

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 7 | Issue 6

2024

© 2024 *International Journal of Law Management & Humanities*

Follow this and additional works at: <https://www.ijlmh.com/>

Under the aegis of VidhiAagaz – Inking Your Brain (<https://www.vidhiaagaz.com/>)

This article is brought to you for “free” and “open access” by the International Journal of Law Management & Humanities at VidhiAagaz. It has been accepted for inclusion in the International Journal of Law Management & Humanities after due review.

In case of **any suggestions or complaints**, kindly contact Gyan@vidhiaagaz.com.

To submit your Manuscript for Publication in the **International Journal of Law Management & Humanities**, kindly email your Manuscript to submission@ijlmh.com.

Role of Intellectual Property Rights in Constructing Green Technology

AKSHYAA¹

ABSTRACT

Environmental imbalances and climate change issues have garnered international attention in recent years. Climate change results in a number of problems, including deforestation, soil erosion, global warming, ozone layer depletion, and the degradation of natural resources. From the UNFCCC to the most current Paris Agreement, several international and national agreements and policies have been developed to safeguard the environment and try to control growing environmental challenges. But both developed and poor nations need to make progress in halting climate change. The rise of industry and technology is a major factor in environmental degradation and pollution. For planned emerging nations, progress is essential, but development and growth must also take ecological sustainability into account. In order to adapt to these changes and take into account the potential consequences on the environment, technology must be innovative. Green technology, also known as clean technology, sustainable technology, or environmental technology, integrates technology with the environment. To lessen climate change and safeguard the environment, science and technology are combined. The cutting-edge, sustainable response to urgent environmental issues is green technology. India is among the nations exhibiting swift advancements in green technology across the globe. In order to safeguard the environment, this theological study has attempted to emphasise how urgently technological advancements must be modified in relation to environmental sustainability. This essay explores and comprehends the relationship between the function of patent law, particularly when it comes to environmental concerns, and the significance and applicability of clean technology for ecological sustainability. The article will also demonstrate how intellectual property and its function in maintaining environmental sustainability are compatible.

Keywords: *paris agreement, green technology, patent law, environmental concerns, international green treaties, sustainable development.*

I. INTRODUCTION

Green technology is defined as sustainable and kind to the environment. It is also sometimes referred to as clean technology. It entails producing sustainable, environmentally beneficial

¹ Author is a Research Scholar at Tamil Nadu Dr. Ambedkar Law University (SOEL) Chennai, India.

goods. Its goal is to encourage a safe and healthy atmosphere. Thus, it would be more accurate to refer to green technology as clean, environmental, or eco-friendly technologies. The community's worldwide struggles against ecological catastrophes are the sole reason for the adoption of green technologies. Carbon emissions, harsh greenhouse gas emissions, and the unnecessary use of fossil fuels threaten the ecosystem as a whole, with consequences including the ozone layer being destroyed, heat waves, forest fires, and the extinction of some animal and bird species. These events are the outcome of the tremendous loss caused to our environment. One such measure to counteract climate change is the use of green technology. One of the main reasons behind the beginning of green technology, making a green transition imperative in addressing the world's climate emergency. Environmentally friendly production and consumption technologies are referred to as "green technology." The three R's—reuse, recycle, and reduce—are applied in green technology.

The goals and objectives of green technology help to explain their significance in relation to climate change. Green technology first aims to meet the demands of society by bringing attention to how urgent it is for it to adopt green technology. Second, the overuse of finite resources, such as fossil fuels, is contributing to the rise of environmentally friendly technologies. The use of green technology has become crucial for protecting the environment. Since both sustainability and green technology aim to preserve the environment, they can be seen as two sides of the same coin. Green technology can be thought of as having its roots in sustainable development. The prudent use of resources for the benefit of future generations is known as sustainable development.

(A) Significance of the study

The significance of this study on the role of Intellectual Property Rights (IPRs) in constructing Green Technology lies in its potential to inform policy, practice, and future research. As the world transitions towards a sustainable and environmentally conscious future, understanding the interplay between IPRs and Green Technology is crucial. This study will provide valuable insights into how IPRs influence Green Technology innovation, adoption, and diffusion, ultimately contributing to the mitigation of climate change and environmental degradation. By identifying optimal IPR strategies, policymakers and practitioners can promote Green Technology development, transfer, and deployment. Furthermore, this research will shed light on the economic, social, and environmental benefits of IPR-protected Green Technologies, guiding business strategy and investment decisions. Ultimately, this study will contribute to the development of effective regulatory frameworks, international cooperation, and sustainable development, enhancing the global effort to address environmental challenges and promote a

greener future.

(B) Review of literature

- IP strategies aim to protect and increase the competitive advantage of businesses (e.g., Delerue and Lejeune, 2011; Holgersson and Wallin, 2017; Pitkethly, 2001).
- The incentive theory of IPR argues that IPR systems (such as patent systems) incentivize innovators.
- IP acts as a strategic tool to enable firms to attract investment (Oh and Matsuoka, 2016),
- build competitive advantage (Reitzig, 2007), and to recoup research and development (R&D) investment through internal use (Holgersson and Wallin, 2017) and collaborations with strategic partners (Kim and Vonortas, 2006; Pisano and Teece, 2007).
- However, on the downside, firms use patents in ways that stifle innovation, using strategies such as: building patent walls to block competing innovations (Cockburn et al., 2010);
- litigation threat by non-practicing entities – the so called “patent trolls” or “patent sharks”; prevention or delay of inventions from becoming innovations useful to society (Fischer and Henkel, 2012; Henkel and Reitzig, 2008); and exploitation of unequal power advantages in certain countries due to geographical differences in IP

(C) Research Gap

While research has examined the impact of intellectual property rights on innovation and economics, fewer studies have evaluated their effect on achieving sustainable development goals in varied international contexts. The control conferred by patents and copyrights interacts in complex ways with environmental targets like biodiversity preservation and indigenous communities’ rights. Access to medicines exemplifies this complexity, as drug protections that reward research and development can also limit treatment Access.

(D) Objective of the study

This article aims to critically explore the impact of IPR on the achievement of the SDGs, with an emphasis on pinpointing the ways in which current policy frameworks across different jurisdictions help or hinder these goals. In conducting a comparative analysis, the research tries

to: Examine the consistency between programs of IPR and aims for sustainable Development in different legal and economic contexts. Exhibit successful programmatic norms that prove IPR can contribute to sustainable development. Find the obstacles and inhibitions that current IPR conventions pose for SDGs. Suggest practical policy recommendations to reconcile IPR and sustainable development objectives.

(E) Hypothesis

This study hypothesizes that intellectual property rights (IPRs) play a significant role in constructing Green Technology. Specifically, it is posited that stronger IPR protection will positively impact Green Technology innovation, facilitating increased research and development investments, and ultimately leading to enhanced technology adoption and diffusion. Additionally, it is hypothesized that IPRs will moderate the relationship between environmental regulation and Green Technology development, and mediate the effect of financing mechanisms on Green Technology adoption. Furthermore, the study assumes that the optimal level of IPR protection will vary across industries and countries, influencing the effectiveness of IPRs in promoting Green Technology. These hypotheses will guide the investigation into the role of IPRs in constructing Green Technology.

(F) Research Questions

1. How do IPRs influence Green technology innovation and adoption?
2. What are the optimal Intellectual Property Right strategies for promoting Green Technology?
3. How do the concept of compulsory licensing promotes Green Technology?
4. What is the stand of India in promoting Green Technology with the help of Intellectual Property Rights?

(G) Limitations of the study:

This study on the role of Intellectual Property Rights (IPRs) in constructing Green Technology has several limitations. Firstly, the study's reliance on secondary data may limit its ability to capture nuanced, context-specific dynamics. Secondly, the focus on patent protection may overlook other forms of IPRs, such as trademarks and copyrights. Thirdly, the study's geographical scope, covering primarily developed countries, may not be generalizable to developing countries. Fourthly, the research design's emphasis on quantitative analysis may oversimplify complex relationships between IPRs and Green Technology. Additionally, the study's timeframe may not capture long-term effects of IPRs on Green Technology

development. Furthermore, the research may be limited by the availability and quality of data, particularly for emerging Green Technologies. Lastly, the study's findings may be influenced by biases in expert interviews and survey responses.

II. GREEN TECHNOLOGY AND INTELLECTUAL PROPERTY

(A) Green Technology

Green technology refers to environmentally friendly and eco-friendly procedures and techniques that work to preserve the ecosystem's natural resources, hence safeguarding our surroundings. Green technology, then, is a technique to lessen negative environmental effects through the adoption of environmentally friendly products, as the name suggests. By using green energy sources to support the environment, the technologies are the future of technology and cooperate with the goal for environmental preservation. The four main sectors of "clean tech" technologies are materials, energy, transportation, and water.

It focusses on cutting back on dangerous petrol emissions and non-renewable energy sources that are running low. Green technologies, often known as "environment sound technologies," use less polluting products and equipment, adjust to resource utilisation that is sustainable, recycle the products, and manage trash more carefully and ethically. The term "green technology" is used broadly to refer to all of these things. It's a catch-all term for creative approaches to creating environmentally friendly technologies. It functions in a way that protects the environment. Intellectual property rights offer incentives for the development of these technologies, which in turn spurs their growth, improvement, and expansion—all of which will help create more green breakthroughs. Innovations are encouraged and incentivised by the combination of IPRs and green technology. In order to protect sustainability, the TRIPS agreement recognises IPRs' role in innovation and growth.

Prior to examining how environmental law provisions influencing environmental technology interact with intellectual property laws. It is necessary to acknowledge the various impacts of each field of innovation and to define and situate environmental technology within the framework of the technology innovation cycle. Intellectual property essentially provides incentives for new technologies, whether they are advantageous or detrimental. Environmental regulations increase the market for advantageous technologies while limiting the usage of hazardous ones.

(B) Approach to Environmental Technological Innovation

The environment has not been negatively impacted by intellectual property. Intellectual

property law creates an incentive structure that encourages innovative problem solving and rewards technical ingenuity. Additionally, innovators can rely on trade secret, patent, copyright, and trademark laws to safeguard their novel ideas. Sadly, awards for developing and applying environmentally friendly technology have typically been on par with those for ecologically hazardous technologies.

Proprietary rights in technologies that cause harm are identical to those in technologies that cause benefit. The majority of environmental statutes contain clauses meant to encourage scientific approaches to environmental issues. Nonetheless, several technology-forcing laws have been proven to be ineffective. However, environmental regulation has a significant impact on the technologies that civilisation can use.

Certain laws, meant to get rid of dangerous technology or substances like asbestos or polychlorinated biphenyls ("PCBS")., actually bring about radical innovation. Other laws encourage or require the use of beneficial technology. For example, a factory that discharges pollutants into the air or water may be subjected to a permit condition requiring the factory to employ pollution control or treatment technology or the owner of a hazardous waste site may be ordered to pump and treat contaminated groundwater using a sophisticated bioremediation system.

According to **Article 7** of the TRIPS agreement, the enforcement of IPRs will support and stimulate technological innovation and transfer, which will benefit technology end users, contribute to socioeconomic welfare, and create a balance between rights and duties. By granting owners of IPRs the exclusive right to use their creations, they promote economic development, inventions, and innovations. It stimulates investments in such ideas and inventions, and green intellectual property rights offer protection to environment-friendly technologies that protect green technology. "Green intellectual property" refers to the integration of technology and intellectual property rights; broadly, the term green intellectual property (from now on referred to as green IPR) covers legally the innovations that are beneficial to the preservation of the environment.

The green IPRs are initiatives in the field of invention and science that can help mitigate climate crises. Green IP is quite a recent phenomenon, and it helps incentivize an eco-friendly environment, which further helps in the growth of research and development in this field. However, green intellectual property will shape how the resources and the technology will be used judicially to care for environmental concerns . One of the essential facets of green intellectual property is 'green patents.'

Green patents provide for the patenting of green technology in environmental protection. They are the technological solution to environmental issues. The exclusive monopoly rights granted to the inventor are known as patents. It is a safeguard that was bestowed upon the creation. The legal privilege or protection afforded to technologies that help the environment, particularly environmentally friendly technology, is known as a “green patent. “Technologies pertaining to waste management, wind, solar, geothermal, tidal, and other energy sources are all eligible for green patents.

The continued crises the globe faces have drawn attention to and increased significance for green patents. Green technology development and proliferation are influenced by the granting of green patents to such innovations, which fosters innovation and promotion. Given the recent media attention to climate change challenges and concerns, it is imperative to take these technologies into account. More discussion surrounds the relatively new idea of “green patents.” Green patents are awarded to eco-friendly inventions; these patents encourage investment in eco-innovations, which in turn boosts economic growth. There have been initiatives at the global level, such as the WIPO Green, which is a global marketplace or a network place for green technology, innovation, and diffusion.

WIPO Green seeks to use technology in developing nations to offer environmentally friendly solutions. WIPO Green seeks to cooperate on initiatives linked to environmental sustainability through a network of businesses, SMEs, investors, and governmental organisations. Furthermore, efforts have been made by the Organisation for Economic Cooperation and Development (OECD) to uphold indicators of green growth. It facilitates statistical patent data-analysis of patents in ecological technologies and includes information on environmental advancements, economic prospects, and policy reactions.

The Environment Protection Act of 1986 is a fundamental piece of legislation in the Indian context that aims to prevent actions that harm the environment. It attempts to provide mechanisms to uphold environmental protection by establishing penal provisions in case any of the act’s provisions are violated. Additionally, The Patents Act of 1970, which established the Indian patent system, contains sufficient measures to support technological advancements, knowledge, and technology transfer. As a result, a strategy for the benefit of end users of technological competence and to promote socioeconomic benefits for society must be developed.

(C) Green Technology and Sustainable Development

Green technology is eco-friendly, which results in social, sustainability in terms of the economy

and environment. These technologies are considered ecological because, in comparison to other technologies, they can greatly improve environmental concerns. Green technologies are frequently seen as an amalgam of human endeavours and science that help maintain equilibrium between the two. Sustainable development is the process of using resources to benefit the present generation without depleting them. Sustainable development encourages a stable and healthy ecosystem and permits wise resource usage for coming generations. Sustainable development is defined as "that satisfies present demands without compromising the capacity of future generations to meet their requirements" by the Brundtland Commission. There is pressure on all countries, developed or developing, to use technologies that pose less of a risk to the environment due to the rapid deterioration of the environment, including climate change and resource depletion. This is because the need to implement environmentally friendly mechanisms has become imperative due to the sudden increase in harm and damage.

One such method is the introduction of greener, more environmentally friendly products and technologies by the nations. Growth and economic development must now be approached thoughtfully, incorporating ideas like eco-innovations. Although sustainable development and green technology are now considered to be related ideas, green technology itself may be a tool to achieve sustainable development. According to the OECD, the nations want to attain "green growth," which is defined as fostering economic development and expansion while retaining the environment's capacity to reap the benefits of natural resources. It will promote innovation and investment, resulting in sustained advancements and economic growth. Green growth is crucial because it keeps the environment's rate of expansion under control. It ensures that the abundance of the natural world is not diminished by development. Sustainable development is aided by green growth management in the creation, application, and acquisition of green technology.

Environmental, green, and sustainable technology enable businesses to create long-lasting breakthroughs. Sustainable innovations are high-quality goods or equipment that effectively lessen their environmental impact. Green technology encompasses more than just environmentally friendly and sustainable technology; it also involves a number of strategies, such as green product strategy, pricing strategy, availability of green products, promotion strategy, and consumer behaviour strategy.

III. COP 27: THE UNITED NATIONS CLIMATE CHANGE CONFERENCE

The Conference of Parties (COP) 27 examines the intricacies of the detrimental impacts of climate change on agriculture and food security. It also emphasises a climate empowerment

action plan and suitable precautions against climate change-related harm. In one of its reports on National Adaptation Policies, the parties' conference asks the Least Developed Countries to process, develop, and successfully implement adaptation plans as well as progress in implementing national adaptation plans. The Sharm El Sheikh Climate Implementation Summit, commonly known as COP 27, took held in Egypt in November 2022. The conference, sometimes referred to as the "Implementation COP," has covered a wide range of practical climate change mitigation strategies. "Investing in the future of energy: Green Hydrogen" was the topic of one round table. The COP states that green energy is important. The transformation process has prioritised energy, with a shift towards clean and green energy sources. In addition to encouraging a healthy energy exchange and emphasising the development of green energy in transitions, COP 27 offers long-term solutions to a number of climate-related issues.

Recently, at COP 28 (Conference of Parties), India made certain national statements regarding the environment, forests, and climate change. Statements that are made are mentioned below. The call given to the global community by India to join Mission Life – Lifestyle for Environment bears testimony to India's action-oriented approach. Furthering the ideals of Mission Life, India launched the Green Credit Initiative here at COP28 on 1st December, 2023 to create a participatory global platform for exchange of innovative environmental programs and instruments.

- Earlier in year 2023, the historic adoption of the Green Development Pact by the G20 nations as part of the New Delhi Declaration.
- India has now finalized its Third National Communication based on GHG inventory of 2019 along with Initial Adaptation Communication. It underscores our consistent contribution towards climate action while also prioritizing the development and well-being of our people.
- Over the course of the next eleven years, India will reach the 2030 NDC target and successfully decouple economic growth from greenhouse gas emissions, having cut its emission intensity relative to GDP by 33% between 2005 and 2019.
- India has also achieved 40% of electric installed capacity through non fossil fuel sources, nine years ahead of the target for 2030. India added around 100 GW of installed electric power between 2017 and 2023, with about 80% of that capacity coming from non-fossil fuel-based resources.
- India have therefore revised our Nationally Determined Contributions (NDCs) upwards indicating our deep commitment towards enhanced climate action.

- Apart from its national endeavors, India has made a noteworthy impact on climate action via its global endeavors, including the International Solar Alliance (ISA), the Big Cat Alliance, the Infrastructure for Resilient Island States (IRIS), Lead IT, and the Coalition for Disaster Resilient Infrastructure (CDRI).
- The Global Biofuel Alliance, launched when the G20 leaders met in New Delhi earlier this year, seeks to serve as a catalytic platform fostering global collaboration for advancement and widespread adoption of biofuels.

(A) The interface between IPR and green technology

Ecological technology, often known as clean or green technology, is technology or innovation that is friendly to the environment. A result of the ongoing changes in climate, there has been an increase in “green intellectual property.” It’s a general word that blends IPRs with green technologies. IPRs encourage innovation and provide incentives for technical advancement, as was previously said. It is essential for the acceptance and development of technological elopement and innovations. It is necessary for innovations to be recognised and grow. Innovation development and recognition are greatly aided by patent law. A serious crisis facing the planet is climate change, which is the continuous increase in environmental deterioration.

Intellectual property rights used to solely cover discoveries or characteristics that were often seen from a corporate perspective, but this is changing, with a shift towards preserving environmental sustainability. Clean technology is focused with enhancing environmental quality and ensuring sustainability by developing environmentally sound and safe technologies, which could add to the measures taken to assure environmental protection . “Green intellectual property” is the new phrase that was created to uphold innovation in the industry and encourage environmental conservation. Green IPR encompasses giving environmentally friendly inventions legal protection. Together, they internalise ecological degradation and encourage innovation. The function of green IPR is strengthened by the TRIPS agreement that intends to promote the creation and technology diffusion for the benefit of end-users & creators of particular technical knowledge, which is also compatible with the socioeconomic advantage of the society.

IPRs provide inventors with monopoly rights, while green IP protects and grants rights to eco-friendly technology. This study will go into great detail about the importance of intellectual property in advancing and spreading green technology. In general, green intellectual property safeguards environmentally innovative ideas that support sustainability through legal protection. A relatively recent idea, green intellectual property rights (IPRs) address the

pressing need to protect the environment and advance sustainable business practices through.

Environmentally friendly innovation. It is a recent phenomena but not a wholly unfamiliar concept; the backdrop of the green IPR in every industry and firm would relate. It is making innovations that assist the environment. It is the path that will lead to sustainability. Realising the importance of turning green is necessary in light of the current climate issues. Environmental protection is not just the responsibility of one department; it is shared by a few other departments as well, including government agencies, corporate entities, and consumers. Thus, the interaction between IPR and sustainability requires green IPR. The World Intellectual Property Organisation (WIPO) reiterated the importance of IP protections for sustainable development and green technology in its 2030 Sustainable Development Agenda. It noted that a nation's capacity for innovation, investment-friendly foreign direct investment, and the promotion of commercial goods and services on a global scale are all correlated with its IP and innovation-supporting innovation. Strong intellectual property protection is essential for the success of green technology. As a result, developing highly green technical advances has to be a primary goal, and encouraging a strong framework is necessary to ensure that innovations are green development.

(B) Intellectual Strategies and Innovation Phase

Studies in the context of non-environmental innovation demonstrate that different innovation phases need for different IP tactics, such as IP protection and sharing models investigated 340 European manufacturing firms. The authors found the effect of three types of IP protection mechanisms, (formal, semi-formal and informal IP protection) on innovation performance measured in terms of novelty and efficiency vary across the three innovation phases, namely ideation, engineering and commercialization phases. An "Open Innovation Life Cycle" framework was created to manage IP for open innovations. Semi-formal IP protection mechanisms, like contracts, have a favourable impact on innovation efficiency during the early ideation phase, whereas formal instruments, like patents, do not.

The Open Innovation Life Cycle is divided into three stages: preparation operation These stages are divided into three levels: individual (people), project, and firm. The study showed how IP strategy and management are essential to the open innovation process, highlighting how important it is to make IPR ownership and exploitation terms clear in early contracting to prevent conflicts with future revenue streams. The focus of this study was not on green innovations, and more investigation is needed to examine the function of various IP model types throughout the invention stages of green innovations.

(C) New Ventures and IP For Sustainability

Innovation processes for sustainability are mostly driven by startups, and innovation processes for sustainability are found to drive each other. IPR are especially important for these kinds of new businesses since they usually have limited resources and therefore rely on robust IP protection to recover their investment. Studies also show how new ventures fit into sustainability processes and national innovation plans' environmental policies. This means that governments can support sustainability initiatives by investing wisely in new businesses. Even if government assistance can be a source of funding for new businesses, securing intellectual property rights (IPR) like patents can serve as a signal to potential investors despite being costly for startups. Investigated the ways in which patents help to finance software industry endeavours and discovered a trade-off between the advantages and disadvantages of patents. IPR raises obstacles to market entry, which can either help or hurt innovation when it comes to the amortisation of R&D investments. IP obstacles challenge new green innovation ventures. IPR systems, especially the patent system, are sometimes seen as instruments used by well-established companies to solidify their market positions through unsustainable products and technologies rather than for the good of society.

To raise entrance barriers for new entrants, some, for example, construct patent fences and enter into cross-license agreements. Certain research findings suggest that the patent system favours businesses with abundant resources over small and medium-sized businesses, especially startups that are limited in terms of both resources and capabilities. Research indicates that well-established companies, in particular, may patent their inventions but do not make them available to others; as a result, the inventions' influence is constrained. It has been discovered that new businesses, especially start-ups, use more adaptable and distinct IP licensing strategies than established businesses when it comes to IP sharing practices. It is not well known how much IPR influences green innovation for new businesses. This study examines the intellectual property models used by startups in the green space and compares them to those used by established businesses and academic institutions.

According to the research, IPR regimes must be flexible in order to reduce any possible harm to sustainable development. Pharmaceutical companies that require licenses or make exceptions for research and education are prime examples of how IPR rules can distribute benefits and expenses to also take into account the needs of the larger public interest. These flexibilities are not only part of the needed innovation ecosystem for the SDGs, but they can also play a critical role in facilitating access to essential technology.

(D) International efforts in promoting patenting in green technology

WIPO Green is a global marketplace or network designed to advance green technologies. It is an online forum for exchanging technological know-how. The primary stakeholders in the development and dissemination of green technology are to be assembled by WIPO Green. In an effort to expedite the processing of green patent applications, the USPTO started the green pilot program in 2009. By reviewing green patent applications ahead of conventional applications, the program aimed to expedite the green patenting process. The UKIPO launched the Green Channel program in 2009, which allows for faster processing of patent applications for inventions that have any positive environmental impact.

If a patent application aims to protect the environment, it can be processed more quickly under the green channel program. It also aims to encourage the UKIPO to communicate with applicants promptly in order to expedite the granting of patents on these applications. Japan recently signed up for the WIPO Green initiative, joining the bandwagon to support green patenting. Japan and WIPO Green have cooperated to encourage the use of green technologies, and the JPO plans to collaborate with WIPO to help green technology proliferate. Japan has released the Green Transformation Technologies Inventory (GXTI), which will assist businesses in describing their green transformation initiatives, in collaboration with WIPO. GXTI demonstrates how to classify GX technologies and how to look up relevant patent documents for each individual GX technology. The Taskforce on Climate-related Financial Disclosures' recommendations are implemented by the inventory (TCFD).

IV. COMPULSORY LICENSING OF GREEN PATENTING

In order to utilise a patented innovation, one must pay a royalty to the inventor without the patentee's consent. This type of licensing is known as compulsory licensing. In IPR law, compulsory licensing is a fundamental idea. It is a licence granted by statute to the third party who invented the innovation. A pertinent examination of the fundamentals of forced licensing is also included in the TRIPS agreement and the Indian patent system. The TRIPS agreement permits products that are subject to mandatory licensing to remain on the market for additional usage.

Nevertheless, Article 31 of the TRIPS agreement addresses using an innovation without the right holder's consent rather than mandating license. However, the benefit under this section has only been allowed if efforts have been made, and they have not been successful within a reasonable time frame, to get approval from the right holder on reasonable commercial terms. A national emergency, an exceptionally urgent circumstance, or a public non-commercial

objective constitute an exception to this provision.

However, the benefit under this section has only been allowed if efforts have been made, and they have not been successful within a reasonable time frame, to get approval from the right holder on reasonable commercial terms. A national emergency, an exceptionally urgent circumstance, or a public non-commercial objective constitute an exception to this provision. Such usage may only be made for the duration of the approved purpose. Furthermore, appropriate compensation for the third party's use of the patent must be given to the patent holder, or patentee. The fact that forced licensing is only permitted in "national emergencies" is the most important aspect of TRIPS. However, whatever national emergency is not listed in the TRIPS agreement? One may think about environmental damage.

Degradation is accelerated by environmental harshness, such as resource depletion and climate change. These are the urgent problems that will have disastrous results. There have been discussions on how mandatory licensing of green technologies can help address the issue of climate change and environmental degradation if it is deemed a national emergency. Since TRIPS does not specify what constitutes a national emergency or the public interest.

It would not be illegal to require green technology licenses in light of climate change. However, it is the responsibility of the nations or member states to prove that there is an emergency or urgency of this kind. It is the member states' responsibility to demonstrate that a particular situation meets the criteria for a national emergency or an extremely emergency matter. Again, no clear explanations are provided to understand these. Article 27 of the TRIPS agreement permits member states to exclude from the domain of patentability inventions those inventions the commercial exploitation of which is necessary to protect public order and morality or to avoid serious environmental prejudices. When it comes to patents and the environment, both domains are now intertwined; yet, there haven't been many cases involving green technology up to this point.

PAICE LLC V. TOYOTA MOTOR CORP (609 F. SUPP. 2D 620, 623 (ED TEX. 2009)) was a significant case involving green technology. In this US case, the defendant exploited the plaintiff's hybrid automotive technology and paid him a twenty-five dollar royalty for it. On the other hand, the defendant corporation contended that it would be against the public interest to prevent them from employing that technology.

Mitsubishi Heavy Industries V. The General Electric Co. (No. 3:10-CV-00276-F, 2013 BL 141580) . This lawsuit related to clean technologies was another one. A patent had been obtained by General Electric (henceforth referred to as GE) for developing a wind turbine operating

system that could operate at different speeds under different wind conditions. A disagreement arose between GE and Mitsubishi after GE filed an infringement lawsuit against Mitsubishi. The defendants counter-filed by accusing GE of dominating the sector by creating these turbine machines; these cases were showcasing green technology.

However, the nations or member states must demonstrate that there is a crisis or urgency of this kind. The burden of demonstrating that a certain circumstance qualifies as an exceptional speed or national emergency shall fall solely on the member nations. For this reason Therefore, a member state that permits or supports mandatory licensing for green technology may pass legislation as long as it satisfies the standards stated in **Article 31**. For instance, green technology transfer may be facilitated by compulsory licensing provided that each instance of green technology is unique, the patent holder has granted authorisation, the scope and duration of the licensing specifically pertain to green technology, and the use of such compulsory licensing serves the goals of green technology transfer.

Everyone opposes forced licensing because, in certain cases, it hurts the creator or the nation where a patent is believed to have been awarded for the product. Certain authors contend that mandatory licensing curtails the rights of patent holders in the event that their invention is utilised without authorisation.

In addition to being detrimental to the nations that issue them, compulsory licensing hinders the development of autonomous, research-based nations by impeding their capacity to innovate. Determining if the destination nation has the infrastructure necessary to accept the technology in their nation is another difficult task; if it does, the concept of mandatory licensing would be unsuccessful. Provisions relating to compulsory licenses are stated in the Paris Convention, TRIPS and national legislations.

(A) The Paris Convention:

- **Article 5A** of the Paris Convention talks about the rules concerning compulsory licenses relating to patents and utility models.
- **Article 5A (2)** identifies the right of each Member State to take legislative measures providing for the permit of compulsory licenses to prevent abuses which might be a result of the exercise of the exclusive rights conferred by the patent.
- **Article 5A (4)** clarifies that a compulsory license may not be granted on the ground of failure to work or insufficient working before the expiration of a period of four years from the filing date or three years from the date of the grant of the patent. The

compulsory license shall be non-exclusive and shall not be transferable.

(B) Trips Agreement:

- **Articles 30 and 31** of the TRIPS Agreement grant some exceptions and limitations to the exclusive rights that World Trade Organization Members may issue in their national laws.
- **Article 30** permits Members to grant limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking equally into account the legitimate interests of third parties.
- **Article 31 provides that a Member may allow uses other than the ones provided under Article 30, without the permission of the rights holder.** This covers compulsory licenses in favor of third parties and for government use without the authorization of the right holder. Such use may only be permitted if, prior to such use, the proposed user has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and that such efforts have not been successful within a reasonable period of time. This requirement may be relinquished by a Member in the case of a national emergency or other circumstance of extreme urgency or in cases of public non-commercial use.

(C) National Legislations:

Many of the industrialized and developing countries have legislation that permits the government and/or third parties to use a patented invention without the authorization of the right holder under certain specific circumstances and conditions. Compulsory licenses are granted against consideration and not for free. As with voluntary licensing, the rights can be implemented after negotiation and the payment of compensation.

V. INDIA'S VIEW ON GREEN TECHNOLOGY

India is working quickly to transform the energy sector in order to cut carbon emissions completely by 2070. Changing the current energy environment for sustainable development requires the use of green energy. Clean, affordable energy is the seventh of the Sustainable Development Goals, and it must be achieved by 2030. **The year and review of 2022 published by the Ministry of New and Renewable Energy states that India has a very successful action plan in place to promote green technologies.** India is ranked fourth in the world for installed renewable energy capacity, which includes vast hydro, wind, and solar generating

capacity. Soon, 172.72 GW of non-fossil fuel power will be available throughout the country. Thus, a long-term transition to green technology is urgently needed.

A part from the aforementioned data, the Indian government has initiated several national campaigns to promote green technology and innovations. Among these campaigns is the **AGNI program**, which falls under the purview of the **Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STAIIC)** and serves as a platform for the commercialisation of technological innovations.

Other projects include Climate Launchpad 17, which is the largest green startups ideas competition in the world and was co-founded by the European Union. They hope to see the planet's clean tech potential used to tackle climate change realised. Additionally, firms that are knowledge-based, technologically sophisticated, and environmentally sustainable are encouraged by the **National Science and Technology Entrepreneurship Development Board (NSTEDB)**. Additionally, under the direction of the Ministry of Science and Technology, Government of India, the Department of Science and Technology has been creating an annual climate change program to guarantee strong and sustainable mechanisms for addressing climate change concerns.

The National Action Plan on Climate Change, a flagship program comprising several efforts to address climate change concerns, was also introduced by the department. Green ideas made by Indian inventors are patentable; **PI Green Innovations received a patent for its carbon cutter technique in August 2022**. With the use of carbon cutter technology, retrofit devices are made to lower airborne particulate matter. The company now has a patent for its technology in India, adding to the patents it already holds in the United States, China, and Singapore. India has granted patents to Sun Hydrogen, a company that develops green technologies, for their "Multi-junction artificial photosynthetic cell with enhanced photo-voltages."

The company does not currently have any patents from the Indian Patent Office; however, it does currently have patents in the USA, China, Europe, and Australia. Once more, India is making some very noteworthy advancements in the fields of green technology and green patenting. The Indian patent landscape for green technologies will rise as a result of the companies creating green technologies receiving patents for their innovations.

(A) Suggestions

- Promoting voluntary licensing of green technology packages, including but not limited to licenses under patents, copyrights, and know-how/trade secrets, is the goal of the recently launched WIPO GREEN initiative.

- Therefore, assistance and assessment are required to ascertain the level of its success in encouraging green technology transfer.
- Problems addressing technical problems in the climate change context can be overcome by rewarding and supporting collaborations in the research and development field. *
- Such collaborations should involve research institutions and firms from developing, emerging, and modern countries.*
- Treatment of background and foreground IP from such associations should be appropriately addressed in agreements between the parties.

VI. CONCLUSION

The world is changing at a never-before-seen rate due to the necessity for updated technology; while it is not feasible to go back, more harm can be avoided. Therefore, in order to allow economic development while preventing environmental harm, it is imperative that the environmental and climate change issues be addressed with particular academic or practical policies. Green patenting becomes a crucial idea since it deals with the protection of these green technologies, which are being adopted as an efficient technologically advanced mechanism to address environmental concerns and achieve the levels of technological advancements; It implies that the technologies that are going to be introduced ought to be acknowledged, and the creators ought to take pleasure in the security of their creations.

Though the process could be more efficient, there are still some questions regarding the simple transfer of these technology. The laws governing the transfer of green technology, which are enforced through mandatory licensing, still require clarification. Global cooperation is desperately needed to reduce greenhouse gas emissions and slow down climate change. It is acknowledged that green technology can influence mitigation.

What sets green technology apart from traditional technology is its impact on future generations and on every person on the planet, which is why it deserves special attention. There is little doubt that intellectual property rights influence the advancement and spread of green technologies.

Nevertheless, the question is whether the influence promotes or impedes the spread of green technology, and if so, whether the impact necessitates and justifies improving development. As previously stated, morality-based ideas have historically influenced intellectual property in some way.

The Kyoto Protocol and TRIPS Agreement give a basis to justify reasonable steps if necessary. In order to simultaneously promote green innovation and guarantee that its advantages are widely distributed, intellectual property should be seen in the larger context of appropriate policies, sufficient institutions, and human resources.

VII. REFERENCES

- Global challenges report, Innovation & Diffusion of Green Technologies by **Kristina M. Lybecker & Sebastian Lohse**.
- See **Russell Thomson & Elizabeth Webster**, The Role of Intellectual Property Rights in Addressing Climate Change: The Case of Agriculture, 2 WORLD INTELL. PROP. ORG. J. 133, 133 (2010).
- Patent wars: The curse of innovation by Richard Waters.
- NArticle 7 of the TRIPS Agreement.
- Developing and Diffusing Green Technologies: The Impact of Intellectual Property Rights and their Justification by **Jonathan M.W.W. Chu**.
- USING INTELLECTUAL PROPERTY TO IMPROVE ENVIRONMENTAL PROTECTION Michael A. Gollin
- Developing and Diffusing Green Technologies: The Impact of Intellectual Property Rights and their Justification . Jonathan M.W.W. Chu
- Green Innovation Intellectual Property Rights Guide Book.
- Role of Intellectual property rights in Environmental Protection. S V Girikumar.
