International Journal of Law Research, Education and Social Sciences

Open Access Journal – Copyright © 2025 – ISSN 3048-7501
Editor-in-Chief – Prof. (Dr.) Vageshwari Deswal; Publisher – Sakshi Batham

Patents and The Path to Net-Zero: Aligning Innovations with Climate Justice

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Received 08 September 2025; Accepted 09 October 2025; Published 13 October 2025

This article examines whether patents, which have been thought of as a means by which to produce private exclusion, could come to be used for the public good, specifically climate stabilisation. In response to this issue of climate change, the answer is "Yes, but only if patent systems are redesigned for sustainability. Specifically, accelerating the commercialisation of green inventions, permitting their global dissemination, and ensuring innovators share the risks/rewards with the public. This article puts Green Intellectual Property (Green IP) into the context of the climate imperative, highlighting the need for renewable energy, avoiding waste, and carbon-neutral technology. It reviews and analyses the growing global policies and legislative trends, while introducing the ecosystem of the Indian Scheme, where compulsory licensing provisions and constitutional duties indicate urgency to the use of patents with climate protection in mind. Finally, the article identifies issues of accessibility, price, and monopolisation and puts forth several reforms designed to reorient patents into enablers of sustainable innovations, making alliances, not barriers, in the global race in order to achieve net zero.

Keywords: *trips, climate change, compulsory licensing, sustainable innovations.*

INTRODUCTION: GREEN IP ENIGMA AND GUARANTEE

Patents bestow limited monopolies on their owners to influence the R&D. Climate Change, on the other side, stipulates a faster and widespread diffusion of mitigation and adaptation of technologies, such as solar, grid management, wind, carbon capture, clean industrial process, energy storage, resilient agriculture, etc. "Green IP" concerns with Intellectual Property, mostly patents and also utility models, trade secrets and data exclusivity, relating to such technologies and to procedural and policy mechanisms to fast-track them. The fundamental debate around policy should not be about whether there should be intellectual property rights in this space, but rather what we can formulate as systems of governance that best balance innovation with access. This often needs difficult, but significant questions: When do patents need fast-track examinations to expedite innovation? When do patent pools choose to incentivise shared access to technology? When to pursue compulsory licensing or voluntary licensing? And when to allow overrides of exclusivity rights? Ultimately, the purpose is to reach somewhere in the middle of a modest equilibrium where there are incentives to innovate and also incentives to provide fair and expeditious access with respect to the broader public interest in completing the right kind of governance of Intellectual property in terms of implementing a safe and sustainable climate future for all.

LEGAL FRAMEWORKS AND POLICIES

International IP Laws (TRIPS Agreement) –

The World Trade Organisation (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) consists of the architecture implemented in nearly all nations. Two of the very significant components for the climate-based technologies are:

Objectives and Principles: These articles talk about the reasonable access and use of IP systems in terms of promoting technological inventions and providing the transfer and dissemination of technology in a way that aids social and economic welfare, which creates textual opening for Pro-Climate Interpretations.[1]

Article 31 & 31bis (For exports): These provisions give governments the authority, under specific terms and conditions, to allow the use of a patent without the consent of the owner.

[1] Agreement on Trade-Related Aspects of Intellectual Property Rights 1994, arts 7–8

Article 31bis clarifies the export of products made under compulsory licences in countries that lack an adequate manufacturing capacity.[2]

Whereas the Doha Declaration on TRIPS and Public Health, a 2001 World Trade Organisation document that addressed specifically public-health needs and interests, the underlying logic of reading the TRIPS agreement flexibly protects and prioritises fundamental interests has inspired proposals for climate-related exceptions or waivers (for example, re-evaluating Article. 31bis, or proposing to apply article 30 exceptions to relax the export limitations.[3]

International Fast-track Initiatives –

To manage making timely progress while still providing exclusivity, patent offices have created expedited pathways for eco-friendly inventions as follows:

WIPO GREEN (2013): It is not an examination track but instead an across-border marketplace for the providers and seekers of sustainable technologies. WIPO GREEN is just an infrastructure for licensing and diffusion.[4]

China: It has given priority to energy-saving and environmental protection related to innovations and the use of IP protection centres with dedicated fast-track plans.

Canada Intellectual Property Office (CIPO): Also offers no-fee advanced examination in their Green Technologies Program for Climate Mitigation Technologies.[5]

The **"Green IP Roadmap"** of three months by the Ministry of Economy in the United Arab Emirates (UAE) has been unveiled with a goal to increase innovations, sustainability, and the circular economy. This initiative aligns with the UAE's widened goals for improving and enhancing its innovation profile and encouraging sustainable economic development. The plan focuses on growing eco-friendly patent filings to 8% of all patents ordered, increasing legal protection for green innovations, accelerating patent registration, and continuing collaboration

[2] Agreement on Trade-Related Aspects of Intellectual Property Rights 1994, art 31
[3] Declaration on the TRIPS agreement and public health 2001
[4] 'WIPO GREEN – The Marketplace for Sustainable Technology' (*WIPO*) <https://www3.wipo.int/wipogreen/en/> accessed 13 August 2025
[5] 'Intellectual Property Strategy' (*Canada.ca*, 28 March 2025) <https://ised-isde.canada.ca/site/intellectual-property-strategy/en> accessed 13 August 2025

with academic, research, and international organisations, including the World Intellectual Property Organisation (WIPO).[6]

CPC "Y02": The European Patent Office (EPO) and United States Patent and Trade Office (USPTO) have introduced CPC Y02 in collaboration with the classes tag of climate-change mitigation and adapting technologies across sectors (such as Y02C for Carbon Capture Technologies, Y02E for Clean Energy). These classifications are not necessary; negotiators use labelling to support measurement, mapping, and anticipating policy (e.g., fast-tracking or subsidies based on the tag).[7]

INDIA'S INITIATIVE: LEGISLATIONS & POLICIES

Indian Patents Act 1970 –

Compulsory Licensing: Patent Rights are balanced with compulsory licensing under the Indian Patents Act so that public welfare is not prevented. It permits the licence to be issued if a patented invention is not made available to the public on reasonable terms or is not worked in India.[8] The law grants authorities the power to determine fair terms and royalties plus appropriate conditions for issuing compulsory licences, such as, in times of national emergency, extreme urgency, or public non-commercial use. The Act permits compulsory licences to patents on innovations that are related and also permits the manufacturing and exporting of medicines that may be patented to countries or regions who have lack production capacity. These provisions represent a balance between rewarding innovation and protecting public health and accessibility.

In the case of **Bayer v Natco,** compulsory licence-imposed restructuring for a cancer drug under Section 84 illustrates a willingness to exercise these levers when public interest merits it, a similitude many scholars also apply to green technologies crucial to mitigation/adaptation.[9]

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[6] 'UAE launches new roadmap for 'green intellectual property' to drive innovation' *The Times of India* (06 February 2025) <https://timesofindia.indiatimes.com/world/middle-east/uae-launches-new-roadmap-for-green-intellectual-property-to-drive-innovation/articleshow/117978849.cms> accessed 13 August 2025

[7] 'CPC Y02: Climate Change Mitigation Technologies' (*European Patent Office and USPTO*) <https://www.uspto.gov/web/patents/classification/cpc/html/cpc-Y02P.html> accessed 13 August 2025

[8] Patents Act 1970 (India), ss 84–92A

[9] *Bayer Corporation v Natco Pharma Ltd* (2014) 60 PTC 277 (Bom)

Non-Patentable Subject Matter (Exceptions): The Act ensures that only true innovations can be patented. In Green IP, this section also ensures that natural or traditional environmentally-sustainable practices and processes cannot be monopolised, but true innovation in green technologies- such as renewable energy devices or carbon-reduction processes can be patented. This is a healthy compromise between protecting innovation and ensuring public access to sustainable solutions.[10]

Constitutional Perspective: Duty, Instruction, and Right: The Constitution of India rightly integrates commitments to the environment in Directive Principles of State Policies (DPSPs), Fundamental Duties as well as the Fundamental Right, specifically in **Article 48A,** *"State shall endeavour to protect and improve the environment"* and **Article 51A(g)** ***"****Duty of citizens to protect and improve the natural environment"*. Courts have interpreted commitments as justiciable rights, particularly the *Right to Life* in **Article 21.**[11]

In the case of M.K. **Ranjitsinh v Union of India,** the Supreme Court of India recognised a right to be free from the negative effects of climate change. Especially, the rights given under Articles **14 and 21,** while also referring to **Article 48A and 51A (g). This** means that the Constitution compels climate-sensitive governance, including climate sensitivity in IP administration and technology accessibility.[12]

National IPR Policy, 2016: India's National IPR Policy speaks about the need to implement a balanced Intellectual Property System (IP) that enables innovation and creativity, but also simultaneously ensures that innovation and creativity are carried out to serve a greater social good. When considering green innovation, such a notion becomes quite paramount because it facilitates the growth of environmentally friendly and sustainable technologies, while it also recognises the need for equitable distribution and transfer mechanisms, particularly to the most affected sectors, areas, and communities. Thus, the policy is concerned with protecting public technologies, while also connecting intellectual property to a global climate agenda whereby intellectual property tools act as facilitators and enablers of sustainable and inclusive development instead of a barrier to access. Moreover, this climate-informed interpretation in a way that does not prioritise one over the other.

[10] Patents Act 1970 (India), s 3(d)
[11] Constitution of India 1950, arts 14, 21, 48A and 51A(g)
[12] *M K Ranjitsinh and Ors v Union of India and Ors* (2024) INSC 280

GLOBAL DEVELOPMENT: EFFORTS BY THE WORLD

Fast-Tracking and Diffusion: As already highlighted, the efforts by the US, Europe, Canada, China, and India through their programmes concerned with Green IP aim to reduce pendency change. Parallel marketplaces such as WIPO GREEN attempt to connect licensors of Intellectual Property with adopters.

Discussions of Reforming TRIPS: In the pandemic, WTO member governments were active, at times in a rather vacuous way, in debating a temporary TRIPS waiver to enable cross-border access to important public health technologies, such as vaccines and treatments, by loosening patent protections. Although the debate was not always productive, it was still an important discussion for the international community to have. The experience of the heated negotiations on a TRIPS waiver for COVID-19 vaccines and treatments is now spilling over into an understanding about analogous and reasonable adjustments to the rules in order to help facilitate access and sharing of climate-related technologies. WTO member governments are contemplating amendments to TRIPS provisions—specifically to tightly restrict, whenever possible, "31bis" provisions that concern waivers and compulsory licensing provisions—to help minimise barriers to facilitate global sharing of emerging, albeit new, climate technologies. The fact that climate technologies in the private sector are still nascent does not underestimate the importance of discussion, as a precedent or normative threshold is being established for international collaboration and global sharing of access to technology ideas that combat climate change.[13]

Do Patents Promote or Impede Climate Action? Patents are situated at the crossroads of innovation and public access. While they promote research and innovation through exclusivity, they can also be the cause of delay for the diffusion of technologies that address some of the most significant global issues that society faces.

With respect to climate change, the tension posed is palpable. Intellectual property may may in fact, generate breakthroughs in clean energy technologies, and at the same time, its exclusive nature can act as a barrier for the timely, affordable deployment of new technologies and

[13] 'WAIVER FROM CERTAIN PROVISIONS OF THE TRIPS AGREEMENT FOR THE PREVENTION, CONTAINMENT AND TREATMENT OF COVID-19' (*World Trade Organisation*, 02 October 2020) <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W669.pdf&Open=True> accessed 14 August 2025

practices. The question, therefore, is whether patents eventually promote or impede our ability to take actions against climate change.

How do Patents lead to Climate Change?

Sharing Risk: Private monopolies can co-fund risky R&D in nascent fields, for example, solid-state batteries, new catalytic systems that public budgets can not possibly support on their own.

Disclose the Know-How: Patent disclosure can prevent reinvention and allow the spilling over of knowledge, a public welfare that is enlarged by industrial classification (Y02) for climate and landscaping, if done meaningfully.

Market Order: A Clear title can aid investors, M&A, and standard-setting to drive capital away from crowded sectors towards the green sectors.

How do Patents Impede Climate Change?

Slowing Diffusion: Exclusivity and risk of litigation could slow down manufacturing and deployment in the areas that will be most impacted by climate change.

Crux, patents contribute to climate change but only as part of a governance bundle that speeds grant procedures, terms public support on knowledge sharing, rewards diffusion, and preserves credible compulsory tools.

INDIA IN FOCUS: CURRENT STATUS (2025)

India's climate pledges have been reinforced, it updated its Nationally Determined Contributions (NDC) in 2022 to stabilize Green House Gasses (GHG) emissions from GDP at a reduction of 45% from 2005 levels by 2030 and indicate 50% of cumulative electricity capacity from non-fossil sources by 2030 and net-zero by 2070, all with emphasis on technology transfer and financing at affordable price.

As of July 2025, India achieved 50% of its installed electricity capacity from non-fossil sources, years ahead of the 2030 goal, although there remain plans for expanding coal capacity in the context of the demands of growing energy needs and managing the grid.[14]

[14] 'India Updated First Nationally Determined Contribution' (*UNFCCC*, 26 August 2022) <https://unfccc.int/documents/611411> accessed 14 September 2025

CONCLUSION

Do patents help in addressing climate change? They can, if we govern them for speed and diffusion. The climate crisis has re-designed the patent bargain: the issue will occur due to a lack of ideas, but the speed with which the issues can be solved via financing, production, standardisation, and global adoption. A Green IP agenda is worthy of publication and policy action therefore should simply consist: i) Fast-track examination for bona fide climate friendly innovation; ii) market mechanisms (such as patent pools, open pledges, FRAND governed standards) that lower transaction costs; iii) Public interest safety valves (compulsory licensing, government use) articulated through constitutional rights about climate; iv) measurable taxonomies such as Y02 to benchmarks and target support; v) Fulfilment of know-how gap tied to funding and social procurement.

For India, we are almost near achieving the goal: climate justice-based constitutional jurisprudence, developing patent administration, aspirational energy goals, and an industrial base to grow green hardware. The missing point is a focused alignment, such as IPO Green Channel, Indian Climate Patent Pool, and access-conditioned subsidies to convert filings into factories and deployment at scale and speed. Once this is achieved, patents will no longer be the cause for impeding climate change and progress towards sustainable development; in fact will become part of the engine to move our nation faster to a green future.