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GREEN PATENTS IN INDIA- A CRITICAL ANALYSIS

AUTHORED BY - SAUMYA SAKSHI

ABSTRACT

The need for green technology arises from the growing recognition of the environmental challenges facing the world, such as climate change, air and water pollution, and depletion of natural resources. Green technology refers to technologies that are designed to reduce the negative impact of human activities on the environment and promote sustainability. The patent system fosters creativity and invention, that, if used wisely, can result in achieving both economic and environmental sustainability. Thus, a patent is the most obvious IP when it comes to protecting inventions and technologies. India's position as a fast-growing economy with a focus on sustainable development and climate change mitigation has led to an increase in green technology innovation and patenting. India has also implemented various policies to promote the use of renewable energy and reduce greenhouse gas emissions, including incentives for the development of renewable energy technologies and the establishment of a national carbon trading scheme. However, there are also legal challenges and limitations associated with green patents. This paper focuses on the concept of Green technology and Green Patenting in India.

Key Words: Green Technology, Green Patent, Compulsory License.

INTRODUCTION

In recent years, there has been growing concern about the impact of human activities on the environment. The rapid pace of industrialization and urbanization, combined with the widespread use of fossil fuels, has led to an increase in greenhouse gas emissions and a range of environmental problems, such as climate change, air pollution, and water scarcity.

For human existence to continue, going green is a must, not an option. Building a path to a green future is crucial in the twenty-first century. The effects of climate change and the need to take action to protect the environment are felt everywhere. Businesses, bureaucrats, and governments have all started working together to combat climate change and the problems it

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has caused. To address these challenges, there is a growing need for innovative technologies that promote environmental sustainability and reduce the impact of human activities on the environment.

For technology companies to invest time and money in developing novel technologies, strong intellectual property rights (IPR) are crucial[1]. One way to encourage the development of such technologies is through the use of green patents. The patent system fosters creativity and invention, that, if used wisely, can result in achieving both economic and environmental sustainability. Green patents are patents that protect environmentally-friendly technologies, such as renewable energy systems, waste management techniques, and sustainable agriculture practices. By providing legal protection for these technologies, green patents encourage investment in research and development, and provide a framework for the commercialization and diffusion of these technologies.

India is a country that faces significant environmental challenges, including air pollution, water scarcity, and deforestation[2]. However, it is also a country with a rich tradition of innovation and technological development. In recent years, the Indian government has made significant efforts to promote the development and adoption of environmentally-friendly technologies, such as solar power and electric vehicles[3]. The use of green patents could be an important tool in these efforts, helping to incentivize innovation in the green technology sector and promote sustainable development.

GREEN TECHNOLOGY

Green technology[4], also known as “clean technology” or “environmental technology”, refers to technologies and innovations that are designed to reduce the effect of human activities on environment and promote sustainability[5]. The term “green technology” (abbreviated as "green tech") can also apply to technologies that produce clean energy, utilise alternative fuels, and

[1] Robert Fair , “Does Climate Change Justify Compulsory Licensing of Green Technology?”, VOLUMN 6 ISSUE 1, Brigham Young University International Law & Management Review, https://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1066&context=ilmr/
[2] India is the 5th most polluted country in the world.
[3] In order to improve the nation's economy and generate employment, the Indian government has committed to investing $4.3 billion on green technologies.
[4] Technology that encourages sustainability, lowers greenhouse gas emissions, or helps combat climate change is referred to as “green technology”.
[5] Mathews Verghese, “Green Intellectual Property”, FoxMandal, https://www.foxmandal.in/green-intellectual-property/

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are less detrimental to the environment than fossil fuels[6]. These technologies are typically developed to address global environmental challenges such as climate change, pollution, and resource depletion. Green technologies often focus on improving efficiency and reducing waste, and may involve the use of renewable energy sources, such as solar, wind, or hydro power. They may also involve the use of advanced materials and manufacturing processes that reduce the environmental impact of production.

The world economy will be propelled toward a sustainable future by green technologies, which are about to unleash a wave of change that has never before been seen. In addition to advancing sustainability, green innovation also strengthens the global economy and motivates customers to embrace green technology products[7]. In the modern world, there is a greater awareness of and need for environmentally friendly and sustainable activities. The patent system encourages innovation in all situations, including those involving green technologies. Therefore, the system of green patents can be used to connect the patenting system to the idea of sustainable human growth.

Types of Green Technology[8]

1. **Renewable Energy:** This includes technologies that harness renewable sources of energy such as solar power, wind power, hydroelectric power, geothermal energy, and biofuels.
2. **Energy Efficiency:** This refers to technologies that reduce energy consumption such as LED lighting, smart thermostats, and energy-efficient appliances.
3. **Green Building:** This involves designing buildings that use sustainable materials and energy-efficient systems.
4. **Waste Reduction:** This includes technologies that reduce waste such as composting, recycling, and waste-to-energy systems.
5. **Sustainable Agriculture:** This involves using techniques that promote sustainable agriculture practices such as crop rotation, organic farming, and precision agriculture.

[6] What is Environmental Technology?, Environment Online, https://www.envirotech-online.com/news/environmental-laboratory/7/breaking-news/what-is-environmental-technology/32641#:~:text=Environmental%20technology%2C%20also%20known%20as,environment%20while%20consuming%20its%20resources.

[7] Ashish Sonawane & Adv. Konical Rao, "IMPACT OF INTELLECTUAL PROPERTY IN DEVELOPING GREEN TECHNOLOGY", Nyayniti, https://www.linkedin.com/pulse/impact-intellectual-property-developing-green-ashish-sonawane/

[8] Examples of Green Technology, Tecam, https://tecamgroup.com/10-examples-of-green-technology/

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6. **Water Conservation:** This involves technologies that conserve water such as low-flow toilets, rainwater harvesting, and drip irrigation.
7. **Sustainable Transportation:** This includes technologies that promote sustainable transportation such as electric and hybrid vehicles, public transportation, and bike-sharing systems.
8. **Carbon Capture and Storage:** This involves technologies that capture and store carbon emissions to prevent them from entering the atmosphere.
9. **Green Chemistry:** This involves developing and using chemicals that are safe for the environment and promote sustainability.
10. **Smart Grid:** This involves using technology to improve the efficiency of energy transmission and distribution.

GREEN PATENT

Patenting green technology is referred to as "green patenting"[9]. The term "Green Patent" refers to patents that have been granted for green technology[10]. A technology that does not negatively impact the environment or actively halts environmental degradation may be covered by a "green" patent[11].

In the context of supporting sustainable human development, the term "green patent"[12] refers to the dissemination of green technologies that mitigate climate change and promote social, economic, and environmental progress[13]. Green patents[14] cover innovations that contribute to the conservation of natural resources, reduce pollution, and address climate change issues.

By providing legal protection for innovations related to green technologies, green patents encourage companies and individuals to invest in research and development in this field. This, in turn, can lead to the development of new and innovative technologies that promote environmental sustainability, and contribute to reducing the impact of climate change.

[9] Can Patents Help Save The Environment?, Intepat, https://www.intepat.com/blog/green-patents-environments/
[10] For example, waste technology, wind power, geothermal energy, solar energy, tidal energy, biomass, and so on.
[11] Can Patents Help Save The Environment? Intepat, https://www.intepat.com/blog/green-patents-environments/
[12] Green patents are subject to the same legal framework as other types of patents, but they are specifically related to environmentally-friendly technologies or technologies that promote sustainable development.
[13] Green Patent, Techopedia, "htttps://www.techopedia.com/definition/29137/green-patent#:~:text=A%20green%20patent%20is%20a,or%20otherwise%20benefit%20the%20environment/"
[14] These patents are typically granted for innovations in areas such as renewable energy, waste reduction, energy conservation, sustainable agriculture, and other environmentally friendly technologies.

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Why Green IP is needed[15]?

Green intellectual property (IP) is needed:

- To incentivize and promote innovation in the development of environmentally-friendly technologies;
- To facilitate the transfer of these technologies to developing countries;
- To promote sustainable development, to attract investment in the green technology sector, and;
- To foster collaboration and cooperation among inventors, companies, and research institutions.

Why to link Green Technologies and Patent

A patent is a legal privilege given to an inventor that forbids other parties from making money off of the patented idea without the patent holder's consent. Thus, a patent is the most obvious IP when it comes to protecting inventions and technologies[16]. Also, linking green technologies and patents is important because patents provide a legal framework for protecting the intellectual property rights of inventors, which can incentivize investment in the development and commercialization of environmentally-friendly technologies[17]. Without patent protection, inventors may be less willing to invest time and resources into developing green technologies, as they may be concerned that their inventions will be copied or stolen by competitors. In addition to incentivizing investment in green technology development, patents also provide a framework for the dissemination and adoption of environmentally-friendly technologies.

Moreover, patents[18] can help to encourage collaboration and knowledge sharing among inventors and researchers, by providing a legal framework for licensing and cross-licensing of technologies. This can lead to more rapid and widespread adoption of green technologies and can help to accelerate the transition to a more sustainable economy.

Overall, linking green technologies and patents is important because it provides a legal and

[15] AMLEGALS, "India: Green IP – A Way Forward To Sustainability" , Mondaqq, https://www.mondaq.com/india/trade-secrets/938054/green-ip--a-way-forward-to-sustainability/

[16] Nandani Shenai, Green IP for Green Technology: Much needed interplay between between Intellectual Property and Sustainability, IJPIEL, https://ijpiel.com/index.php/2022/06/10/green-ip-for-green-technology-a-much-needed-interplay-between-intellectual-property-and-sustainability/#:~:text=Green %20technology%20patenting%20can%20help,is%20achieved%20in%20its%20totality/

[17] Ibid.

[18] Patents allow inventors to license or sell their technology to others, promoting the widespread use of these technologies and enabling others to build upon the original invention.

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economic incentive for the development and dissemination of environmentally-friendly technologies, which are essential for addressing global environmental challenges such as climate change, pollution, and resource depletion. Also, linking patents to green technology is an important tool for promoting innovation, protecting innovators, reducing barriers to adoption, and promoting investment in sustainable practices and products.

Initiatives taken for Green Patents

1. The International Patent Classification (IPC)[19] committee has developed a tool called the IPC Green Inventory, which is designed to help users search for patent information related to green technologies. The IPC Green Inventory[20] is a classification system that provides a standardized set of categories for patent documents related to environmentally-friendly technologies[21]. Using the IPC Green Inventory, patent examiners and other researchers can identify relevant patents related to topics such as energy efficiency, renewable energy, and waste reduction. By making, it easier to find and analyse patent information related to green technologies, the IPC Green Inventory also help to promote the development and adoption of environmentally-friendly technologies.
2. One of the major initiatives taken for green patent is WIPO fast track patenting[22]. WIPO fast track patenting[23] is a service[24] offered by the WIPO to accelerate the examination of patent applications. Under the WIPO fast track patenting program[25], an applicant can request accelerated examination of their patent application if the invention relates to a "green" technology, which is defined as a technology that contributes to environmental sustainability. To qualify for the WIPO fast track patenting program, the applicant must submit a request for accelerated examination, along with a statement that the invention is related to a green technology. The application will then be examined on an expedited basis,

[19] International Patent Classification (IPC), WIPO, https://www.wipo.int/classifications/ipc/en/
[20] The inventory includes categories related to a wide range of green technologies, from solar power and wind turbines to water treatment and green building materials. The IPC Green Inventory can be used to identify emerging trends and areas of innovation in the field of green technologies, as well as to track the activities of individual companies or researchers.
[21] IPC Green Inventory, Microsoft Word - IPC Green Inventory.doc, https://www.pi.camcom.it/documenti/IPC%20Green%20Inventory.pdf/
[22] Fast-tracking green patent applications, WIPO MAGAZINE, https://www.wipo.int/wipo_magazine/en/2013/03/article_0002.html/
[23] The UK started the first programme in May 2009. Following in the same year were Australia, Israel, Japan, the Republic of Korea (ROK), the US, and Japan. Similar initiatives were recently introduced by Canada (in March 2011), Brazil, and China (in 2012).
[24] This service is designed to help applicants obtain a patent more quickly and efficiently, which can be particularly beneficial in the case of technologies that are rapidly developing or that have a short commercial lifespan.
[25] This program is part of WIPO's efforts to promote the use of intellectual property as a tool for promoting sustainable development.

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with the goal of issuing a patent more quickly than would be possible through the standard examination process. The duration of the process to secure a patent can be significantly shortened under this programme, going from years to only a few months.

GREEN PATENT IN INDIA

Technology is gaining importance. India has pledged to put suitable measures in place to mitigate climate change, minimise carbon footprint, and reduce greenhouse gas emissions. India has made cautious steps towards the development of green technologies. With the use of scientific techniques in energy, agriculture, material science, and hydrology, green technology attempts to use clean energy while ensuring reduced reliance on fossil fuels. India has made significant progress in green technology, with several government and private initiatives driving innovation and growth in this area. 13% of India's high-value patents are in the field of green technology[26].

These are three specific examples of sectors that exhibit significant growth in green technologies in India that are wind, solar and electric and Hybrid automobiles. The country has emerged as a global leader in solar and wind power, with an installed capacity of over 61 GW[27] and 41 GW[28] respectively. India has also set an ambitious target of having 30% of all vehicles on the road be electric by 2030, and has several green building projects, waste management initiatives, and innovative start-ups working towards sustainable development.

These initiatives demonstrate India's commitment to green technology and creating a sustainable future. As a result, they represent significant opportunities for the development and patenting of new green technologies. Some other sectors with potential for growth in green patenting in India include[29]: Energy Storage, Waste Management[30], Agriculture and Food

[26] Sansad TV Perspective: Investment in Green Technology, BYJU'S, https://byjus.com/free-ias-prep/sansad-tv-perspective-investment-in-green-technology/
[27] Overview, SOLAR ENERGY, Minestry of New and Renewable Energy, https://mnre.gov.in/solar/current-status/#:~:text=Recently%2C%20India%20stands%204th,as%20on%2030th%20November%2C%202022./
[28] Standing Committee Report Summary, Evaluation of Wind Energy in India, PRS, https://prsindia.org/policy/report-summaries/evaluation-of-wind-energy-in-india#:~ :text =As% 20of%20 May %202022%2C%20the,of%20the%20commercially%20exploitable%20potential./
[29] Ankit Singh, Contemporary Trend in Green Patent in India: A Critical Analysis, Law Audience, Volume 1 Issue 3, https://www.lawaudience.com/contemporary-trends-in-green-patenting-in-india-a-critical-analysis/
[30] India is facing a growing waste management challenge, with increasing amounts of solid waste and hazardous waste generated each year. Green technologies for water treatment, conservation, and reuse are in high demand, with potential for patenting in areas such as membrane filtration, desalination, and rainwater harvesting.

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Processing[31].

The country is exploring the potential of green hydrogen and is promoting green finance to encourage investment in green technologies. India is working towards creating smart cities, and has several initiatives to address climate change and promote climate resilience. India's position as a fast-growing economy with a focus on sustainable development and climate change mitigation has led to an increase in green technology innovation and patenting. The government of India has also implemented various policies and schemes to encourage green technology innovation and commercialization, such as the National Action Plan on Climate Change, the National Solar Mission, and the FAME scheme for electric vehicles.

Indian Patent Act, 1970

Green patenting in India is granted for patents for environmentally-friendly technologies and processes that promote sustainability and reduce environmental impacts. India has been actively promoting green patenting as a means to incentivize innovation in the development of green technologies, and to promote sustainable development[32]. The Indian Patent Office (IPO) has granted a number of green patents related to renewable energy, clean technologies, and environmentally-friendly products and processes.

In India, the legal framework for green patents is primarily governed by the Patents Act, 1970 and the Patent Rules, 2003. The Patents Act, 1970 provides for the grant of patents for inventions that are novel[33], non-obvious[34], and industrially applicable[35]. This means that in order for a green technology to be granted a patent, it must be new and inventive, and it must be capable of being used in industry. The Act also provides for the grant of patents for processes for producing products, which can include processes for producing environmentally-friendly products or processes that reduce environmental impacts.

Once a green patent is granted in India, the inventor or applicant can use it to prevent others

[31] Green technologies for sustainable agriculture, food processing, and packaging are gaining importance in India. Patenting activity in these areas could include innovations in areas such as precision farming, organic farming, bio-based materials, and food preservation.
[32]Pradeep Kumar Kamal & Manisha Singh, "Incentivisation of green technologies in India", Asia Business Law Journal, https://law.asia/incentivisation-green-technologies-india/
[33] Section 2(l), The Patent Act, 1970.
[34] Section 2(1)(j), The Patent Act, 1970.
[35] Section 2(1) (ac), The Patent Act, 1970.

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from making, using, selling or importing the patented invention without their permission. The grant of a green patent can also provide an incentive for further research and development in the field of green technologies, and contribute to the transition towards a more sustainable future.

India's Global Position

India's rating on the Global Innovation Index has been boosted by advancements in green technologies. India rose to 40th place in 2022 from 81st place in 2015–16[36]. This is mostly due to India's recent spate of green patent applications.

India's global position in green patenting has been steadily improving over the years. As per the WIPO database, India was ranked 10th in the world for green patent publications in 2020[37]. This was a significant improvement from its ranking of 22nd in 2013. India has also been actively filing green patent applications in international jurisdictions such as the US and Europe.

Additionally, India has also seen an increase in green patent filings in recent years[38], particularly in the fields of solar energy, wind energy, and waste management. Between 2016 and 2021, green technology-related patents were awarded in India every two, with a quarter of these patents relating to the generation of alternative energy[39]. More than 91,500 patents were issued between 2016 and 2022, according to data from the ministry of commerce and industry, of which 61,186 were for green technology[40]. This is in line with the Centre's initiatives to "increase the use of green technology for improving the economy and encouraging consumers to utilise items generated via use of such technology," which are both emphasised in the Centre's efforts.

[36] GII 2022 results The GII reveals the most innovative economies in the world, ranking the innovation performance of 132 economies, Global Innovation Index 2022: What is the future of innovation–driven growth?, https://www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2022-section3-en-gii-2022-results-global-innovation-index-2022-15th-edition.pdf/

[37] Distribution of green patent filings worldwide as of 2020, by select country, Statista, https://www.statista.com/statistics/859805/share-green-patent-filings-globally-by-country/

[38] India saw a rise of 572% in patent approvals between 2014 and 2021.

[39] Chethan Kumar, Every 2nd patent granted since 2016 relates to Green tech; most linked to waste, alternative energy, The Times Of India, https://timesofindia.indiatimes.com/india/every-2nd-patent-granted-since-2016-relates-to-green-tech-most-linked-to-waste-alternative-energy/articleshow/89420047.cms/

[40] Ibid.

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Section 3(d) of The Indian Patents Act, 1970 and Green Technology

Section 3(d) of the Indian Patents Act, 1970[41] is a provision that sets out the criteria for patentability of pharmaceutical substances and chemical compounds. The amendment introduced the requirement that the new form or property of a known substance must demonstrate significantly enhanced efficacy in order to be patentable. Critics argue that the provision is being applied too strictly, leading to rejections of patent applications for inventions that should be patentable. The provision has been subject to interpretation and debate in relation to its impact on the patentability of green technologies[42].

Although the 2005 amendment to section 3(d) were intended to prevent attempts at "evergreening," in actuality the section is applied arbitrarily to pharmaceutical inventions, preventing the patenting of many important innovations. Hence, there is concern that the Indian Patent Office will frequently object under the new exclusionary clause for green inventions even in legitimate circumstances, this may only occur because of the interpretative background of this section. Even after the revision in 2005, its application and scope remain rather ambiguous. Innovators in rapidly developing fields of technology, like green technology, are undoubtedly harmed by this.

To protect the financial interests of inventors who devote a lot of time, money, and effort to R&D, a strategy shift is necessary amid rising calls for the removal of patent restrictions on sustainable green innovations. Some approaches must be taken in order to protect such inventors. Approaches like:

Adoption of a pricing structure with different levels that permits patent holders to offer eco-friendly technology in India at comparatively cheap rates might be one approach. Contrary to pharmaceutical items, the majority of energy-efficient products are larger in size, which considerably lowers the chance of their being reimported into nations where they're more expensive.

Changing the licencing structure for green technology to be more like the telecommunications industry is another potential alternate solution. Interested parties may be granted licences under fair and acceptable conditions in connection to standard essential patents.

[41] Section 3(d) of The Patent Act, 1970.
[42] Swarup Kumar and Jitesh Kumar, Easing the path for green tech in India, LAIPR, https://www.remfry.com/wp-content/uploads/2017/08/easing-the-path-for-green-tech-in-india.pdf/

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Additional successful methods might be the establishment of technology research and transfer centres, the formation of relevant technology patent pools, and the utilisation of private-public partnership models to purchase or licence patented green technology.

The Indian government faces the challenge of balancing the interests of both the pro-environment and pro-patent lobbies in the development and dissemination of climate change mitigation technologies. India's current patenting regime can create impediments in the diffusion of green technology due to various factors. One factor is that patent holders may not be satisfied with the rights and protection provided to them. They may feel that their patents are not adequately protected, which can lead to infringement and a loss of revenue. Another factor that can contribute to impedance in the diffusion of green technology is the monopoly power that results from patent protection. This can lead to high prices for green technologies in the Indian market, making them unaffordable for many consumers. This can also limit the diffusion of green technology to only those who can afford to pay high prices, which can be detrimental to the overall goal of reducing greenhouse gas emissions and mitigating the effects of climate change.

Overall, section 3(d) of the Patents Act is an important provision for ensuring that patents are only granted for genuine technological innovations, and its impact on the patentability of green technologies remains a subject of ongoing debate and interpretation.

Compulsory licenses and green technology

Compulsory licensing is a provision in patent law that allows the government to grant licenses to third parties to manufacture, use or sell a patented product or process without the consent of the patent owner[43]. In the context of green technology, compulsory licensing can be used to ensure that environmentally friendly technologies are made available at affordable prices, especially in developing countries where the costs of these technologies may be prohibitive. This can help to promote the adoption of green technologies and reduce the environmental impact of various industries. The idea of lowering IPRs stringent protection specifically for the aim of spreading green technology has gained favour in both developing and developed nations

[43]Hana Onderkova, Compulsory Licensing in India and changes brought to it by the TRIPS Agreement, IP HelpDesk, European Commission, https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/compulsory-licensing-india-and-changes-brought-it-trips-agreement-2021-10-12_en/

Section 84 of the Indian Patent Act, 1970.

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since some nations think that strong IPRs are to blame for the high pricing. One prominent solution to address the issue is the idea of compulsory licencing.

Compulsory licencing, as in the case with medicines, is meant to let lower-income nations to avoid patent protection in order to develop generic versions of a technology[44]. This provision is intended to balance the interests of the patent holder with those of the public by ensuring that important inventions are made available to the public at affordable prices, especially in cases of public health emergencies or other circumstances that may require immediate action[45]. This can be particularly relevant in the context of green technology, where patented technologies may be essential for addressing environmental challenges such as climate change or pollution reduction. In order to get a compulsory licence, a holder/nation must have to demonstrate that it made an effort to obtain a voluntary licence but was unsuccessful. Nevertheless, the TRIPS agreement waives this criterion in situations of national emergency, extraordinary urgency, or for public non-commercial usage[46].

Under the Indian Patents Act, compulsory licensing is a legal mechanism that allows the government to permit someone else to produce and sell a patented product or process without the patent owner's consent[47]. Section 92 of the Act[48] deals with the grant of compulsory licenses in cases of national emergency, extreme urgency, or public non-commercial use. This section provides for a special provision for the grant of compulsory licenses in certain exceptional circumstances.

However, the use of compulsory licensing is controversial, and may be subject to legal challenges by patent holders who argue that their intellectual property rights are being violated. For example, granting compulsory licences for green technology will also draw criticism from outside, and a country would face one-sided trade restrictions. Also, the granting compulsory licencing might be accompanied by a decline in foreign investment since many patent owners would probably decrease their investments in that country due to their perception of it as a

[44] Gupta, Rishi R. "Compulsory Licensing in TRIPS: Chinese and Indian Comparative Advantage in the Manufacture and Exportation of Green Technologies." Sustainable Development Law & Policy 12, no. 3 (2012): 21, 54-55. https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1534&context=sdlp/
[45] DOHA Declaration 2003
[46] Article 31 of TRIPS allows for compulsory licensing of patents in cases of national emergencies, public health crises, or other circumstances of extreme urgency.
[47] Section 84 of The Patent Act, 1970.
[48] Section 92 of The Patent Act, 1970.

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patent-unfriendly environment.

To address these concerns, it is important to carefully consider the circumstances under which compulsory licensing may be appropriate, and to ensure that it is implemented in a manner that is fair and transparent.

In addition to compulsory licensing, there are other policy measures that can be used to promote the development and dissemination of green technologies. These include technology transfer agreements, licensing partnerships, and government subsidies or incentives. Ultimately, a balanced approach is needed that takes into account the need for innovation and investment in green technologies, as well as the need for access to these technologies to address urgent environmental challenges.

CONCLUSION

Green patents play an important role in promoting sustainable development and incentivizing innovation in technologies that have environmental benefits. Green patents can help drive the transition to a more sustainable economy by encouraging investment in technologies that reduce pollution, conserve natural resources, and promote clean energy.

According to the World Intellectual Property Organization (WIPO), India ranks among the top ten countries in terms of green patent filings. However, the majority of these patents are filed by foreign companies, highlighting the limited involvement of Indian firms in green technology innovation and commercialization. This can be attributed to several factors, including the lack of adequate incentives, limited access to funding and resources, and a weak intellectual property rights regime that makes it difficult to protect and monetize green inventions.

India has also implemented various policies to promote the use of renewable energy and reduce greenhouse gas emissions, including incentives for the development of renewable energy technologies and the establishment of a national carbon trading scheme. However, there are also legal challenges and limitations associated with green patents. The criteria for granting green patents in India is not clearly defined, and there is no specific definition of what qualifies as a green patent. This lack of clarity can make it difficult for inventors and businesses to know whether their inventions will be considered green technologies, and may lead to inconsistencies in the granting of green patents. The patent examination process in India is often slow and

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unpredictable, leading to significant delays and uncertainty in obtaining patent protection. Additionally, the high costs associated with patenting and enforcing intellectual property rights can be prohibitive for small and medium-sized enterprises (SMEs) and individual inventors.

Another challenge in green patenting in India is the lack of awareness and capacity among inventors and investors regarding the importance of intellectual property protection and the potential benefits of green patenting. This underscores the need for greater education and training programs that can promote awareness and understanding of the value of green patents in driving innovation and competitiveness.

To overcome these challenges, it is crucial to strengthen the legal and regulatory frameworks governing green patenting in India, streamline the patent examination process, and provide incentives and support for green technology innovation and commercialization by Indian firms. Collaboration between academia, industry, and government can also play a critical role in promoting green patenting by fostering knowledge sharing, technology transfer, and collaborative research and development initiatives.

In conclusion, green patenting has the potential to drive sustainable development and economic growth in India. However, significant challenges need to be addressed to promote the creation, protection, and commercialization of environmentally friendly technologies in the country. Addressing these challenges will require a concerted effort from policymakers, investors, inventors, and other stakeholders to build a robust and supportive ecosystem for green patenting in India.

BIBLIOGRAPHY

1. Robert Fair, Does Climate Change Justify Compulsory Licensing of Green Technology?, Brigham Young University International Law & Management Review, Volumn 6 Issue 1, https://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1066&context=ilmr/
2. Patent filings in India go past 61K, up 5.5% in 2021: WIPO, Fortune India, https://www.fortuneindia.com/macro/patent-filings-in-india-go-past-61k-up-55-in-2021-wipo/110489#:~:text=India%20received%2061%2C573%20patent%20applications,and%20filed%20by%20resident%20applicants/

 ISSN: 2582-6433

3. *"WHAT IS GREENTECH?",* Built-in, https://builtin.com/greentech/
4. *"Green IP: the role of intellectual property in sustainability*", FRANCIER, https://www.financierworldwide.com/green-ip-the-role-of-intellectual-property-in-sustainability#.Y_X2dnZBy3B/
5. *"The Role of IP Rights in Green Technologies Innovation",* METIS Partners, https://metispartners.com/thought-leadership/the-role-of-ip-rights-in-green-technologies-innovation/
6. Cerys Wyn Davies, Tom Nener and Nicky Pereira, *"Green IP: the role of intellectual property in sustainability, FINANCIER Worldwide"*, https://www.financierworldwide.com/green-ip-the-role-of-intellectual-property-in-sustainability#.Y_eiNXZBy3D/
7. Jasmine, Rahul Kumar Jha, Akash Kumar Meher, Shriya Bajaj , *"Is the development of green intellectual property paving the way to environmental sustainability in India?",* DownToEarth, https://www.downtoearth.org.in/blog/energy/is-the-development-of-green-intellectual-property-paving-the-way-to-environmental-sustainability-in-india--77084/
8. CHETHAN KUMAR, Every 2nd patent granted since 2016 relates to Green tech; The Times of India, http://timesofindia. indiatimes.com/articleshow/89420047. cms?utm_source =contentofinterest&utm_medium=text&utm_campaign=cppst/
9. Green Innovation and Green Patents in India,, https://changestarted.com/green-innovation-and-green-patents-in-india/
10. Manisha Singh& Pradeep Kumar Kamal*, "Incentivisation of green technologies in India",* Asia Business Law Journal, https://law.asia/incentivisation-green-technologies-india/