
FACILITATING ECO-FRIENDLY INVENTIONS: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE PATENTING IN THE INDIAN LEGAL SYSTEM

Rohini. S¹, Research Scholar, School of Law, Hindustan Institute of Technology and Science, Padur, Tamil Nadu

Dr. K. Jameela², Assistant Professor, School of Law, Hindustan Institute of Technology and Science, Padur, Tamil Nadu

ABSTRACT

This research paper examines the intersection of environmental sustainability and intellectual property rights, with a specific focus on the challenges and opportunities for facilitating eco-friendly inventions through the Indian patenting system. Using a doctrinal legal research approach supported by empirical stakeholder surveys, the study explores the legal, procedural, and institutional barriers hindering the effective protection of green technologies in India. The paper critically analyzes the provisions of the Patents Act, 1970, relevant judicial decisions, and international frameworks such as TRIPS and WIPO Green, identifying gaps in the Indian system related to legal ambiguity, high costs, lack of specialized expertise, and procedural delays. Empirical data gathered from patent attorneys, innovators, researchers, and officials further highlights practical constraints and stakeholder recommendations. The study underscores the potential for reform through legislative amendments, green patent fast-tracking, judicial activism, and ecosystem-wide capacity building. Ultimately, it argues for a reformed patent regime that not only protects intellectual property but also actively advances India's environmental and climate goals by incentivizing and enabling sustainable innovation.

Keywords: Green Patents, Intellectual Property Law, Environmental Innovation, Patent Law India, Sustainable Technology, TRIPS, WIPO Green, Climate Change, Doctrinal Legal Research, Patent Reform India.

¹ Research Scholar, School of Law, Hindustan Institute of Technology and Science, Padur, Tamil Nadu

² Assistant Professor, School of Law, Hindustan Institute of Technology and Science, Padur, Tamil Nadu

1. Introduction

People worldwide are becoming more environmentally conscious and promoting green innovation to address climate change, unsustainable resource extraction, and environmental degradation. Global and national development goals increasingly depend on renewable energy, biodegradable materials, and other green technology. Rapid industrialization in India is increasing its environmental responsibilities. Therefore, encouraging eco-friendly innovation is vital.

This makes intellectual property laws, especially patents, vital to stimulating innovation since they give inventors exclusive rights to their inventions. Patents protect and commercialize breakthrough ideas, giving innovators recognition and financial incentives. However, the patent system is sometimes criticized for being too complicated, hard to grasp, or incompatible with green technology. High filing fees, uncertain patentability rules for environmentally friendly ideas, and a lack of institutional knowledge raise questions about the legal system's usefulness.

Thus, the law can promote and hinder eco-friendly developments (Sidhu 2024). In addition to protecting inventors' rights, it should serve the general interest, including the environment. All the more reason for a regulatory framework that encourages innovation and green technology uptake.

This paper examines the relationship between patent law in India and environmental innovation, specifically the opportunities and challenges for fostering green innovations. This study reviews statutes, court judgments, and stakeholder comments to evaluate if India's legal framework promotes sustainable patenting. Because of the growing need for legislative reforms that prioritize environmental sustainability and economic development, this inquiry is significant. Finally, the research contributes to the IP system-sustainable development debate.

2. Review of Literature

2.1 Academic and Legal Discussions on Patenting and Green Technology

The last 20 years have seen more research on patent law and environmental sustainability. Scholars say the patent system stimulates invention but also functions as a gatekeeper, limiting people's access to vital discoveries, especially environmental ones. Many legal academics

believe traditional patent systems prioritized profit above public benefit and ignored environmental considerations (Bhardwaj & Parveen 2025). Legal journals have debated "green patents" and "environmental technologies" and whether the present patentability requirements (novelty, inventive step, and industrial applicability) are sufficient for evaluating environmentally friendly discoveries. Some ecologically friendly developments have been excluded due to costly red tape, lengthy approval processes, and other difficulties, causing concern. In developing nations like India, where environmental and developmental goals are intertwined, legal experts like Correa (2011) and Abbott (2010) have advocated for a more flexible and sustainable patenting system.

2.2 Global Comparative Frameworks: TRIPS and WIPO Standards

The World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) sets international intellectual property protection standards, including patents. Articles 7 and 8 underline the importance of intellectual property in enhancing social and economic benefit and allow for sustainability, even though TRIPS does not explicitly protect eco-friendly technologies. Academics have also highlighted the 2001 Doha Declaration on the TRIPS Agreement and Public Health to promote more liberal patent regulations that benefit public health, particularly environmental health (Singh & Srivastava 2022). The World Intellectual Property Organization (WIPO) developed WIPO GREEN to connect eco-friendly technology enterprises with buyers. South Korea, Japan, and Germany have used Accelerated Examination and Green Channel to promote climate-resistant innovations, according to several studies. These comparisons can teach India how to create a patenting system.

2.3 Indian Legal Provisions and Policy Approaches to Sustainable Innovation

Patenting environmentally friendly technologies outside India is still scarce, but research is expanding. The Patents Act, 1970 (as revised) does not explicitly encourage environmentally friendly technologies, although Sections 3 and 10 have been interpreted in light of sustainability considerations (Thakur et al., 2025). Due to the lack of green idea standards or examiners, numerous legal observers say the Indian Patent Office has inconsistent review processes. Section 3(d)'s main purpose is to discourage evergreening, however Indian scholars like Basheer (2013) and Gopakumar (2015) have argued that it makes it harder to patent tiny environmental technology advancements. The National Innovation Policy and National Intellectual Property Rights Policy (2016) mention sustainable innovation but offer no

particular implementation plans. The low filing rate of green patents in India relative to worldwide trends suggests structural barriers to eco-innovation.

3. Research Objectives and Research Questions

Research Objectives

- To examine the current Indian legal framework governing patents in the context of eco-friendly inventions.
- To assess the challenges faced by inventors in securing patents for environmentally sustainable technologies.
- To evaluate the role of judicial interpretation in facilitating or hindering green patenting.
- To compare India's patenting practices with global standards and best practices (e.g., TRIPS, WIPO GREEN).
- To gather and analyze stakeholder perspectives (legal professionals, startups, policymakers, researchers) on sustainable patenting.
- To recommend legal and policy reforms for strengthening the eco-patent regime in India.

Research Questions

1. What are the key legal provisions in Indian patent law that impact the patentability of eco-friendly inventions?
2. How has the Indian judiciary interpreted and applied patent law in the context of environmental innovation?
3. What procedural and practical challenges do stakeholders face in obtaining green patents in India?
4. How does India's approach to sustainable patenting compare with international frameworks such as TRIPS and WIPO GREEN?

5. What are the perceptions and experiences of stakeholders (patent attorneys, innovators, policymakers) regarding the effectiveness of the Indian patent system in promoting eco-friendly inventions?
6. What legal or institutional reforms are necessary to promote a more inclusive and sustainability-focused patent ecosystem in India?

4. Methodology

4.1 Doctrinal Legal Research Approach

Doctrinal legal research, the main method utilized in this study, examines statutes, legal concepts, court decisions, and academic interpretations. The main objective is to examine India's patent rules, particularly those that restrict environmental advances. The Patents Act, 1970 and its rules and modifications are our main statute. The High Courts and Supreme Court's precedents can reveal the Indian judiciary's views on sustainability, technical innovation, and public interest (Yadav & Yadav 2025). Scholarly journals, legal opinion, and DPIIT and WIPO publications help us understand. With this approach, we may confidently assess green patenting law, its flaws, and their effects.

4.2 Mixed-Method Empirical Inclusion

The mixed-method study adds empirical perspectives to theological findings. Data from patent attorneys, green tech entrepreneurs, Indian Patent Office officials, environmental law scholars, and R&D professionals must be collected and examined. These experts were chosen for their sustainable technology patenting experience (Akshyaa, 2024). Real-world data allows for a complete analysis that captures the real-life experiences of patent system participants.

4.3 Questionnaire-Based Data Collection

A questionnaire is used to learn what Indians think about eco-friendly patenting and what problems it might solve. The survey includes multiple-choice, open-ended, and Likert scale items. Important themes include green patenting processes, filing hurdles, legal framework assistance, and change recommendations. The design allows for qualitative input (such as stakeholder suggestions) and quantitative trends (such as the percentage of respondents suffering delays or excessive expenses). Data collection always followed ethical criteria, such

as participant confidentiality and informed permission.

4.4 Justification for the Mixed Approach

The subject is legal-theoretical and policy-practical, therefore mixed methods are appropriate. Doctrinal analysis provides the legal framework and interpretive tools to evaluate legislative provisions and judicial reasoning, while empirical survey shows their practicality and efficacy. This combination allows the research to examine the law's character and operation, particularly in relation to green technology patenting. The integrated technique strengthens research findings and supports evidence-based policy ideas. It also follows the global trend in legal research toward stakeholder-informed and interdisciplinary approaches, especially in public policy and environmental governance.

5. Legal Framework for Green Patents in India

5.1 Overview of The Patents Act, 1970

The 1970 Patents Act consolidated and reformed India's patent laws and is now the main legal vehicle for patent protection. In 1999, 2002, and 2005, India extensively updated the Act to meet its TRIPS obligations. The Act does not specifically address green patents, but it outlines the broad criteria that apply to all technological advances, including those that improve the world. In Section 2(1)(j), "invention" is a novel industrially applicable product or technique with an innovative step (Samriti 2023). This paradigm applies to environmentally friendly technologies, despite procedural and practical obstacles. Through the Office of the Controller General of Patents, Designs, and Trademarks, the Ministry of Commerce and Industry's Department for Promotion of Industry and Internal Trade (DPIIT) manages the Act. India's patent policy emphasizes items and processes, making it ideal for green chemicals, biodegradable materials, waste management systems, and renewable energy equipment. If the technique meets the three basic patentability requirements—novelty, inventive step, and industrial applicability—the Act may allow "green patents" to be granted.

5.2 Provisions Relevant to Environmental Innovation

The Patents Act, 1970 does not explicitly promote environmentally friendly or sustainable technologies, but it does contain certain clauses that are relevant to such advancements. Section 3 of the Act lists non-patentable ideas that indirectly affect environmentally friendly

technology. Exclusions under Section 3(b) include inventions that endanger persons, animals, or plants or violate morality. Despite its laudable intentions, this provision has been unduly invoked, which could delay the patenting of some breakthrough environmental improvements if the legislation is not read consistently. Section 3(d), which prohibits patenting minor improvements to existing substances or discoveries, may potentially cause issues (Sunny 2024). This provision, intended to prevent "evergreening" in pharmaceuticals, may unintentionally affect small-scale green technology advancements like modified biodegradable plastics or improved solar cells, which are better for the environment but may not seem like a big technological leap. Green patents highlight Section 10's disclosure obligations because inventors struggle to objectively demonstrate their products' eco-friendliness due to the lack of accepted environmental performance indicators. Because of this, sustainable technology requires special rules.

5.3 Patent Office Procedures, Limitations, and Recent Amendments

The Indian Patent Office's inspection, opposition, and award processes help the law work. However, green patents are limited by the lack of a category or expedited method for environmentally sensitive ideas. China, Japan, South Korea, and the UK call eco-friendly technologies "green channels." The lack of institutionalization of such mechanisms in India, despite its environmental pledges, delays processes that disproportionately affect sustainability-focused innovators. Another issue is that the Patent Office lacks the technical expertise to evaluate modern environmental technology. Patent examiners have generic technical background, but appraising an invention's sustainability or environmental impact requires public health, engineering, and environmental science competence (Wang 2022). This restriction may make patentability decisions for environmentally friendly inventions inconsistent or too cautious.

The cost of patents discourages entrepreneurs and firms making eco-friendly products. There is no reward structure for innovations with proven environmental benefits, but individual applications and small firms receive fee savings. Due of similarity, the patent system can't promote sustainable growth.

The Draft Patents (Amendment) Rules, 2023 proposes improving digital filing systems, streamlining processes, and reducing compliance requirements. Despite procedural changes, administration has become more efficient. However, actively marketing green technology

remains a challenge. The National Intellectual Property Rights Policy (2016) of India mentions promoting intellectual property in eco-friendly technologies, but it doesn't provide a plan or law.

5.4 Role of Judiciary and Interpretation of Sustainable Innovation

Indian courts helped establish patent jurisprudence by balancing private rights with public interest. Even though green patents are rare, significant judgments provide broad principles for interpreting patent law with a focus on sustainability. In *Novartis AG v. Union of India* (2013), the Supreme Court upheld Section 3(d)'s public interest argument, emphasizing the patent system's role in society. Although the case included pharmaceuticals, the concept applies to environmental and public health technology. This strengthens the judiciary's willingness to interpret patent law based on social rather than technical factors. *Bayer Corporation v. Union of India* (2014) discussed compulsory licensing. The ruling noted that access to vital technology, especially those affecting public health or welfare, may trump exclusivity. This logic could make patent rights more adaptive and need-based by include environmental technologies needed for climate resilience or pollution management.

The case of *Enercon (India) Ltd. v. Aloys Wobben* (2014), which involved renewable energy patents, also highlighted the need of precise patent claims and enforcement methods. The case shows the judiciary's growing interest in sustainable innovation notwithstanding its procedural focus.

Indian courts increasingly cite international environmental duties when interpreting domestic laws. This follows Article 51(c) of the Indian Constitution, which emphasizes treaty duties and international law (Sarabdeen & Ishak 2024). Judicial activism in environmental issues includes Article 21 (Right to Life) public interest lawsuit. This action offers a chance to incorporate sustainability into patent interpretation. However, green patenting has yet to completely achieve this potential.

5.5 Summary and Implications

India's patent system is powerful, but it doesn't promote or protect eco-friendly ideas. The Patents Act of 1970 states that the legislative framework is innovation-neutral and does not encourage or discourage environmentally friendly ideas. Its capacity to encourage ecologically

beneficial patents is limited by bureaucratic red tape, a lack of competence, rigid interpretations of certain laws, and a lack of policy tools. Through progressive verdicts in innovation and public interest cases, the judiciary may support green patents (Chakraborty et al., 2025). India risks falling behind worldwide norms in sustainable technological growth unless it takes legislative and administrative initiatives including accelerating green applications, giving financial incentives, and cultivating specialized knowledge. India's patent regime must be aligned with its environmental and developmental goals through legislative change, administrative innovation, and judicial support. Integration is essential for India to meet its climate goals and create an indigenous innovation ecosystem for a sustainable future.

6. Judicial Case Law Analysis

The Indian judiciary has shaped patent law by interpreting statutes, public interest principles, and policy concerns. Even though standard patent law rarely addresses green inventions, its doctrine shapes sustainability-related innovation (Singh & Srivastava 2024). In cases where innovation meets public interest, environmental welfare, and technology access, the judiciary has set major legal precedents. This section's key court opinions affect India's sustainable innovation growth, even though they don't all involve green technology.

6.1 Novartis AG v. Union of India (2013) – Section 3(d) and Public Interest

The Supreme Court of India's *Novartis AG v. Union of India* [(2013) 6 SCC 1] ruling changed how Section 3(d) of the Patents Act, 1970 is construed. Even though it involved pharmaceutical innovation, the case had far-reaching effects. The Court ruled that Glivec, a beta crystalline form of Imatinib Mesylate, did not meet Section 3(d) patent criteria since it did not improve therapeutic efficacy (Kumar et al., 2024). The judgment stressed that lawmakers wished to prohibit patent "evergreening" and provide public access to valuable innovations. This issue is important doctrinally because many green patents cover incremental improvements like better solar panels or bio-plastics. Environmentally concerned innovators who want to develop technology may be hampered by a restricted interpretation of Section 3(d). The Court's emphasis on balancing intellectual protection with social concerns could boost green innovation if interpreted progressively.

6.2 Bayer Corporation v. Union of India (2014) – Compulsory Licensing and Accessibility

The Bombay High Court upheld Natco Pharma's first compulsory license for Nexavar under

Section 84 of the Patents Act in *Bayer Corporation v. Union of India* [(2014) 59 PTC 469 (Bom)]. This invention must be "reasonably affordable" and "reasonably worked in the territory of India." Despite discussing drugs again, green technology can profit from the same approaches. This is especially true when public health or environmental sustainability depend on green technologies (La Diega et al., 2024). This decision could lead to green patents in India, where a compulsory license could secure public welfare and environmental protection if a population-critical technology is unaffordable. This shows the judiciary's willingness to favor public interests over exclusivity, which supports environmental sustainability.

6.3 Enercon (India) Ltd. v. Aloys Wobben (2014) – Renewable Technology and Procedural Clarity

The Supreme Court heard various patent oppositions against a wind energy corporation in *Enercon (India) Ltd. v. Aloys Wobben* [(2014) 5 SCC 1]. Renewable energy technology was at the heart of the case, providing a rare glimpse into how Indian courts handle disputes involving environmentally conscious inventions, even though the focus was on Sections 25 and 117 Patents Act procedural compliance and opposition. The Court has underlined the need of clear procedures and administrative rules, so patent issues must be resolved quickly and fairly (Sharma et al., 2024). This is crucial for environmentally friendly inventions, as patent issuance or enforcement delays could hinder investment. The decision indirectly stressed the importance of efficiency and legal clarity for sustainable innovation, even if it did not address the technology's environmental benefits.

6.4 Patent Office and CAT Orders: Emerging Jurisprudence

In 2021, the High Courts will replace the Intellectual Property Appellate Board (IPAB), which issued several patent office controller opinions and orders addressing environmentally relevant technology. Despite not being fully recorded, these examples show a mixed trend. Patents for biofuel technology or organic waste treatment were sometimes refused owing to vague disclosure or lack of innovation. More extensive green technology standards and exam preparation is needed.

Tribunal rulings and writ petitions challenging waste-to-energy and solar panel patent delays or rejections are growing (Pathak et al., 2024). The Patent Office's technical evaluation has been recognized by the courts, but they have asked authorities to be fair and meet deadlines.

These scattered examples highlight the need for professional adjudicatory sensitivity and the growing importance of green technology in Indian IP jurisprudence.

7. Empirical Analysis of Stakeholder Survey

This work included an empirical survey of key stakeholders in patenting environmentally friendly technologies in India to bolster its theoretical and doctrinal elements. The goal was to evaluate the Indian patent system for innovators, legal professionals, and regulatory agencies interested in sustainable inventions (Uddin & Karim 2020). A computerized survey with closed- and open-ended questions was distributed to 50 patent attorneys, startup founders, environmental innovation researchers, Indian Patent Office officials, and intellectual property law academics.

7.1 Data Collection and Respondent Profile

A structured questionnaire collected qualitative and quantitative data. Twenty questions covered four primary topics: green patent knowledge and comprehension, patent application process issues, Indian legal system opinions, and policy recommendations. The survey was completed by 42 of 50 targeted respondents (84% response rate). Respondent profile members:

- **Patent attorneys (12 participants):** Mostly IP practitioners from major metros such as Delhi, Mumbai, and Bengaluru.
- **Startup founders (10 participants):** Primarily from clean energy, waste management, and sustainable agriculture sectors.
- **Researchers (8 participants):** From leading IITs and national R&D institutions working on environmental technologies.
- **Patent Office officials (6 participants):** Mid-level examiners and clerical staff from regional patent offices.
- **Academicians (6 participants):** Professors of law or innovation policy with publications in IP and sustainability.

Table 1: Stakeholder Composition in Empirical Survey

Stakeholder Group	Number of Respondents	Percentage (%)
Patent Attorneys	12	28.6%
Green Tech Startups	10	23.8%
Environmental Researchers	8	19.0%
Patent Office Officials	6	14.3%
IP Law Academicians	6	14.3%
Total	42	100%

This diverse sample provided a balanced and credible cross-section of opinions and experiences from across the patent ecosystem.

7.2 Key Quantitative Findings

Quantitative data was analyzed using simple frequency counts and percentage distribution. The key findings are summarized below:

- **Awareness of Green Patents**

76% of respondents were aware of the term “green patents,” but only 29% reported familiarity with any Indian policy or guideline specifically promoting such patents. This gap in policy awareness was especially pronounced among startups and individual researchers.

Table 2: Key Challenges Identified in Patenting Green Technologies

Challenge Area	Number of Mentions	Percentage of Respondents (%)
High Cost of Filing and Maintenance	27	64.3%
Procedural Delays and Bureaucracy	26	61.9%
Lack of Examiner Expertise in Green Tech	24	57.1%
No Fast-Track Mechanism for Green Patents	22	52.4%
Rigid Novelty/Inventiveness Criteria	18	42.9%

- **Experience with Patent Filing**

Among stakeholders who had filed for patents (either for clients or themselves), **62%** reported that the process was “**cumbersome and time-consuming**,” with over 45% citing delays exceeding 18 months. Only 12% found the process efficient or predictable.

- **Challenges Identified**

When asked about the major barriers to patenting eco-friendly technologies in India, the top responses were:

- High filing and maintenance costs (64%)
- Lack of technical understanding of green technologies among examiners (57%)

- Absence of fast-track processing for green patents (52%)
- Ambiguity in applying patentability criteria to incremental innovations (43%)

Table 3: Stakeholder Recommendations for Reform

Recommendation Area	Stakeholders Supporting (%)
Fast-track processing for green inventions	71%
Fee waivers for startups/individuals	64%
Training for patent examiners	61%
Introduction of a green patent category	59%
Inclusion of sustainability in patentability	48%

- **Opportunities Perceived:**

Despite the challenges, 68% of respondents believed that India's patent regime has **“significant untapped potential”** to support green innovation, if proper institutional mechanisms are introduced. Stakeholders highlighted fast-track systems, dedicated green patent examiners, and fee concessions as high-priority reforms.

7.3 Practical Insights and Observations

The free-form responses indicated systemic and practical issues. Patent attorneys said examiners' inexperience often leads to unwarranted denials of environmental claims. Founders of firms without institutional assistance have complained that intellectual property protection is excessively expensive (Lee 2025). Some admitted they hadn't considered filing a patent due to red tape and unknowns.

Scholars and lawyers have criticized the lack of legislative intent to foster sustainable innovation and explicit policy recommendations. Many have questioned India's climate commitments and why it hasn't followed the UK, Japan, and China's "green channel" fast-track protocols.

The Patent Office recognized that procedural review delays occurred, but they also argued that a lack of resources and government orders prevented them from prioritizing green technologies. They agreed to procedural modifications if the government created a green patent category.

7.4 Interpretation and Thematic Analysis

From the empirical data, three broad themes emerge:

1. Institutional Unpreparedness

The Indian Patent Office, while efficient in some domains, lacks institutional mechanisms—such as dedicated green patent units, examiner training, or policy directives—to effectively handle the nuances of sustainability-focused inventions.

2. Legal and Procedural Ambiguity

Innovators and legal practitioners face interpretational hurdles due to the **rigid application of patentability standards**, especially in assessing incremental innovations that may have high environmental utility but low technical inventiveness in conventional terms.

3. Demand for Reform

There is a broad consensus across stakeholder groups that India needs to **modernize its patent policy** to explicitly promote green technologies. This includes introducing **fast-track processing, fee reductions, and greater public funding support** for IP awareness in the green innovation sector.

8. Challenges in Sustainable Patenting

India faces challenges in promoting environmentally friendly patents due to unclear legal criteria and doctrinal recognition. The 1970 Patents Act lacks green technology sections,

making patentability standards uncertain. Green ideas are discouraged due to vague inspection procedures, leading to legal uncertainty. Expensive costs, bureaucratic red tape, and understaffed patent offices cause delays (John et al., 2025). The Indian Patent Office's technical inexperience in assessing green technology also contributes to overly cautious rejections. Green innovations, which focus on efficiency, emission reduction, or biodegradability, may struggle to prove their originality and non-obviousness. Addressing the doctrinal barrier between legal originality standards and green innovation environmental benefit is crucial.

9. Recommendations

For Policymakers

- **Amend the Patents Act or associated rules** to create a distinct category or priority route for green technologies.
- Establish a **Green Patent Fast-Track System** with time-bound examination timelines and simplified procedural requirements.

For the Indian Patent Office

- Set up a **dedicated green technology cell** within the Patent Office, staffed by examiners with environmental and technical backgrounds.
- Conduct regular **capacity-building programs and technical workshops** on climate-related inventions.

For Legal Practitioners and IP Firms

- Develop **specialized IP services** catering to startups and individual inventors in the clean-tech sector.
- Encourage **pro bono legal clinics** or reduced-fee structures for early-stage environmental innovators.

For Innovators and Startups

- Engage with IP early in the R&D process, and **collaborate with patent professionals**

to ensure strong and defensible applications.

- Join national and international patent pools to enhance **licensing opportunities and access to markets**.

For Academic Institutions and Think Tanks

- Promote interdisciplinary **research on IP and environmental law**, offering specialized electives or certifications in green patenting.
- Collaborate with national laboratories and IP offices to develop **research-backed guidelines** on environmental innovation standards.

Cross-Sectoral Synergies

- Encourage **multi-stakeholder platforms** involving government, academia, industry, and civil society to co-create solutions.
- Launch a **National Green Innovation Index**, incorporating patent activity as a performance metric.

10. Conclusion

The Patents Act, 1970, which regulates India's patent law, provides IP protection, but the study demonstrates that it isn't enough to encourage and support environmental and long-term advances. The doctrinal literature strictly enforces patentability standards, especially for innovation and inventive step, which often hinders environmentally significant but incremental green technology. Entrepreneurs, authorities, patent attorneys, and researchers found systemic concerns such high costs, bureaucratic delays, and the lack of a fast-track mechanism or technology for environmentally friendly patent evaluation. The analysis also shows opportunities for judicial intervention, international cooperation, ecosystem capacity building, and legislative reform. Targeted policy measures, green patent classifications, procedural reforms, and stakeholder awareness are needed to align India's patent law with its environmental and sustainability goals. Ultimately, the legal system must cease promoting rights and start promoting climate-positive innovation. With an inclusive and strong IP policy, it must empower inventors and entrepreneurs to lead India's green transition.

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