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WHITE BLACK LEGAL is an open access, peer-reviewed and refereed journal providededicated to express views on topical legal issues, thereby generating a cross current of ideas on emerging matters. This platform shall also ignite the initiative and desire of young law students to contribute in the field of law. The erudite response of legal luminaries shall be solicited to enable readers to explore challenges that lie before law makers, lawyers and the society at large, in the event of the ever changing social, economic and technological scenario.

With this thought, we hereby present to you

FROM LAB TO MARKET: PROTECTING THE ECO-FRIENDLY INNOVATIONS UNDER INDIAN PATENT LAW

AUTHORED BY - ANUKRITI CHAUHAN & DR. MONICA KHAROLA

Abstract

Eco-friendly innovations have emerged as vital tools in addressing the global climate crisis, promoting sustainable development, and fostering a green economy. In India, where environmental challenges are pressing and the innovation landscape is rapidly evolving, protecting these green technologies through an effective legal framework becomes imperative. This article explores the journey of eco-friendly innovations from laboratories to the marketplace, with a specific focus on how Indian patent law supports and safeguards such transitions.

Indian patent law, governed primarily by the Patents Act, 1970 (as amended), provides a structured mechanism for the protection of inventions that meet the criteria of novelty, inventive step, and industrial applicability. However, when it comes to eco-innovations, there are unique challenges—ranging from technical disclosure and demonstrating patentable subject matter, to navigating opposition and commercialization barriers. This article discusses the nuanced balance between encouraging innovation and ensuring that environmentally beneficial technologies are not monopolized in a manner that restricts public access.

Further, it evaluates the legal and policy instruments available in India to incentivize green innovations, including fast-track examination for patents related to clean energy, as well as international frameworks such as the TRIPS Agreement and India's obligations under the Paris Agreement. The role of research institutions, start-ups, and public-private collaborations in bridging the gap between invention and market application is also critically examined.

The study concludes by recommending strategic reforms and best practices—such as creating a specialized IP cell for green technologies, offering tax incentives for eco-patents, and enhancing patent literacy among grassroots innovators. Protecting eco-friendly innovations not

only promotes sustainability but also aligns with India's vision of self-reliance and global leadership in green technology. Through a robust and inclusive patent regime, India can effectively translate lab-scale sustainability breakthroughs into real-world environmental solutions.

Keywords- Innovation, Eco-friendly technology, Eco-Friendly patents, Inventor, Public morality, Environment.

Introduction

Intellectual Property is the result of human creation and its mind. It is based upon the human intellect. For the Protection of this human creation certain rights are given to the human kind, that are the Intellectual Property Rights. Intellectual Property Rights protect the creative activities and innovations. The creator of the Intellectual Property gets the economic and other certain rights while on the other hand public access those creations.

It is the intangible rights upon the tangible creation of human mind. According to Article 2(viii) of The Convention Establishing the World Intellectual Property Organization (WIPO), signed in Stockholm on July 14, 1967, and entering into force in April 26, 1970, is the treaty that established the World Intellectual Property Organization (WIPO) 1967, intellectual property includes rights relating to (i) literary, artistic and scientific works; (ii) performance of performing artists, phonograms and broadcasts; (iii) inventions in all fields of human endeavor; (iv) scientific discovers; (v) industrial designs; (vi) trademark, service marks and commercial names and designations; (vii) protection against unfair competition; and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.¹

Intellectual Property Rights includes different branches like Patent, Copyrights, Trade Marks, Service Marks, Industrial designs, geographical indications, Plant varieties

These branches deal with the different creative activities of human mind like the subject matter of copyrights includes the work related basically to the artistic and written work like poem, books, music, Painting, Law reports.

On the other hand, Patent is an exclusive right which is granted to the inventor for his invention.

¹ (Ahuja, 2012)

This right is granted by the government to the inventor in order to grant exclusive right to the inventor and exclude others and sell the invention for a specific period of time. It is notable here that the main purpose of the providing patent is to encourage more inventors to do more inventions.

Eco-friendly Patent means the patents which promote the green technology. It enhances the living quality as well as it helps to reduce the ill effects on the environment.

Patent and Need for Eco- friendly patent

Patent is derived from the Latin word 'patere' which means "to lay open". In other words, it means to make available for public inspection. In the British period, British rulers enacted the Indian Patent and Designs Act, 1911 with the purpose of inventors. It goes with many substantial changes and amendments. According to Article 70 of TRIPS agreement. It is the exclusive right to sell and distribute covered under patent system.² Usually the exclusive right to sell, use or import in order to grant the Patent it should be useful, non-obvious and new which is given under section 3 of Patent Act, 1970. In *Telemecanique & Controls (I) Limited v Schneider Electric Industries SA*³, the Division Bench of Delhi High Court observed that patent created a statutory monopoly protecting the patentee against any unlicensed user of the patented device. 'A monopoly of the patent is the reward of the inventor.'⁴

The continuous depletion of resources, degradation are the current problems that create the environmental issues due to which Eco-Friendly Patents are necessary. It reduces the adverse effects on environment due to human activities. It increases the sustainability by protecting innovations that mitigate pollution, promote renewable energy, and contribute to resource conservation. In India, green Patents are granted for inventions related to solar energy, renewable energy and waste management. In *Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries*⁵, the object of patent is explained as: - Patent Law is to encourage scientific research, new technology and industrial progress. Grant of exclusive privilege to own, use or sell the method or the product patented for a limited period of time, stimulates new inventions of commercial utility. The price of the grant of the monopoly is the disclosure of the invention

² <https://blog.ipleaders.in/what-is-a-patent-law-in-india/>

³ (2002) 24 PTC 632 (Del)(DB)

⁴ (Ahuja, 2012)

⁵ (1979) 2 SCC 511, at p 517.

at the Patent Office, which, after the expiry of the fixed period of the monopoly, passes into the public domain.

However, it is to be notable here that the stimulation of new inventions leads to the waste management, climate change, destruction of resources, adverse effect on environment, etc. so in order to prevent climate changes and destruction of environment the new branch of patents is introduced to the society that is green patent. The commercialization of Eco- friendly Patents promotes the fulfilment of the sustainable development goals. It is the mechanism that prevent the natural resources from being harmed due to regular exploitation by human beings. The main purpose of eco-friendly patent is the use of resources in a sustainable manner. But in developing countries, it is a big concern as they are adopting the various policies in compliance with the economic development. The Eco- friendly patents should use the renewable source of energy so the minimum damage caused to the environment. The technology which can prevent environmental harm. Some of the Examples are: - Life Straw that removes micro plastics and bacteria from water got patented in the year 2016-17. It boosts 5 years of drinking water. It helps in preventing diseases like typhoid, diarrhoea, etc

The other example is adidas, in 2015 adidas aims to convert marine pollution into the sportswear with the partnership of the Parley. It prevented 2810 tons of plastic from reaching the ocean. Prior to this partnership adidas use to create sportswear by virgin polyester which leads to usage of the resources like water.⁶

Eco-Friendly Innovation Lifecycle: From research /Lab to Market Adoption

For the adoption of the Eco-friendly innovations in the market it is important that it is manufactured by the businesses which are involved in the production of goods from the usage of natural resources. Some of the companies are - Volkswagen the automobile manufacturer, Caterpillar the construction equipment manufacturer, Sony the electronics manufacturer, and Pfizer the pharmaceuticals manufacturer.⁷ Different author has given their different theories on the lifecycle of the innovation from lab to market. According to Geoffrey Moore's Book, 'Dealing with Darwin', there are four zones of innovation lifecycle. These are Product

⁶ <https://thepatentprofessor.com/3-eco-friendly-inventions-that-make-the-world-better/#:~:text=1.,Cholera%2C%20dysentery%2C%20and%20diarrhea>.

⁷ <https://www.sciencedirect.com/science/article/pii/S2666790821003037>

Leadership Zone, Customer Intimacy Zone, Operational excellence Zone, Category renewal Zone. Shane in his book Technology and innovation Management, 2009 also covers the phases but for the eco- friendly patents most relevant is “The Theory of Technology Lifestyle”, where the first stage is Introduction stage. According to this stage inventors creates the new technology and introduce it to the market stream and these eco-friendly technologies takes place of the existing technologies to some extent. For Example: - Solar Energy.

The second stage is Early growth stage businesses will work more on these technologies (inclusive of eco- friendly technologies) in order to make them more effective according to the current market regime. In the Growing Stage, the suppliers buy these technologies and make customers to focus on these eco- friendly innovations which would help in market stabilization. In the Late growth and maturity period, the inventions tend to slow down. So, the innovation should be new as the new inventions should be unable to diffuse the market of eco-friendly invention. In the Last stage, businesses try to hold their business through the organic and sustainable schemes but for the eco-friendly inventions they already talked about the sustainability.⁸

Indian Patent Law and Eco-Friendly Technologies in India and Challenges

In 1856, the Act VI on the Protection of Inventions was enacted based upon the British Patent Law, 1852. In this Act exclusive rights of inventors were granted for 14 years. Under this exclusive rights inventor can sell, make and use in India and also gives inventors a right to do the same. In the year 1888, the Patents and Design Protection Act, 1872 and the Protection of Inventions Act, 1883 were consolidated. In the year 1911, The Indian Patents and Designs Act was enacted.⁹ But this Act was not fulfilling the needs of the Indian Society. In 1957, Justice Rajagopala Ayyanagar was appointed the head of the Patents Enquiry Report and provided his report. The Patents Act, 1970 came into existence based upon this report. The Act was amended many times, the latest amendment is 2005. According to clause (m) of sub-section (1) of Section 2, Patent means a patent for any invention granted under this Act. Invention means a new product or process involving an inventive step and capable of industrial application.¹⁰ If the product involves any inventive step, it would consider as an invention. It is not necessary

⁸ <https://growenterprise.co.uk/2022/12/05/what-is-the-innovation-lifecycle-and-how-does-it-influence-innovation-diffusion/> (Dawood, 2022)

⁹ (Ahuja, 2012)

¹⁰ Patents Act, 1970, S 2(1)(j)

to a product to be an invention completely; it can be substantially improved.¹¹ The Invention in order to be a patentable, should be an inventive step, should be capable of industrial application, non-obvious to the public and should be novel.

Section 3 of Chapter II talks about the patents which are not patentable - The following are not inventions within the meaning of this Act, —

- (a) an invention which is frivolous or which claims anything obviously contrary to well established natural laws;
- (b) an invention the primary or intended use or commercial exploitation of which could be contrary to public order or morality or which causes serious prejudice to human, animal or plant life or health or to the environment;
- (c) the mere discovery of a scientific principle or the formulation of an abstract theory or discovery of any living thing or non-living substance occurring in nature;
- (d) the mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.

Explanation.—For the purposes of this clause, salts, esters, ethers, polymorphs, metabolites, pure form, particle size, isomers, mixtures of isomers, complexes, combinations and other derivatives of known substance shall be considered to be the same substance, unless they differ significantly in properties with regard to efficacy;

- (e) a substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance;
- (f) the mere arrangement or re-arrangement or duplication of known devices each functioning independently of one another in a known way;
- (g) (omitted)
- (h) a method of agriculture or horticulture;
- (i) any process for the medicinal, surgical, curative, prophylactic diagnostic, therapeutic or other treatment of human beings or any process for a similar treatment of animals to render them free of disease or to increase their economic value or that of their products.

¹¹ *Dhanpat Seth v Nil Kamal Plastic Crates Ltd* (2008) 36 PTC 123 (HP) (DB), at p 127.

- (j) plants and animals in whole or any part thereof other than micro organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals;
- (k) a mathematical or business method or a computer programme *e per se* or algorithms;
- (l) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever including cinematographic works and television productions;
- (m) a mere scheme or rule or method of performing mental act or method of playing game;
- (n) a presentation of information;
- (o) topography of integrated circuits;
- (p) an invention which in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.¹²

There are many challenges in meeting the patentability criteria. The Patent grant delays 2 to 6 years from the date of application. It contains 4 steps before getting patent. The first step is application filling and Publication which can take almost 18 months of period which mentioned under Section 11A of Patents Act, 1970. The second step is the process of requesting a search and examination which has to be filled within 48 months of filling date as mentioned under Section 11B of Patents Act, 1970. This examination has to be conducted by the Examiner itself. The examiner will issue the objection report. The third step is to filling a response against the examiner report which raises the objection. It has to be done within 12 months. It is also known as Patent prosecution. And the last stage is when the examiner is satisfied with all the responses then he /she may order for the grant of a patent. The challenges further extend on international level as different countries consist different laws. It increases the complexities of the patent laws.

On the Other hand, in respect to the Eco- Friendly patents there is Section 3 (b) which states that “an invention the primary or intended use or commercial exploitation of which could be contrary public order or morality or which causes serious prejudice to human, animal or plant life or health or to the environment”.¹³ In simple terms, the manufacturing or selling of an invention that may be contrary to public moral and ethics and cause serious harm or exploitation to humans, animals or environment.¹⁴ Examples of such inventions include;

¹² Patents Act, 1970, s 3

¹³ Patents Act, 1970, s 3 (b)

¹⁴ <https://aumirah.com/inventions-in-light-of-public-order-or-morality/>

- Any device, apparatus or machine or method for committing crime such a theft, burglary, house breaking or killing.
- Any machine or method for counterfeiting of currency notes.
- Any device or method for gambling.
- A method of adulteration of food.
- A method for cloning of humans.¹⁵

The invention made should be made under the ambit of the public morality and should not harm the environment, plant life, human or health. Section 84 allows for compulsory licensing of patents related to the Eco-friendly technologies. On the Other hand, Patents amendment rules, 2016 which talks about the examination process of the Eco- friendly technologies.

From 2016 to 2022, India granted over 61,000 Patents related to green technologies. It focuses on the waste management and significant energy production through natural resources. In the case of *West Bengal Chemical Industries Limited v. GTZ(India) Private Limited*, 2024¹⁶, importance of Eco- friendly patents was introduced. In the other case of *Enercon India Ltd. Enercon GmbH* (2014), the matter was related to the infringement of patent and the matter was referred to the arbitration by the court.¹⁷

Protection and pooling of Eco-Friendly Technologies and Indian Government Policies

PCT stands for “Patent Cooperation Treaty” adopted in 1970 at Washington for the purpose of International Patent filling through co-operation. It helps in providing international filling process in order to obtain Patents in different countries at the same time. India became member state in 1998 and adopted the PCT filling process at Patent Offices in India. In this filling process only, single application is needed. After filling the PTC, the patent seeker needs to go for National Phase Entry. So that the patentee can get the patent of specific countries and can get into the patent procedure. In order to get the patent for the Eco-friendly technology in different countries, the applicant must go in compliance with the PCT. In India, the time period to enter into the National Phase, the PCT (Patent Cooperation Treaty) has to be filled within

¹⁵ <https://aumirah.com/inventions-in-light-of-public-order-or-morality/>

¹⁶ <https://www.intepat.com/blog/green-technology-patent-a-key-to-sustainable-development/#:~:text=Between%202016%20and%202022%2C%20India,management%20and%20alternative%20energy%20production.>

¹⁷ Ibid.

31 months from the date of priority. Article 2 (xi) talks about the “date of priority”.

As the aim of the green technologies is to promote the sustainability in the field of innovation. The open licensing helps to achieve the sustainable development goals and encourage the entrepreneur to do the eco- friendly innovation and obtain Patent upon them. Open licensing is a term which stands for giving others permission to use your IPR (Intellectual Property Rights) that is Copyright, Patent, Trademark, etc. It is primarily used for the non-commercial purposes. While on the other hand Patent pooling is a wider concept as it allows multiple companies to share their patents on the same technology. They get the patent together and further license them for the others. It encourages innovations and helps to reduce the confusion of technologies holding by different companies. It also decreases the burden of the courts in relation to the litigation between these patent holders. For example: - MPEG LA manages these pooling of patents for video standards used in DVDs, etc.

Indian Government has also taken many steps for the protection of the environment. Government has also made the partnerships with the private sectors in order to foster the eco-friendly technologies and achieving the Sustainable development goals. Government of India has also initiated National IPR Policy in 2016. The purpose of this policy is to commercialize the Intellectual Property Rights without harming the public policy through a cell for IPR Promotion and Management (CIPAM) under the control of the Department for promotion of industry and Internal Trade (DPIIT).

The Government of India also offers tax deduction on the investments which made for the Eco-Friendly innovations given under section 35AD.¹⁸ GOI also provides fundings for the research and development for the development in eco-friendly technologies and projects. Green Patent channel also there which work on innovation with renewable energy, waste management, etc.¹⁹ On the International level, TRIPS (Trade related aspects of Intellectual Property Rights) and WIPO (World Intellectual Property Organization) also promotes IPRs, IP Policy and Green platforms.

¹⁸ Income Tax Act, 1961

¹⁹ <https://www.wilsongunn.com/resource/ip-insights/ukipo-green-channel-accelerate-the-grant-of-your-patent-application#:~:text=The%20Green%20Channel%20allows%20applicants,service%20will%20continue%20to%20rise.>

Conclusion

Production of Technologies effects the Climate changes, waste management, renewable resources, water bodies, etc. The usage of technology leads to the production of materials from natural resources. The manufacturing Companies should use the natural resources in the sustainable way. For Example- Adidas does the partnership with the parley by using the plastic waste material in its sportswear. As most of the adidas products were made of Polyester for that water and energy is needed. The Government of India should go with the policies that supports and encourage the entrepreneurs for inventing the eco-friendly technologies. More and more patent pooling will encourage the companies in the field of green technologies and environment, which will eventually reduce the court cases. Tax incentives should be offered to eco-patents. The patent procedure should be fast and simple.

