

THE IMPACT OF PATENT LAW ON BIOPIRACY AND TRADITIONAL KNOWLEDGE IN DEVELOPING COUNTRIES

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Abstract

Traditional Knowledge refers to the longstanding cultural practices, beliefs, and customs of local and indigenous communities in a specific country or region. India is a hub of such traditional knowledge including its ancient crafts, arts, manuscripts, dance forms etc. India is a diverse country and indigenous communities who are closely connected to nature due to their proximity, hold valuable traditional knowledge associated with natural resources which are developed, preserved and promoted by the people of those communities. However, in today's globalised world several multinational companies exploit such natural resources by obtaining patents over them and by monopolising the resource that forms the traditional knowledge and further by utilising it to the fullest without acquiring any kind of prior permission from the local people of the community or without any form of compensation for the resources. India has witnessed the legal implication of such 'bio-piracy' in certain cases where foreign countries sought to obtain patent rights over some indigenous traditional knowledge used by Indians for a long time. Such incidents lead to a huge loss to the heritage of the developing countries. This article aims to study the notion of the 'Traditional Knowledge' and 'Biopiracy' and tries to analyse the possible challenges faced by the developing countries in this matter. The author specifically examines the present legal frameworks and policy mechanisms currently set up in order to protect traditional knowledge and biodiversity in developing countries and also the impact of the patent law in the protection of the developing countries' traditional knowledge.

Keywords: Bio piracy, Exploitation, Legal Framework, Multinational, Patent law, Traditional Knowledge.

1. Introduction

Traditional Knowledge is synonymous to the traditional cultural know-how of a particular country or region. It is the knowledge of the local or indigenous community of a country or region. Traditional Knowledge is not any kind of private knowledge rather

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it is the collective knowledge of a particular group or region. The traditional knowledge which we can also denote as collective knowledge or practices have been developed over many generations and are frequently passed down generation after generation orally.¹ Many developing countries have a wealth of traditional knowledge about how plants or any other resources are used in certain kinds of food, medicine, or cultural practices. Commercialisation of this traditional knowledge through patents and other forms of Intellectual Property, on the other hand, frequently occurs without proper consent, compensation, or benefit-sharing with the communities who have actually preserved and developed the knowledge over a long time. The act of granting patents to inventions based on such knowledge leads to biopiracy and the problem of biopiracy could also be further complicated by the absence of legal frameworks and enforcement mechanisms in developing countries to deal or manage such complicated issues. Some developing countries even lack the institutional capacity to effectively regulate biopiracy and Intellectual Property Rights (IPR), making it difficult to protect 'Traditional Knowledge' from instances of exploitation and misappropriation.

For a long time, the impact of Patent Law on biopiracy and Traditional Knowledge in developing countries has been a source of several debates and contentions. Developing countries have become increasingly vulnerable to biopiracy and exploitation by multinational corporations, despite their rich biodiversity and traditional knowledge. Patent law, which is intended to promote innovation and protect Intellectual Property, has proven to be a double-edged sword in this context, as it has the potential to facilitate as well as hinder biopiracy and exploitation. The conflict between the western concept of Intellectual Property and Traditional Knowledge and communal ownership of resources in developing countries is at the heart of the issue.

The global demand for natural resources, including those related to traditional knowledge, is one of the primary drivers of biopiracy and exploitation. For example, the pharmaceutical industry relies heavily on plant-based medicines and other natural products, many of which come from developing countries. Biopiracy occurs when multinational corporations or individuals obtain biological resources or traditional knowledge of the community without the informed consent of those communities who

¹ Teshager W Dagne, "*Intellectual Property and Traditional Knowledge in the Global economy*" 73-105 (Routledge, 1st edn., 2015).

created, developed and preserved them, and frequently without fair compensation or benefit-sharing. Patent law's impact on biopiracy and traditional knowledge is a complicated issue with far-reaching implications for biodiversity conservation, cultural heritage, and human rights.

The article basically aims to investigate the various aspects of this issue, such as the legal frameworks and policy mechanisms currently in place to protect Traditional Knowledge and Biodiversity in developing countries, the impact of multinational corporations on local communities, and the potential for alternative models of innovation and knowledge-sharing those priorities the needs and interests of developing countries. The author aims to shed light on the impact of patent law on biopiracy and traditional knowledge in developing countries through a comprehensive analysis of case studies, policy documents, and legal frameworks, as well as to identify potential avenues for reform and innovation.

2. Brief Overview of Patent Law

'Patent' is the right that is granted to the person who invents or discovers any new innovations namely machines, manufacturing articles, or any useful process. Whenever, the inventor is granted a patent then it ensures that the patent holder gets an exclusive right and it excludes any other person from using, making, selling and importation of the patented item. It can be said that patent rewards the inventor for the information which embodied the invention.²

The primary goal of Patent Law is to motivate innovation by granting prerogative rights to the inventors for their inventions. In exchange for legal protection, this exclusivity encourages inventors to disclose their inventions to the public. The primary criteria of the Patent Regime are typically based on an individual's creation of his mind, his inventive method, and product. The concept of an organised legal claim to a specific right to purported intellectual creativity has been linked to the evolution of modern capitalistic mechanisms, individualistic approaches, the modernisation era, and scientific know-how. However, before granting patents there are certain essential

² V. K Ahuja, *Law relating to Intellectual Property Rights* 479 (LexisNexis, Gurgaon, 3rd edn.,2021).

characteristics that need to be taken into consideration like novelty and inventiveness, industrial applicability, and disclosure requirements.³

The fundamental criteria for patentability are ‘novelty’ and ‘inventiveness’. An invention must be novel and previously unknown to the public.⁴ This principle ensures that patents are issued only for truly novel and non-obvious inventions. The invention’s novelty ensures that it represents a significant advancement in the field, deserving of legal protection. ‘Inventiveness’, also known as the inventive step or non-obviousness, means that the invention must demonstrate a level of creativity and ingenuity that would be surprising to a person skilled in the relevant field.⁵ This requirement prevents patents from being granted for inventions that are simply incremental improvements or obvious variations of existing knowledge.⁶

‘Industrial applicability’ is another important principle in patent law. An invention must have a practical application and be able to be manufactured or used in industry.⁷ This requirement ensures that patents are granted for commercially exploitable inventions that contribute to technological progress. Industrial applicability protects against patenting abstract or purely theoretical concepts that have no real-world application.

In addition to novelty, inventiveness, and industrial applicability, patent law also includes ‘disclosure requirements’.⁸ Patent applicants are compelled to disclose their inventions in a clear and comprehensive manner, enabling others skilled in the field to replicate and understand the invention. This disclosure requirement aims to promote the sharing of knowledge and encourages further innovation by providing a public record of the invention. It also serves as a trade-off for obtaining exclusive rights, as the patent holder must disclose their invention to the public.⁹

The advancement of Patent Law has a significant impact on the industrial development of western nations. There is no doubt that western industrial and

³ The Patent Act, 1970 (Act of 39 of 1970), s. 83.

⁴ *Id.*, s. 2(j).

⁵ *Id.*, s. 2(ja).

⁶ *Press Metal Corporation Ltd. v. Nashir Sorabji*, AIR 1983 Bom. 144.

⁷ *Supra* note 3, s. 2(j).

⁸ *Id.*, s. 10(4)(ii).

⁹ Sangeeta Udgaonkar, “The Recording of Traditional Knowledge: Will It Prevent ‘Bio-Piracy’?”, 82(4) *Current Science Association* 417 (2002).

pharmaceutical entities play a dominant role in determining essential yardsticks of patent regime, such as subject-matter, invention, and novelty criterion. Patenting confers a particular privilege or title to a person or group of individuals. This means that after the process of granting a patent, the patent holder earns the privilege of excluding other individuals for a specific time period from industrial utility in the absence of his consent.¹⁰

Understanding these concepts is crucial for analysing the impact of Patent Law on Biopiracy and Traditional Knowledge in developing countries. By understanding the application of these principles in practice and their implications, it could help in gaining insights into challenges and opportunities faced by developing countries in preserving their cultural heritage and biodiversity while navigating the complexities of patent law.

3. Understanding Biopiracy and Traditional Knowledge

3.1. Traditional Knowledge

The term “Traditional Knowledge” is directly linked with the traditions, culture or practices of a country, region or community around the world. Traditional Knowledge is the most indispensable part of the local community’s identity. When a community resides in a particular region for several decades then that community adores certain kinds of cultural or traditional practices through which the community is identified for years. It includes knowledge of biodiversity conservation, medicinal plants, agricultural techniques, and cultural expressions. These kinds of knowledge are transferred from generations after generation and such practices are referred to as ‘Traditional Knowledge’ of the community. The people of that community are much familiar with such knowledge and the next generations get hold of such knowledge either through orally that is when their elders illustrate about the process or practice or by observation that is they may gain the knowledge of the practice by watching their elders. Traditional knowledge is created by continuous interactions, observations, experimentation with the surrounding environment.

Traditional knowledge also includes the biological resources or other resources which are part of their ancient customs and traditions of the community, group or region. Traditional Knowledge is not any individual knowledge rather it is a community based functional knowledge that is mainly preserved, maintained and developed by the people

¹⁰ *Id.* at 415.

of the community for years. In the ancient era, a country's or a regions' honour is recognised through the knowledge that its land holds and therefore, we can see that every community tries to preserve their old knowledge in the most possible way, examples can be seen of dances, handicrafts, artistic works etc.

Traditional Knowledge is an umbrella term, and within its ambit 'folklore' is also included. Folklore can be understood as the age old traditions, beliefs, customs which the people of a community, region, culture shares among themselves. These beliefs may include folk dances, folk rhymes, myth, tales, proverbs, poems, handicrafts, paintings, jewellery, folk literature etc. However, protection is not provided to all the folklores, some the orthodox practices are excluded because for instance practices such witchcraft is also considered as folklore but they are evil in nature and harm the society therefore it cannot be granted protection. 'Expression of folklores' includes those beliefs, customs and traditions which are considered as good for the society and which can be protected under the law.¹¹

India has a rich list of traditional knowledge-based practices which highlights the rich heritage of traditional knowledge in India, encompassing medicine, agriculture, health, and craftsmanship. Here are some of the examples of traditional knowledge based practices:

- Ayurveda: An ancient system of medicine focused on balancing bodily systems using diet, herbal treatment, and yogic breathing.
- Yoga: A physical, mental, and spiritual practice that originated in ancient India, involving breath control, meditation, and specific bodily postures.
- Handloom Weaving: Traditional handloom techniques used in the production of various types of textiles like Khadi, Banarasi, and Kanchipuram sarees.
- Folk Medicine: Use of local plants and traditional practices by village healers for treating common ailments and diseases.
- Vrikshayurveda: Traditional Indian science of plant life, dealing with the cultivation, preservation, and management of plant species.

¹¹ Rajnish Kumar Singh, "Protection of Traditional Cultural Expressions/ Folklore: International and National Perspectives", 8(1) *Dehradun Law Review* 21-22 (2016).

3.2. Biopiracy

Biopiracy is defined as the unauthorised acquisition, patenting, or commercial exploitation of biological resources, including plants, animals, and associated traditional/indigenous knowledge, without the prior consent and equitable benefit-sharing of the communities or countries of origin. It entails the appropriation of indigenous or local communities' traditional knowledge and biological resources by multinational corporations or individuals, which frequently results in inequitable outcomes and the erosion of cultural heritage. Biopiracy is the unethical and illegal practice of exploiting the biological materials which are used by the local communities in their various purposes may be in medicine, food or cultural practices. When a company gains the protection of such resources then they will exploit it to the best way they could and they do not think about the environment and the surroundings and if the resource ends then the local or indigenous community will have to highly suffer and they will get disconnected with their traditional old practices due to non-availability of the resources.¹²

4. Exploitation and Challenges faced by Developing Countries

Biopiracy can take several forms. Researchers from developed countries frequently collect biological resources from developing countries without the consent of local communities. These resources can then be used to create new products, such as drugs, cosmetics, or food, with no compensation to the communities that had the biological resources and which in turn helped them to create it in the first place. Biopiracy can also occur when companies from developed countries patent traditional knowledge developed, preserved and carried on by indigenous peoples or local communities. This can prevent communities from using their own knowledge for their own benefit, as well as from sharing their knowledge with others.¹³

Biopiracy can have a variety of negative effects on developing countries. It may result in the loss of biological diversity because individuals from developed countries may extract resources from developing countries without regard for their sustainability. It can also result in economic losses because businesses in developed countries may profit

¹² Anisha Bhandari, "Bio-piracy of Traditional Knowledge", *available at*: <https://blog.iplayers.in/biopiracy-of-traditional-knowledge/> (last visited on September 14, 2023).

¹³ Janna Rose, "Biopiracy: When Indigenous Knowledge is Patented for Profit", *available at*: <https://theconversation.com/biopiracy-when-indigenous-knowledge-is-patented-for-profit-55589> (last visited on September 15, 2023).

from the use of traditional knowledge or biological resources of the developing countries without sharing any of the profits with the communities that developed them.¹⁴ Furthermore, biopiracy can have a negative impact on indigenous peoples' and local communities' cultural identities. When their knowledge is taken without their permission, it can undermine their sense of self-determination and ability to control their own destiny. For example, in 1991, the US company named Shaman Pharmaceuticals patented a compound derived from the neem tree, a plant that Indian farmers have used for centuries as pesticides to protect their crops from pests. The company did not obtain the permission of the Indian farmers who had developed this knowledge, and it did not share any of the profits from the compound's sale with them.¹⁵ Therefore, there exists a need to understand the impact of pre-existing laws related to patents to understand their impact on biopiracy and traditional knowledge of a developing country.

4.1. Biopiracy Cases

4.1.1. *The Neem Tree Patent Case*¹⁶

The Neem Tree Patent case is a case study in biopiracy and the exploitation of traditional knowledge. Neem, an Indian tree, has been used for centuries in a variety of traditional practices such as medicine, agriculture, and pest control.¹⁷

In the 1990s, a US company, W.R. Grace,¹⁸ was granted a patent for a method of using neem oil to control fungi on plants. This patent was controversial because it was argued that W.R. Grace had not invented the use of neem oil for this purpose, and that the patent was therefore a form of biopiracy. The patent was challenged by a number of organisations, including the Research Foundation for Science, Technology and Natural Resource Policy (RASTA).¹⁹ In 1995, the European Patent Office (EPO) revoked the patent, finding that it lacked novelty and inventive steps. The US Patent and Trademark

¹⁴ Sayan Bhattacharya, "Bioprospecting, Biopiracy and Food Security in India: The Emerging Sides of Neoliberalism", 23, *International Letters of Social and Humanistic Sciences* 51 (2014).

¹⁵ *Supra* note 9.

¹⁶ *Supra* note 1 at 52.

¹⁷ Tanya Saraswat, "India: The Neem Patent Case", available at: <https://www.mondaq.com/india/patent/1286020/the-neem-patent-case> (last visited on September 15, 2023).

¹⁸ "Patent on Neem", available at: <https://neemfoundation.org/about-neem/patent-on-neem/> (last visited on September 15, 2023).

¹⁹ Emily Marden, "The Neem Tree Patent: International Conflict over the Commodification of Life", 22(2) *Boston College International & Comparative Law Review* 293 (1999).

Office (USPTO) did not revoke the patent, but it did narrow the scope of the patent claims. However, a point of contention is that a US company obtained a patent on the extraction and use of neem compounds as a pesticide without acknowledging Indian communities' prior knowledge and practices.

The case showcased the importance of protecting traditional knowledge and ensuring that indigenous peoples are fairly compensated for the use of their knowledge. The patent led to an increase in the price of neem seeds, making them more expensive for indigenous farmers. The patent also led to the development of new neem-based products, which were often more expensive than traditional neem products. The patent controversy also raised awareness of the issue of biopiracy, and led to calls for stronger protections for traditional knowledge. This case sparked public outrage and legal action, resulting in the patent's revocation. It emphasised the critical need for legal safeguards to protect indigenous knowledge and prevent misappropriation of indigenous resources.

4.1.2. The Basmati Rice Case

The basmati rice patent controversy which unfolded in the late 1990s serves as a notable case study underscoring the significance of protecting Traditional Knowledge. In this particular instance, RiceTec Inc., a US company, was granted a patent on basmati rice, sparking contentious debates regarding the invention of basmati rice and the patent's implications as a potential form of Biopiracy.²⁰

One of the key lessons derived from the Basmati Rice patent controversy is the importance of safeguarding traditional knowledge, which is often inadequately documented or recorded in a manner that facilitates its protection under prevailing Intellectual Property Laws. Consequently, companies from developed nations can exploit this loophole and obtain patents for Traditional Knowledge without the consent or recognition of the communities that have long nurtured and developed it.

The case led to improving our understanding of the significance of documentation in the preservation and defense of traditional knowledge. Insufficient documentation poses challenges in substantiating the pre-existence of traditional

²⁰ Bross & Partners, "How Did India Win in the Legal Battle Against Biopiracy Regarding Basmati Hybrid Rice Variety Patented by the USPTO and Valuable Lesson for Vietnam", *available at*: <https://www.lexology.com/library/detail.aspx?g=3b46692a-8b13-416a-b35d-f766f69a52e2> (last visited on September 15, 2023).

knowledge prior to the granting of a patent. This underscores the imperative for communities to diligently document their Traditional Knowledge, thereby establishing a robust foundation for its protection against potential Biopiracy.

Comprehensive documentation becomes a powerful tool in safeguarding traditional knowledge from potential biopiracy. By systematically recording and cataloguing traditional knowledge, communities can establish a compelling evidence base that substantiates the existence, authenticity, and value of their cultural heritage. The heightened awareness among communities is critical in recognising and mitigating the risks of Biopiracy. Empowered with knowledge about the potential exploitation of their traditional knowledge, communities can actively take steps to protect and preserve their intellectual contributions. Basmati rice patent controversy serves as a notable case study that underscores the imperative of protecting traditional knowledge and the associated challenges. By addressing the gaps in documentation, strengthening patent examination processes, and fostering community awareness, it becomes possible to safeguard traditional knowledge from exploitation and promote the preservation of cultural heritage.

4.1.3. *The Turmeric Case*²¹

The case of the turmeric patent controversy serves as a significant illustration of the criticality of safeguarding traditional knowledge. Turmeric, a spice renowned for its medicinal properties, has been utilised for centuries in India. However, in 1995, two Indian based researchers affiliated with the University of Mississippi filed a patent application for a method of using turmeric to treat wounds. Although the patent was initially granted, it was subsequently revoked when it came to light that the medicinal use of turmeric for wound treatment was already well-established in India.²²

This controversy surrounding the turmeric patent underscores the need for effective protection of traditional knowledge. In many instances, traditional knowledge remains undocumented or lacks the necessary records that would facilitate its protection under existing IP laws. Consequently, companies from developed nations often acquire

²¹ Rajesh Kochhar, "Indian Pharmaceutical Industry: Policies, Achievements and Challenges", 106 *Current Science* 1345 (2014).

²² Basil B. Mathew, "Traditional Knowledge Misappropriation and Biopiracy in India: A Study on The Legal Measures To Protect Traditional Knowledge", 2(12), *International Journal of Marketing, Financial Services & Management Research* 209 (2013).

patents for traditional knowledge without obtaining the consent of the indigenous communities who have developed and preserved it.

This case was another case that emphasises the significance of proper documentation in preserving and defending traditional knowledge. It is imperative for patent offices to employ mechanisms that enable the identification of existing knowledge before granting patents. Concurrently, communities should be well-informed about the risks associated with biopiracy and should proactively take measures to safeguard their traditional knowledge.

4.1.4. *The Bt Brinjal Case*²³

The Bt Brinjal dispute, revolving around the introduction of genetically modified brinjal in India in 2009, has been a highly contentious issue with far-reaching implications. Developed by MAHYCO, in partnership with Monsanto, the Bt Brinjal was created using twelve (12) indigenous varieties of the vegetable sourced from different states, including Karnataka. However, the use of these indigenous varieties without proper approval violated the Biodiversity Act of 2002.²⁴ Consequently, the National Biodiversity Authority and other stakeholders initiated legal proceedings against Monsanto, highlighting the research conducted without seeking the permission and consent of the farmers who have cultivated these varieties for generations.²⁵

The introduction of Bt Brinjal raised significant concerns regarding its efficacy, biosafety, and nutritional value. As a result, the cultivation and commercialisation of Bt Brinjal have been under moratorium since 2010. This moratorium reflects the cautious approach taken by regulatory authorities and policymakers in evaluating the potential risks and benefits associated with genetically modified crops. The uncertain fate of Bt

²³ Ankita Sabharwal, “Biopiracy in India: Scientific eruption or traditional disruption?”, *available at*: <https://www.iam-media.com/article/biopiracy-in-india-scientific-eruption-or-traditional-disruption> (last visited on September 15, 2023).

²⁴ Shuchita Jah, “BT Brinjal case- Apex court restores PIL in Karnataka HC after nearly a decade”, *available at*: <https://www.downtoearth.org.in/news/wildlife-biodiversity/bt-brinjal-biopiracy-case-apex-court-restores-pil-in-karnataka-hc-after-nearly-a-decade-86439> (last visited on September 15, 2023).

²⁵ Sachin P S and Nidhi Hanji, “Supreme Court restores PIL highlighting regulatory failures causing biopiracy and biodiversity losses”, *Environment Social Justice & Governance Initiative* (2022), *available at*: https://esgindia.org/new/wp-content/uploads/2022/11/ESG_Release_Biopiracy-NTC_PIL_Restored_29-Nov-2022.pdf (last visited on September 15, 2023).

Brinjal continues to be a subject of deliberation and further examination, given the complex and multi-faceted issues involved.

It is worth noting that despite the moratorium, reports suggest that Bt Brinjal is still being grown illegally in certain parts of the country. This highlights the challenges faced in effectively enforcing regulatory measures and controlling the unauthorized cultivation of genetically modified crops. The proliferation of illegal cultivation further underscores the need for robust legal frameworks and stringent enforcement mechanisms to protect traditional varieties and prevent biopiracy. The dispute showcased the importance of adhering to legal and regulatory provisions related to biodiversity and traditional knowledge. The dispute led to the significance of obtaining proper approvals and engaging in transparent and inclusive decision-making processes when introducing genetically modified crops or utilising traditional varieties in research and development activities.

4.2. Impact of Patent Law in Biopiracy and Traditional Knowledge

Patent Law is used to commercialise and protect Traditional Knowledge without obtaining adequate consent, compensation, or benefit-sharing from the communities that own it. In developing countries, the lack of strong legal frameworks and enforcement mechanisms exacerbates the vulnerability of traditional knowledge to exploitation. Moreover, there can also be problems concerning the power dynamics and bargaining power between developing countries possessing traditional knowledge and developed countries utilising it without their consent.

Power dynamics and bargaining power have a significant impact on how patent law affects biopiracy and exploitation in developing countries. Multinational corporations frequently have significant financial resources, legal expertise, and political clout, allowing them to exert significant influence over negotiations and decision-making processes. Developing countries, on the other hand, may lack the resources, technical expertise, and legal representation required to effectively advocate for their interests and protect their traditional knowledge.²⁶

²⁶ Daanyaal R. Kumar, "United States Patents, Biopiracy, and Cultural Imperialism: The Theft of India's Traditional Knowledge", 11(10) *Inquiries Journal* (2019), available at: <http://www.inquiriesjournal.com/articles/1769/united-states-patents-biopiracy-and-cultural-imperialism-the-theft-of-indias-traditional-knowledge> (last visited on September 16, 2023).

The power asymmetry between multinational corporations and developing countries can result in unfavourable agreements and terms that do not adequately protect local communities' rights and interests. In many cases, multinational corporations may exploit developing countries' traditional knowledge and biological resources without obtaining informed consent or providing fair compensation or benefit-sharing. This exploitation can cause significant economic losses as well as jeopardise the cultural and ecological integrity of the communities involved.

5. Legal Frameworks for Safeguarding the Traditional Knowledge

As we have already seen that there were cases of biopiracy of the Indian traditional knowledge but however those were revoked later. This suggests that it is necessary to investigate existing legal frameworks and international instruments addressing these issues. The current legal frameworks and international instruments for protecting Traditional Knowledge and preventing Biopiracy are:

5.1. International Treaties and Conventions

The *Convention on Biological Diversity (CBD)*, is a key international instrument that recognises the value of traditional knowledge and calls for the equitable distribution of benefits derived from its use. Article 8(j) of the Convention has somewhat puts forth the meaning of 'Traditional knowledge' and it refers to the inventions, awareness and traditions of local and indigenous cultures worldwide.²⁷

The CBD establishes a framework for countries to develop National laws and policies to safeguard Traditional Knowledge and control access to genetic resources. "The Convention on Biological Diversity (CBD)"²⁸ is a treaty that was signed in 1992. It acknowledges indigenous peoples' and local communities' rights to their traditional knowledge and biological resources. Biopiracy is also prohibited by CBD. Biopiracy, according to the CBD, is the "*unauthorised use of biological resources and traditional knowledge without the prior informed consent of the indigenous peoples and local communities who developed them*".²⁹ The CBD also makes it illegal to patent traditional

²⁷ Lyle Glowka, Françoise Burhenne-Guilmin, *et.al.*, "A Guide to Convention on Biological Diversity", 30 *Environmental Policy and Law Paper* (1994).

²⁸ *Supra* note 26.

²⁹ Secretariat of the Convention on Biological Diversity Montreal, *Convention on Biological Diversity*, United Nations Environment Programme.

knowledge without the prior informed consent of the indigenous peoples and local communities who developed it.³⁰

The World Intellectual Property Organisation (WIPO), through its various initiatives and agreements also has played a significant role in protecting Traditional Knowledge. *WIPO's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore*³¹ works to construct international lawful instruments to address the intellectual property aspect related to traditional knowledge.³² The WIPO policy recognises that traditional knowledge is frequently not documented or recorded in a way that IP Laws can easily protect.³³ As a result, the policy provides guidance on how to document and record traditional knowledge in order to protect it from biopiracy. The WIPO policy also includes recommendations for raising awareness about biopiracy and its negative consequences. The policy also provides guidance on how to build partnerships between indigenous peoples, local communities, and governments to protect traditional knowledge from biopiracy.

The *Nagoya Protocol* is an integral part of the CBD, is extremely relevant to addressing biopiracy in the context of patenting in developing countries. The Nagoya Protocol provides a critical legal framework for developing countries to protect their abundant biodiversity and traditional knowledge from biopiracy and exploitation by multinational corporations.³⁴ The protocol emphasises the principle of prior informed consent, ensuring that access to genetic resources and associated traditional knowledge is obtained under mutually agreed-upon terms, including the fair and equitable sharing of benefits resulting from their use.³⁵ *Article 1* of the Protocol which states the objective mentions that the protocol is for fair and equitable benefit sharing of the benefit arising

³⁰ *Supra* note 26.

³¹ The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore mainly governed the text based negotiations which was to finalise the agreement on an international legal instruments for the TK, TCEs and genetic resources protection.

³² *Supra* note 26.

³³ Ashish Kumar Gupta, "Protecting Indian Traditional Knowledge from Biopiracy", available at: https://www.wipo.int/export/sites/www/meetings/en/2011/wipo_tkdl_del_11/pdf/tkdl_gupta.pdf (last visited on September 16, 2023).

³⁴ *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity*, 29 October 2010. 50 I.L.M. 1017.

³⁵ *Supra* note 24

from the utilisation of the genetic resources. *Article 3* further states that the state party should take measures with the aim of equitable sharing of benefit. Thus, Nagoya Protocol recognises the rights of indigenous and local communities to benefit from the commercialisation and use of their traditional knowledge and genetic resources, particularly in the context of patenting, by emphasising fair compensation. It creates a mechanism for developing countries to assert their sovereignty over their resources and bargain for fair compensation for the use of their traditional knowledge in patented products and processes. Furthermore, the Nagoya Protocol encourages developing countries to develop domestic measures and legal frameworks to effectively implement its provisions.³⁶

It encourages the establishment of national access and benefit-sharing frameworks that govern access to genetic resources and traditional knowledge while also ensuring international compliance and protecting against Biopiracy. Therefore, it becomes very crucial in enforcing any inappropriate patenting of traditional knowledge of developing countries through Biopiracy.³⁷

5.2. WIPO Treaty on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC)

The WIPO Treaty on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) is the first treaty from the World Intellectual Property Organisation (WIPO) to address the relationship between Intellectual Property, Traditional Knowledge and Genetic Resources. It is also the first to include provisions tailored especially for Indigenous Peoples and local communities.

WIPO's overarching mission to create global guidelines and standards for the use and protection of IP includes the negotiation and creation of this treaty. WIPO has been actively working on a treaty that addresses the specific issues provided by genetic resources, traditional knowledge, and the cultural heritage of Indigenous Peoples and Local Communities.

³⁶ *Supra* note 33.

³⁷ Florian Rabitz, "Biopiracy after the Nagoya Protocol: Problem Structure, Regime Design and Implementation Challenges", 9(2) *Brazilian Political Science Review*, 30, 33 (2015).

The objective of the treaty with regard to the genetic resources, is to establish guidelines for the utilisation of genetic resources. Secondly, ensures fair and equitable sharing of benefits arising from the use of genetic resources and implement measures to prevent the misappropriation of genetic resources.

In the case of protection of Traditional Knowledge, the treaty's objective is to safeguard the rights of holders of traditional knowledge, including Indigenous Peoples and local communities. The treaty focuses on the development of mechanisms for recognising and respecting traditional knowledge in IP laws. It also talks about the facilitation of access to traditional knowledge for innovation while ensuring benefit-sharing.

With regards to the Traditional Cultural Expression the objective of the treaty is to recognise and protect the cultural expressions and heritage of Indigenous and local communities. Another objective is to provide mechanisms for the prevention of misuse and unauthorised use of TCEs. Thirdly, it encourages cultural diversity and creativity by protecting TCEs.

The treaty recognises the rights of Indigenous Peoples and local communities over their genetic resources, traditional knowledge, and traditional cultural expressions. This treaty reflects a significant step towards recognising the rights and contributions of Indigenous Peoples and local communities in the global IP system.

5.3. Indian Legislation Protection

Although India lacks specific legislation for safeguarding the traditional knowledge, existing IP laws provide some safeguards.

5.3.1. The Patent Act, 1970³⁸

The Indian Patents (Amendment) Act 1970 instructs to unfold the source and geographical origin of biological materials used in inventions during patent applications.³⁹ Non-disclosure or wrongful disclosure of known traditional knowledge can be grounds for opposition or revocation of patents.⁴⁰ The Act under *Section 10 (4) (ii)*

³⁸ The Patents Act, 1970 (Act 39 of 1970).

³⁹ The Indian Patents (Amendment) Act, 1970 (Act 15 of 2005), ss. 25, 64.

⁴⁰ *Id.*

requires the applicant to disclose the source and geographical origin of all biological materials which are used in an invention in the complete specification.

5.3.2. *The Trade Marks Act 1999*⁴¹

The Trade Marks Act 1999 enables the protection of Indian System of Medicine practices through trademarks. The legislation under the ambit of collective marks can also protect the artisanal and cultural products. The local and indigenous community of the traditional knowledge can form a group and get their traditional products registered under the collective marks or certification marks.

5.3.3. *The Geographical Indications of Goods (Registration and Protection) Act, 1999*⁴²

The GI Act of 1999 safeguards collaborative rights of rural and indigenous communities by registering traditional knowledge-based products as Geographical Indications (GIs). Many GIs are deeply rooted in the cultural and traditional practices of a community. By protecting these GIs, the act helps preserve the cultural identity and heritage of the region. GIs frequently involve customs and information that have been handed down through the ages. The statute encourages this knowledge to be acknowledged and preserved. GIs provide long-term protection and can be renewed every ten years.⁴³

The act encourages local community improvement and economic empowerment by granting the exclusive right to produce and sell goods under a registered GI. The purpose of the act is to guarantee that the communities and individuals who participate in the production process receive a fair portion of the benefits that come with the commercialisation of GIs. To ensure shared ownership and benefit sharing, GIs are frequently registered in the names of local community associations or cooperatives. The financial gains from GIs can be used to fund community development initiatives including infrastructure, healthcare, and education, which will improve society overall.

The act promotes the manufacturing of commodities related with GIs through the use of ecologically friendly and sustainable processes. Participation of local

⁴¹ The Trade Marks Act, 1999 (Act No. 47 of 1999).

⁴² The Geographical Indications of Goods (Registration and Protection) Act, 1999 (Act.48 of 1999).

⁴³ *Id.*

communities in the process of GI registration and management cultivates a sense of accountability and ownership for sustainable development.

In order to promote and safeguard the distinctive goods of India's vast expanses, the Geographical Indications of Goods (Registration and Protection) Act, 1999, is an essential instrument. The statute promotes economic development and social welfare in addition to cultural heritage preservation by guaranteeing benefit sharing and conforming to communal principles.

5.3.4. *The Copyright Act, 1957*⁴⁴

The Copyright Act, 1957 can also grant protection to the artistic expression of the Traditional knowledge including the indigenous and migrant artists, against any unauthorised development and exploitation by any third party. The unpublished Indian works are also protected under *Section 31A* of Copyright Act. The Traditional knowledge of the indigenous artists can be protected under *Section 57* against any unauthorised replication and usage.

5.3.5. *The Biological Diversity Act 2002 (NBD)*

With relation to the use and management of biological resources, the Act acknowledges and respects the traditional knowledge of the surrounding communities. This recognition is important because it draws a connection between the preservation of cultural heritage and shared ideas and biodiversity conservation. Traditional knowledge systems are frequently entwined with the social, cultural, and religious customs of India's diverse populations.

In the past, numerous communities have been essential to the preservation of biological variety. By recognising these roles and their contributions to sustainable use and biodiversity conservation, the Act aims to empower communities. Financial or non-financial gains might be distributed to communities. Royalties, fees, and joint ventures are examples of financial advantages. Non-financial advantages can include community infrastructure support, technological transfer, and capacity building. The creation of the TKDL, which catalogues traditional knowledge and permits use under certain restrictions, is one of the Act's goals. This program makes sure that communities are acknowledged

⁴⁴ The Copyright Act, 1957 Act (Act 14 of 1957).

and given credit for their contributions while guarding against biopiracy of traditional knowledge.

The NBD establishes a three-tier institutional structure consisting of the National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs), and Biodiversity Management Committees (BMCs).⁴⁵ This act regulates the utilisation of biological resources and associated traditional knowledge. Applications for IPRs related to traditional knowledge require approval from competent authorities. BMCs collaborate with local communities to prepare People's Biodiversity Registers (PBRs), which contain comprehensive information on local biological resources and associated traditional knowledge. This initiative empowers communities and ensures their active involvement in biodiversity conservation and knowledge preservation.

5.3.6. *Protection of Plant Varieties and Farmers Rights Act, 2001 (PPVFR)*⁴⁶

The PPVFR Act recognises the contribution of farmers in conserving plant genetic resources and traditional knowledge. The Act recognises the efforts made by farmers to preserve, enhance, and make plant genetic resources accessible. As long as it is not labelled as a commercial product, farmers are free to conserve, use, sow, re-sow, exchange, share, or sell the output from their farms, including seed of varieties protected by this Act.

Breeders are granted the exclusive right to create, market, sell, distribute, import, or export seeds of a protected variety. A portion of the royalties that breeders are required to pay the authority can be allocated to help communities or farmers. Benefit sharing with farmers or communities that have supplied genetic resources or assisted in the creation of a variety is required by the Act. The populations who contributed the original genetic material or expertise must receive a portion of the profits from the commercialisation of new kinds. It provides mechanisms for benefit-sharing, recognition, and reward through the establishment of a Gene Fund. This fund supports farmers engaged in the conservation of plant genetic resources. By acknowledging the role of farmers and traditional

⁴⁵ The Biological Diversity Act, 2002 (Act 18 of 2003), s. 22.

⁴⁶ The Protection of Plant Varieties and Farmers' Rights Act, 2001 (Act 53 of 2001).

knowledge holders, this act promotes the sustainable use and conservation of plant biodiversity.⁴⁷

5.4. Policies

Policy mechanisms play a crucial role in addressing these challenges and ensuring the recognition, respect, and safeguarding of traditional knowledge in the face of biopiracy.

5.4.1. *Prior Informed Consent and Access Benefit-Sharing (PIC-ABS) Frameworks*

The development and implementation of PIC-ABS frameworks is an important policy mechanism. Before accessing and utilising Traditional Knowledge holders' knowledge and resources, these frameworks require researchers, companies, and other entities to obtain prior informed consent from them. They also create mechanisms for fair and equitable benefit-sharing, ensuring that Traditional Knowledge holders are fairly compensated for commercial use of their knowledge and resources.⁴⁸ An example of an international legal instrument that promotes the implementation of PIC-ABS frameworks is the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation.

5.4.2. *Traditional Knowledge Digital Repositories*

By providing a centralised and secure platform for the documentation, preservation, and dissemination of traditional knowledge, digital repositories serve as policy mechanisms to protect traditional knowledge. Indigenous communities, governments, or collaborative partnerships can manage these repositories. They promote knowledge sharing within and across communities while maintaining control and protection of intellectual property rights associated with traditional knowledge. A successful repository that protects traditional knowledge from biopiracy is India's ***Traditional Knowledge Digital Library (TKDL)***.⁴⁹

⁴⁷ *Id.*

⁴⁸ "Decisions Adopted by the Conference of the Parties to the Convention on Biological Diversity at its Eleventh Meeting" UNEP/CBD/COP/11/35 73, available at: <https://www.cbd.int/doc/meetings/cop/cop-11/official/cop-11-35-en.pdf> (last visited on September 16, 2023).

⁴⁹ "CSIR TKDL", available at: <https://www.tkdlib.in/tkdlib/langdefault/common/Home.asp?GL=Eng> (last visited on September 16, 2023).

The TKDL is a collaborative project between the Council of Scientific and Industrial Research (CSIR) and the Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH). It addresses the challenge of documentation and availability of traditional knowledge. By digitising traditional knowledge from existing literature in multiple languages, the TKDL facilitates access to patent offices worldwide. This initiative ensures that traditional knowledge remains in the public domain, preventing misappropriation and promoting its rightful recognition.

6. Recommendations and Suggestions

These cases exemplify the negative implications of the dearth of a proper protective mechanism for traditional knowledge and it definitely shows how traditional knowledge can easily get exploited by third-parties without taking proper consent from the indigenous stakeholders, or any compensation or benefit shared with these communities that own the bio-resources. The examples also demonstrate how multinational corporations and other external business entities have exploited the loopholes in the legislations and judicial enforcement mechanisms in the developing countries, and it majorly results in the unfair usage and misappropriation of many indigenous natural resources and traditional practices. They also shed light on the power dynamics and bargaining power imbalances that exist between multinational corporations and developing countries. They demonstrate how multinational corporations, often with great financial resources and legal expertise, can obtain patents and commercialise traditional knowledge without adequately involving or acknowledging the indigenous communities' rights. Such instance strengthens our argument that the current patent law system prioritises multinational corporations' business-oriented interests over protection of traditional knowledge and the well-being of developing countries.

Furthermore, these case studies highlight the utmost need for amendments in the legal framework, fair policy reforms including that of an equitable 'benefit-sharing' mechanism or maybe an alternative model of innovation and knowledge-sharing that prioritise developing countries' needs and interests, as they provide convincing evidences of the negative consequences of biopiracy and exploitation, prompting calls for stronger international and national cooperation. A robust legal and regulatory framework plays a pivotal role in protecting our traditional knowledge (TK) and safeguarding the rights of many developing countries and indigenous communities.

1. Strengthening Legal and Regulatory Frameworks

Even India has witnessed several cases of biopiracy but the country does not have a comprehensive legislation that talks about the protection of traditional knowledge till date. Governments should consider amending and updating their IP Laws to address the unique challenges associated with patenting and biopiracy. These amendments may include provisions that explicitly recognise and protect traditional knowledge, require a prior informed consent for accessing genetic resources, and establish mechanisms for benefit-sharing. Strengthening IP laws will provide a stronger foundation for protecting traditional knowledge and preventing its unauthorised exploitation. Countries should consider developing specialised legislation(s) that specifically focuses on the protection of traditional knowledge and the regulation of biopiracy along with an enforcement mechanism to deal with related disputes. Such legislation can provide us with clear guidelines and procedures for accessing traditional knowledge, obtaining informed consent, and ensuring fair and equitable benefit-sharing.

2. Empowering Developing Countries and Indigenous Communities

Empowering developing countries and indigenous communities is crucial for protecting their traditional knowledge and it begins with the first step of ensuring their active participation in decision-making in the entire process. By empowering these members as important stakeholders, they can assert their rights freely in order to protect their knowledge from misuse and misappropriation, and get the necessary benefits from the legitimate utilisation of their own resources. Governments and international organisations should prioritise capacity-building initiatives to enhance their knowledge, skills, and capabilities. These initiatives should focus on providing training, technical assistance, and educational programs and make them independent to effectively participate in negotiations, wherein they assert their rights over their knowledge, and make informed decisions regarding the use and protection of their traditional knowledge.

Maximum support should be given to community-led initiatives that empower indigenous communities to take ownership of their traditional

knowledge. Governments and organisations can provide funding, human resources, and technical support to facilitate the establishment of community-led projects and enterprises that value and protect traditional knowledge. These initiatives can promote sustainable practices, cultural preservation, and economic opportunities for indigenous communities.

3. Promoting Benefit-Sharing and Fair Compensation

Governments and organisations should work towards establishing a transparent benefit-sharing mechanism that clearly defines the terms, conditions, and modalities of benefit distribution. These mechanisms should involve the participation of indigenous communities, ensure accountability, and facilitate the fair and equitable sharing of benefits derived from the commercialisation of traditional knowledge.⁵⁰

Agreements and contracts related to the utilisation of traditional knowledge should incorporate provisions for benefit-sharing and fair compensation. These provisions should outline the rights and entitlements of indigenous communities, specify the conditions for benefit-sharing, and establish mechanisms for monitoring and enforcing compliance. By incorporating benefit-sharing provisions in agreements, the interests of indigenous communities can be equitably protected, and their contributions can be properly acknowledged and compensated.

4. Fostering International Collaboration and Cooperation

In order to address the global challenges posed by biopiracy and protect traditional knowledge, it is crucial to foster international collaboration and cooperation in the context of patenting. Because patenting is transnational in nature, countries must actively participate in international agreements and forums focusing on IPRs and biodiversity conservation. Countries can contribute to the development of stronger provisions for the protection of traditional knowledge within the patent law frameworks by participating in these initiatives.

⁵⁰ *Supra* note 31.

7. Conclusion

Throughout the study we find that the case studies and examples cited above reveal substantial challenges and problems that developing countries face in tackling Biopiracy and protecting their Traditional Knowledge from multifarious ways of exploitation and misuse. The ‘Turmeric Patent Controversy’ is one notable case study which exemplified the consequence of unrestricted patenting of traditional knowledge without the proper acknowledgement or consent of the communities that hold this knowledge. In a similar way, the ‘Bt Brinjal Controversy’ in India raised several concerns about biodiversity violations and the unauthorised use of indigenous Brinjal varieties. The controversy highlighted the importance of safeguarding traditional knowledge against Biopiracy and the need for ensuring IP rights of indigenous farmers who have cultivated these varieties for over generations and generations using a specific know-how.

Notwithstanding the cultural and ancestral significance of traditional knowledge associated with different communities, the protection of such traditional knowledge of the indigenous or local community is of greater importance because in certain cases such knowledge act as the source of income for the communities and if companies commercialise and attain monopolistic market-rights over such community-owned resources then the community would not be able to use it further and subsequently they would end up losing their only source of livelihood. This would further lead to the depletion of the practice and use of the traditional knowledge; ultimately resulting in the loss of heritage of the community. These case studies highlight the vulnerabilities that developing countries face, as well as the limitations of existing IP regimes in dealing with the complexities of traditional knowledge. The clash between the ‘western notions of IP and ‘traditional knowledge systems’ make it more challenging. It is critical to strengthen the legal and regulatory frameworks surrounding patenting rights and biopiracy in order to address these issues and to empower developing countries and indigenous communities by providing them with resources, tools, and legal assistance. Putting in place benefit-sharing mechanisms and ensuring fair compensation for traditional knowledge holders are important steps towards promoting equity. International instruments like the Nagoya Protocol establish a useful legal framework by emphasising upon the equitable distribution of benefits derived from use of genetic resources and traditional knowledge. It serves as a guide for developing countries as they strive to protect their traditional

knowledge from exploitation and encourage fair and mutually benefitting partnerships between stakeholders of traditional knowledge.

International collaboration and cooperation are much needed in combating biopiracy holistically. Developing countries can advocate for reforms and create a more equitable and inclusive global IP framework by fostering collaboration. The world requires a comprehensive approach that combines legal reforms, capacity building, and international cooperation and strikes a balance between protecting IPRs and safeguarding the rights of developing countries and indigenous communities especially in the context of patenting and biopiracy. This can only be achieved by acknowledging the value and nature of traditional knowledge; implementing strong legal frameworks and empowering communities as stakeholders of the knowledge.