Biological Diversity, links the use of genetic resources and traditional knowledge to benefit sharing. This approach helps prevent biodiversity loss by ensuring that the use of genetic resources is sustainable and equitable.
- The integration of traditional knowledge with modern scientific practices through IP frameworks can lead to innovative solutions that support biodiversity conservation and sustainable use of resources.⁴²

Technological Innovation and Environmental Sustainability

- In the E7 countries, patents in environmental technologies, along with renewable energy and green finance, have been shown to play a crucial role in reducing environmental degradation. These technologies help mitigate carbon emissions and promote ecological sustainability.⁴³
- The development and implementation of green technologies, such as hybrid vehicles and energy-efficient systems, are essential for sustainable energy consumption and reducing environmental impacts.⁴⁴

Open IP Models and Technology Diffusion

- While IPR can incentivize innovation, it can also hinder the diffusion of technology. Open IP models,

⁴⁰ E. G. Salgado and R. A. da S. Franchi, "Green Technologies: The Role of Green Patents for Innovation, Preservation and Sustainable Development", (2023) 17(8) *Revista de Gestão Social e Ambiental (RGSA)*.

⁴¹ M. O. Oyebanji, R. A. Castanho, S. Y. Genç and D. Kirikkaleli, "Patents on Environmental Technologies and Environmental Sustainability in Spain", (2022) 14(11) *Sustainability* 6670

⁴² A. Alunni, "Can Intellectual Property Be Used to Halt Global Biodiversity Loss?", (2022) *Revista de Fomento Social* 123.

⁴³ U. Al-mulali, A. Raboshuk, R. L. Ibrahim and B. Saboori, "Evaluating the Asymmetric Effect of Patents Driven Environmental Technologies on Environmental Degradation in the E7 Countries: An Extended Model of STIRPAT", (2024).

⁴⁴ I. Ahakwa, Y. Xu, I. Ahakwa, L. A. Odai, F. A. Sarpong, B. Korankye and E. K. Ofori, "Do Natural Resources and Green Technological Innovation Matter in Addressing Environmental Degradation? Evidence from Panel Models Robust to Cross-Sectional Dependence and Slope Heterogeneity", (2023) 85 *Resources Policy* 103943.

which allow for broader access and sharing of technologies, can overcome this barrier and promote the widespread adoption of sustainable innovations.⁴⁵

- Firms engaged in sustainable innovation often adopt selectively open IP models, balancing the need for protection with the benefits of collaboration and technology sharing.⁴⁶

5. Policy Recommendations and Global Collaboration

- International collaboration in research and technology development is vital for addressing global climate change. Policies that promote the sharing of green technologies and encourage public-private partnerships can enhance environmental sustainability.⁴⁷
- The establishment of Climate Innovation Centres and initiatives like the Eco-Patent Commons can facilitate the transfer and diffusion of clean technologies, supporting global efforts to combat environmental degradation.⁴⁸

While IPR can significantly contribute to environmental sustainability, it is important to recognize the potential challenges associated with IP protection. The exclusivity granted by patents can sometimes limit access to essential technologies, particularly in developing countries. Therefore, balancing IP protection with open access and collaboration is crucial for maximizing the positive impact of IPR on environmental sustainability. Encouraging open IP models and international cooperation can help ensure that the benefits of green technologies are widely shared and contribute to global environmental goals.

Conclusion and suggestion

The development of environmental jurisprudence in India reflects a significant shift from an anthropocentric perspective, which primarily focuses on human interests, to a broader biocentric approach that recognises the intrinsic value of nature. Through progressive judicial interpretation, Article 21 of the Constitution of India has been expanded to include the right to a clean and healthy environment as an essential part of the right to life. In this process, the judiciary has played a crucial role in strengthening environmental protection by applying important principles such as the precautionary principle, the public trust doctrine, and the principle of intergenerational equity. These developments highlight the judiciary's contribution to promoting ecological balance and ensuring that environmental protection becomes an integral part of constitutional governance. As environmental challenges and climate change continue to intensify, it becomes increasingly important to adopt legal and policy measures that balance environmental sustainability with human development. A continued commitment to environmental justice, supported by judicial interpretation and effective governance, will be essential for safeguarding natural resources for present and future generations.

At the same time, the growing relationship between environmental protection and intellectual property rights (IPR) highlights the importance of encouraging sustainable innovation and green technologies. Legal frameworks and judicial interpretations increasingly recognise that environmental conservation,

⁴⁵ F. Tietze, E. Eppinger, J. Sternkopf and P. Vimalnath, "IP Strategies for Sustainability", in *Proceedings of the IEEE International Conference on Technology Management, Operations and Decisions (TEMSCON)* (2017) 173–178.

⁴⁶ A. Jain, A. Gurtoo, E. Eppinger, P. Vimalnath and F. Tietze, "Exploring the Interplay between Intellectual Property Models and Sustainability Transitions: A Multi-Level Analysis", *Business Strategy and the Environment* (2024).

⁴⁷ M. O. Oyebanji, R. A. Castanho, S. Y. Genç and D. Kirikkaleli, "Patents on Environmental Technologies and Environmental Sustainability in Spain", (2022) 14(11) *Sustainability* 6670.

⁴⁸ Matthew Rimmer, *Intellectual Property and Climate Change: Inventing Clean Technologies* (Edward Elgar Publishing, 2011)

technological progress, and economic development must move together. Strengthening the role of intellectual property in supporting green technologies can help promote sustainable development and improve responses to climate change in India..

Suggestions

- 1. Educational Initiatives:** Educational initiatives and awareness campaigns can empower communities to engage in sustainable practices and foster a culture of environmental stewardship. By prioritizing education and awareness, stakeholders can empower individuals and communities to actively engage in sustainability efforts, creating a culture of responsibility that transcends generations.
- 2. Corporate Social Responsibility (CSR):** Fostering transparency and accountability within corporate social responsibility (CSR) initiatives can enhance their effectiveness in promoting environmental preservation. Businesses must adopt greener technologies and practices, contributing positively to the ecological landscape rather than exacerbating existing challenges.
- 3. Inclusive Governance Models:** Inclusive governance models that engage local communities in decision-making processes are essential for fostering social equity and resilience against climate change. By integrating traditional knowledge with scientific research, India can leverage the strengths of local communities to develop tailored strategies that address specific environmental issues while promoting sustainable livelihoods.
- 4. Scientific inventions:** Encouragement of scientific inventions which mainly focus on green revolution by granting good rewards for such inventors through IPR model will be a great initiative. By granting IPR to such inventions there may be a possible deviation from commercial inventions to green revolution.
- 5. Fast Judicial Process:** Courts and tribunals should take matters related environment serious, and should set a minimal period of time in which they should dispose cases related therewith and bring such precedents focus on sustainability of the nature.
- 6. Policy Reforms:** Integrating ecological rights into socio-economic policies requires collaboration between governments, businesses, and civil society. This requires comprehensive policy reforms, investment in green technologies, and active participation from all sectors of society to create a holistic response that addresses both environmental and social challenges. Achieving this vision will necessitate collaboration among governments, businesses, and communities to develop innovative solutions that not only protect the planet but also enhance the quality of life for individuals and future generations