
PATENT PROTECTION IN INDIA: A COMPARATIVE ANALYSIS

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ABSTRACT

This study examines India's agricultural policies within the framework of international intellectual property rights (IPR), focusing on the Protection of Plant Varieties and Farmers' Rights Act (PPV&FR) and its alignment with global agreements such as the Trade-Related Aspects of Intellectual Property Rights (TRIPS), the Convention on Biological Diversity (CBD), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and the Nagoya Protocol. It critically explores the evolution of India's agricultural policies before and after TRIPS, highlighting the challenges of balancing farmers' rights with the private sector's need for IPR protection.

Before TRIPS, India had minimal IPR protection in agriculture due to the socio-economic implications of granting monopolistic rights in a largely agrarian society. The introduction of TRIPS forced India to reconsider its stance, leading to the gradual implementation of IPRs in agriculture, with a focus on balancing technological advancement and farmers' welfare.

The study also explores the international context, where TRIPS requires member countries to protect plant varieties through patents, a sui generis system, or a combination of both. India leveraged the flexibilities within TRIPS to develop its unique sui generis system under the PPV&FR Act, which is notable for recognizing and protecting both farmers' and breeders' rights. This approach helps preserve traditional knowledge and biodiversity alongside technological innovation.

Furthermore, the analysis covers other international agreements like the CBD, ITPGRFA, and the Nagoya Protocol, which emphasize biodiversity conservation, fair access to genetic resources, and equitable benefit-sharing. These frameworks offer both opportunities and challenges for India in balancing international obligations with domestic priorities.

The study concludes that while TRIPS and related agreements have significantly influenced India's approach to agricultural IPRs, they have also sparked debates about the fairness and effectiveness of the current legal

framework. The PPV&FR Act is a critical effort to address these concerns, aiming to foster innovation while protecting the rights and livelihoods of Indian farmers. Continuous assessment and potential reform of these legal frameworks are necessary to meet the evolving needs of all agricultural stakeholders.

INTRODUCTION

This article discusses India's Agricultural policy before and after TRIPS, further we analyze the other international instruments (CBD, ITPGRFA, UPOV, Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from Their Utilization) pertaining to genetic resources as well as elements in such instruments that are important for the creation of legal regimes for plant varieties.

In the international context, the author will detail the nature of the TRIPS Agreement's Article 27.3(b) recognizing obligation to protect Plant Variety Protection requirement, as well as the flexibilities allowed by this clause. It also comparatively analyses on how India and International arena deals with the patent protection relating to plant varieties and why it is lacking to address key concerns faced by developing nations in the arena of plant varieties. The analysis of the TRIPS Agreement reflects the ongoing disagreements between the WTO, CBD, and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). While the TRIPS Agreement of the World Trade Organization establishes private trade-related to IPR, the CBD and the International Treaty acknowledge the signatory states' sovereignty over their biological diversity and create guidelines for access to genetic resources and mutual value sharing.

INDIA'S AGRICULTURAL POLICY BEFORE TRIPS: CHALLENGES AND IMPACT

To understand India's role in relation to PVP, it's necessary to outline the domestic policies, forces, and priorities that were at stake during the liberalization years, including its agriculture strategy in terms of technology, the seed industry, farmers' protests, and civil society mobilization. Earlier, the IP rights were not given in seeds and genetic materials at the time when post-independence IPR law came into force. There was some level of hesitation in protecting agriculture related materials like seeds, crops etc. by way of patent law. This should not, however, be interpreted as India's aversion to technology in agriculture. Poor yields and

high levels of poverty, on the other hand, afflict Indian agriculture and on the above of it, allowing monopoly rights would have been a disaster. At the early stage, the IP laws were not in favor to provide protection to plants, agriculture produce and horticulture methods. This conduct can also be seen from the way Indian Patent Act is drafted to exclude plants and agriculture methods from its ambit.

While agriculture employs more than half of the country's population, it contributes to less than one third of its GDP¹. Small and marginal land holding is the norm; 66 percent of all farming households have equal to or less than one hectare of land². With the limited success of land reforms in the country, higher productivity with smaller land holdings was sought to be made possible only through technological improvements.³ Agriculture in India will be driven by technology in the future. In order to drive production to new heights, the creation and application of cutting-edge agricultural technologies is unavoidable. A successful R&D scheme has a just system of promotions, rewards, and acknowledgment. The New Agricultural Policy, which was enacted in the aftermath of the 1965-67 drought, set India on a course of agricultural production through technical advancement. Given the average land holding in the world, the technological package focused on high yielding varieties of seeds dependent on heavy doses of water, chemical fertilizers, and pesticides was seen as the only viable choice for increasing productivity in a short period of time. Given the value of agriculture at the time, and the widespread mistrust of the private sector, the public sector remained the dominant participant in agricultural research and development after independence, and played a key role in ushering in the green revolution. The green revolution's policies are primarily blamed for placing India on a chemical treadmill and causing agricultural inequity among crops, farmers, and regions. It was mostly concentrated on specific cash crops such as maize, rice, and other grains, as well as a few areas that already had irrigation and other facilities in place. It benefited wealthy farmers with greater holdings because they were well able to obtain more costly resources such as fertilizer, seeds, and other agricultural chemicals, as well as succeed in the

¹ Philippe Cullet, *Revision of the TRIPS Agreement concerning the Protection of Plant Varieties – Lessons from India concerning the Development of a Sui Generis System*, 2(4) THE JOURNAL OF WORLD INTELLECTUAL PROPERTY 617, 630 (1999).

² Saksham Chaturvedi, Chanchal Agrawal, *Analysis of Farmers' Rights in the Light of the Protection of Plant Varieties and Farmers' Rights Act of India*, 33(11) EUROPEAN INTELLECTUAL PROPERTY REVIEW 708, 711 (2011).

³ Mohan Rao, *Agricultural Development under State Planning in The State, Development Planning and Liberalisation in India* 128-132 (Terence J. Byres, 2nd ed. 1999); Gail Omvedt, *Four Anna Socialism: Relation of Industry and Agriculture in India*, 25(48-49) Economic and Political Weekly 2643, 2645 (1990).

industry. Despite the fact that the green revolution made India food self-sufficient, it also resulted in the loss of biological diversity, widening inequality among farmers, and an over-reliance on chemical inputs. Despite the green revolution's benefits, widespread agricultural distress continued to plague the economy.

India has been shifting its policies away from the public sector and into a greater private sector position since the late 1980s. It opened the seed industry to foreign investment, relaxed import restrictions, and made technology transfer easier. The need for legal defense of plant varieties produced by breeders increased in conjunction with the private sector's increasing intensity. The Seed Association of India (SAI), established in 1985, was the first to raise the issue of plant breeders' rights (PBRs). Following that, the New Seed Policy of 1988 recognized the importance of considering plant breeders' rights in India. Under pressure from SAI, the first bill on PBRs was drafted in 1993-94. Despite this, India tried to maintain its conservative policy on IPRs in agriculture only to give in under American pressure. After concluding that Indian IPR policies were detrimental to American industry, the US put pressure on India to amend its IPR regime by suspending duty-free status for all Indian-origin chemical and pharmaceutical goods under the Generalised System of Preferences (GSP).

There were polarized views on agricultural R&D investment. Some scientists supported it for better seeds, while others feared the monopolization of genetic material by MNCs and its impact on farmers and biodiversity. During TRIPS negotiations, India faced pressure to open its markets while protecting vulnerable farmers. The government had to balance private sector growth and farmer needs, a challenge shared by other developing countries like Brazil. TRIPS eventually allowed these nations some flexibility to align with stronger global IPRs while addressing domestic concerns.

RATIONALE BEHIND PROVIDING PROTECTION IN AGRICULTURE

The justification for exclusive intellectual property rights (IPR) is that those who invest significantly in developing new technologies should be compensated with temporary exclusivity, preventing others from profiting without contribution. In agriculture, traditionally based on the shared use of biological resources, the private sector's role in seed production grew as government involvement declined in the early 20th century, raising concerns about farmers' livelihoods.

The application of IPRs to agriculture, particularly in seed technology, is relatively new. The landmark U.S. Supreme Court case *Diamond v. Chakrabarty* allowed patents on living organisms, boosting biotechnology investments. After the establishment of the World Trade Organization (WTO) in 1995, countries were required to comply with the TRIPS Agreement, which mandates IPR protection across industries, including agriculture.

Under Article 27.3(b) of TRIPS, countries must protect plant varieties through patents, a sui generis system, or a combination of both. The push to implement plant variety protection (PVP) in India arose from the need to balance farmers' rights with the protection of plant breeders. The introduction of a PVP regime in India was driven by the desire to enhance food security, promote R&D investment, and attract private sector involvement in agriculture.

Assigning IPRs to agricultural inputs raises ethical concerns, especially for developing countries reliant on agriculture for GDP. While TRIPS Agreement was accepted for trade benefits, TRIPS-plus standards in recent FTAs may harm access to essential goods like drugs and educational materials, deepening global inequalities.

The ethical concerns of adopting IPR in agriculture were discussed by the “Panel of Eminent Experts On Ethics In Food and Agriculture” constituted by Food and Agriculture Organization (FAO). The ethical issues by the panel are:

- *the increasing risk of a transfer of important knowledge from the common domain (public goods) to the private domain, often controlled by corporations;*
- *the likely negative impact of the TRIPS Agreement on the livelihood of poor farmers;*
- *the uncertain impact on sustainable access to affordable, safe, nutritious food for consumers with limited income;*
- *the environmental impact, including the effect on biodiversity.*⁴

The Panel has also identified instances where titleholders have used IPRs in areas that have resulted in inequitable results. “*Overly broad claims interpretation and abusive measures at*

⁴ PANEL OF EMINENT EXPERTS ON ETHICS IN FOOD AND AGRICULTURE
<http://www.fao.org/3/i2043e/i2043e02d.pdf> (last visited on May.10, 2021)

the border may result in developing countries losing income necessary to reduce poverty and implement development programmes". One of the first questions to consider is whether agricultural research is "special" in terms of IP and analysis. The fact that human health is dependent on food, the timeframes involved in science, and the foundation of free global access to genetic information all contribute to this unique position of providing protection in agriculture. There is a strong risk of a reaction in the field of IP protection for live species and food production, which, if it occurs, would be fueled by negative public views. This may be motivated in part by basic ethical or religious values, or by a lack of complete knowledge of the truth at hand. There's also a chance that the effort to create global solutions and a global economy, along with all the regulatory mechanisms that go with it, would drive small businesses, if not whole countries, out of the market. The small's IP portfolio will be consumed by the large. Some also question whether existing antitrust regulations are capable of properly addressing these issues.

The time has come to take steps to harmonize and simplify the new IP structure in order to level the playing field for smaller businesses and countries seeking global security. There are reasons to reform IP laws in a manner that rewards invention more equitably, for those that act in unconventional ways especially in case of farmers in Indian context.

IPRs RELEVANT TO AGRICULTURE

The value of intellectual property rights (IPRs) in agriculture, especially in developing nations, has grown significantly as these economies rely heavily on agriculture. IPRs in this context are divided into industrial property (patents, trademarks, geographical indications) and sui generis rights, which are unique protections like plant breeders' rights. Patents are crucial for protecting agricultural innovations, granting exclusivity to the inventor. However, patents have limitations, such as requiring public disclosure and meeting stringent criteria like novelty and industrial applicability, which can be challenging for agricultural methods already in the public domain. Objections to plant patents often stem from ethical concerns and the belief that traditional breeding lacks the inventive step required for patenting.

Plant breeders' rights, a form of sui generis protection, offer a less stringent but still valuable form of protection, focusing on the distinctness, uniformity, and stability of plant varieties. While these rights are less robust than patents, they support breeding activities, particularly in

the private sector. Historically, public and foreign institutions led breeding efforts, but developing countries have recently begun implementing such protections, recognizing the need to balance innovation incentives with the protection of traditional agricultural practices.

The other type of protection is through commercial marks that can be used on both agricultural and industrial goods and services. Trademarks are used to advertise crops or spraying facilities, for example. The primary goal of a trademark is to differentiate one brand's products and services from that of another, avoiding customer deception. Such security is not time-limited and prohibits the unauthorized use of promotional marks, though registration can need to be updated from time to time. Trademarks are protected in about every country on the planet.

Geographic indications are used in the form of appellations of origin, are a type of commercial label that is more often found in agriculture than in industry. These are marks associated with goods that originate from a country, region, or locality where the product's quality, popularity, or other characteristics are largely due to its geographical origin. The majority of geographical signs are associated with agricultural products or products extracted from them, such as wines and spirits. The protection of such labels forbids third parties from misrepresenting their goods as being from a specific area. The benefit of this protection is that, unlike plant patents or plant breeders' rights, it is not time limited. However, not denying the fact that commercial gains will only accrue only when name/brand has become fairly well-known.

The agriculture industry can also make use of trade secret rights to protect for example, hybrid plant varieties. As a result, even in countries that do not respect plant breeders' rights, the use of hybrids allows for any appropriation as long as it is kept secret. Trade secrets can be guarded against unauthorized use by third parties under unfair competition, restrictive trade practices, and contract law rules. Trade secret security is not restricted in duration, but unlike patents, it has the downside of being lost the instant it is found independently by a third party. The drawback, at least for the proprietor, is that, unlike patents, there is no requirement that the inventive or artistic inventions be disclosed to society.

India is among the first countries in the world to pass laws that equally grants rights to both breeders and farmers. It is the only piece of legislation in the country that gives farmers formal rights in a way that protects their self-sufficiency while also acknowledging plant breeders' efforts in producing new plant varieties. The act acknowledges the farmer as both a cultivator

and a preserver of agricultural plant variety by protecting the farmer's plant variety. Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPV&FR) establishes an important framework for protecting plant varieties, protecting farmers' and plant breeders' interests, and accelerating investment in seed industry research and production, ensuring the supply of high-quality seeds and planting material of improved varieties to farmers and other growers such as horticulturists. The applicability and the effectiveness of this Act in protecting farmers' and breeders rights is discussed in detail in the coming chapters in light of benefit sharing, food security and global impact.

INTERNATIONAL CONTEXT

Plants were traditionally excluded from the international intellectual property regime. Agriculture was being seen as non - industrial and thus outside patent law.⁵ It was believed that agriculture should not be governed by patents regime, which was viewed as inappropriate in this context. This was linked to the traditional agricultural practices such as seed saving and exchange and to the perception that the fulfillment of food needs should not be a profit-making enterprise.⁶ After 1945, agriculture began to use more artificial methods in which natural growth was influenced by chemical inputs like fertilizers and herbicides, as well as special physical conditions like light, temperature, and humidity. Then, within the patent system, the courts started to accommodate these methods. During the same time span, several Western European countries considered awarding plant patents.

The different treaties that India has ratified in this area, as well as the various legislative instruments adopted to enforce international commitments, make up the legal structure for plant variety protection. In the area of plant variety conservation and management, India has made a variety of commitments. This include a number of commitments relating to the conservation and fair usage of biological resources, as well as commitments relating to the preservation of indigenous information and farmers' interests, and a number of intellectual property rights responsibilities relating to the commercial use of plant varieties. The TRIPS agreement establishes minimum standards for intellectual property protection, which WTO contracting

⁵ Lionel Bently and Brad Sherman, *Intellectual Property Law*, Oxford University Press, 2001, p. 539; Cullet P., *Food Security and Intellectual Property Rights in Developing Countries*, IELRC Working Paper 2003-3, available at: http://www.ielrc.org/Content/W0303_IP.pdf; & Lucas Sese, *Explanatory Note on Plant Breeders' Rights*, Report of the Workshop on the Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders and the Regulation of Access to Biological Resources, Addis Ababa, 2000, p. 83.

⁶ Lucas Sese, *id.*

parties are required to enforce by national legislation. These minimum requirements have shifted the IPR regime away from the public interest and into monopolistic rights for IPR holders. TRIPS is a legally binding bilateral treaty that applies to all 140 members of the World Trade Organization (WTO). It has largely globalized a "one-size-fits-all" scheme of IPRs, where the same criteria are set for countries of varying degrees of development, resulting in significant inequity between developed and developing countries. Unfortunately, the consequences of many of its clauses are felt most strongly in developing countries. The international legal system remains significantly underdeveloped in fields that are comparatively more important to developing countries, such as farmer's rights and the protection of their traditional knowledge.

ADOPTION OF UPOV: IMPORTANT CHARACTERISTICS AND PROVISIONS

The UPOV Convention, adopted in 1961 and revised in 1972, 1978, and significantly in 1991, establishes binding minimum standards for plant variety protection (PVP). It provides a blueprint for sui generis protection, enabling countries to protect new plant varieties without patents. Initially adopted by Western European countries and OECD members, UPOV expanded breeders' rights while restricting farmers' rights to save, use, and trade seeds. To join UPOV, countries must have domestic PVP legislation that complies with its standards, ensuring harmonized international intellectual property protection for plant varieties. Membership requires strict adherence to UPOV provisions under national law.

Over the years, the UPOV Council has carried out this function by doing a thorough review of the laws of would-be acceding countries, thus having a significant impact on the regulatory regime applied to PVP. Countries who do not adhere to the Convention's strict model are not permitted to become the member.

Thus according to Article 34(3) of UPOV 1991:

“Any State which is not a member of the Union and any intergovernmental organization shall, before depositing its instrument of accession, ask the 22 Council to advise it in respect of the conformity of its laws with the provisions of this Convention. If the decision embodying the advice is positive, the instrument of accession may be deposited.”

On 31 May 2002, the Indian Cabinet approved the government's decision to seek accession to the Union for the Protection of New Varieties of Plants (UPOV) under the terms of UPOV's 1978 Act. This means that India will need to submit its recently adopted law -- the Protection of Plant Varieties and Farmer's Rights Act 2001 -- to UPOV Council.⁷

India's Protection of Plant Varieties and Farmers' Rights (PPVFR) Act is incompatible with the UPOV Convention, even the more flexible 1978 version, due to its strong emphasis on farmers' rights. UPOV primarily protects breeders' rights, offering limited "farmers' privilege," such as reusing seeds from previous harvests, but does not recognize broader rights like seed preservation or benefit-sharing with breeders. UPOV's framework, favored by developed nations, conflicts with India's sui generis system, which aims to balance breeders' and farmers' rights.

The TRIPS Agreement increased UPOV's significance as a model for plant variety protection, prompting many countries to align their national laws with UPOV standards. However, UPOV's narrow focus on breeders' rights has proven inadequate for developing nations, where farmer-centric approaches are crucial. The UPOV model's inability to effectively protect farmers' rights makes it less suitable for countries like India that prioritize agricultural sustainability and equity.

THE PROTECTION OF PLANT VARIETIES UNDER TRIPS AGREEMENT: OBLIGATIONS AND FLEXIBILITIES

After the implementation of the Agreement on Trade-Related Aspects of Intellectual Property Rights, the protection of plant varieties by intellectual property rights has become increasingly important (TRIPs). TRIPs plant variety protection is based on the need to incentivize private sector players to participate in plant breeding. The ultimate goal of plant variety protection is to increase food security by introducing new improved varieties and increasing seed availability across private sector networks. The adoption of TRIPS has seen a major shift in the area of plant variety protection not only in India but everywhere. Under Article 27.3(b), TRIPS imposes an obligation on WTO member countries to protect plant varieties either by patents or by a sui generis regime or by a combination of both. Countries that are not members of the WTO or UPOV may decide whether or not to establish plant variety protection, and if they do,

⁷ See <https://grain.org/fr/article/entries/1944-india-decides-to-join-upov?c=true>

they have complete autonomy over the nature and other characteristics of that protection. The condition is different for WTO members, who are bound by a general duty to preserve plant varieties under the TRIPS Agreement under which they are even allowed to grant patents to plants. This duty, however, does not extend to WTO members who are least developed countries (LDCs), which have a transitional duration until July 1, 2021, till which they are not required to adopt the TRIPS requirements. This time of transformation can be increased.

This growth had a significant impact on developing countries, as they were now required by treaty to have plant variety protection under domestic laws. Article 27.3 (b) allows countries the choice of how to include plant variety protection and does not make it mandatory for countries to protect plant variety protection by patents, which is an appreciable effort.

Article 27.3(b) of the TRIPS Agreement given below:

“Members may also exclude from patentability:

(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.”

Since the TRIPS Agreement does not define the term "plant varieties," WTO members may use a narrow or expansive meaning of the term, based on the circumstances and goals sought by each country. This is an important aspect of the Agreement's versatility. Members may also limit protection to a set of species or genera as well as differentiate the level of protection conferred to different categories of varieties by granting, for instance, stronger rights in the case of narrowly defined varieties, as compared to those granted in respect of more heterogeneous populations.⁸

As a result, a WTO member may choose to restrict security to plant varieties specified as such under UPOV on the basis of uniformity and stability, or to expand it to plant groupings that are

⁸ See, e.g., Dan Leskien and Michael Flitner, Intellectual Property Rights and Plant Genetic Resources: Options for a Sui Generis System, *Issues in Genetic Resources*, No. 6, June 1997, 54.

relatively heterogeneous and unstable, such as farmers varieties, on the basis of equity or other considerations. The only stipulation for implementing such wider security is that it does not conflict with other terms of the TRIPS Agreement.⁹ The difference between what is required and what is optional under the TRIPS Agreement is critical, since no member can be subjected to lawsuits under the WTO's dispute resolution mechanisms (which may lead to trade sanctions) in relation to TRIPS protections that are not obligatory.

While all WTO member countries are required to protect plant varieties, they also have the option of choosing the mode and standard of protection. Since the only requirement provided by Article 27.3(b) is to have successful *sui generis* protection, the scope for such an option is vast. This clause makes no note of the UPOV Convention. As a result, members may enact UPOV-style laws, but they may also vote for non-UPOV-compliant forms of *sui generis* protection.

The meaning of 'Sui Generis' is 'unique', 'of its own kind'¹⁰, is implying that WTO members have wide area and freedom to determine how the protection is to be conferred.

'Effective' means 'successful in producing a desired or intended result.'¹¹ This may be viewed as ensuring that the substantive norms and compliance processes be designed in such a way that the protection's expected goals are met. These goals which include not only the right holder's profits or proceeds, but also the collective interests sought by the implementation of the protection, such as ensuring food security and encouraging sustainable agriculture. The aim of TRIPS Agreement is to "contribute to the promotion of technical progress and the transition and distribution of information, to the shared benefit of producers and consumers of technological expertise in a manner conducive to social and economic wellbeing, and to a balancing of rights and obligations," In other words, since the term "effective" is not specified in Article 27.3 (b), countries have a lot of discretion in defining "effective" to create a unique plant variety protection legislation that recognizes not only effective breeder rights but also farmer rights including access to and control over seeds and PGR, which is critical for food security. The problem of food security is inextricably linked to the plant breeder rights regime, since a strong plant breeder rights regime can limit access to seeds for the farming community.

⁹ See Article 1.1 of the TRIPS Agreement.

¹⁰ See <http://www.oxforddictionaries.com/definition/english/sui-generis>.

¹¹ See <http://www.oxforddictionaries.com/definition/english/effective>.

This may force farmers to go to the market any time they want to buy seeds, putting an end to the age-old tradition of farmers voluntarily exchanging and selling seeds and breeding new varieties in developing countries. An effective legislation is the one that takes into account the interests of all the actors involved in the subject matter to be protected

To meet its obligations under TRIPS, India enacted its own sui generis law with the name Protection of Plant Varieties and Farmer's Rights Act (PPVFR). This is a one-of-a-kind piece of legislation because it encompasses all commercial players interested in PGR management, including breeders and farmers. Plant variety protection has important consequences in India because seed has historically been supplied mainly by farmers and the public sector, with the private sector playing a minor role in most crops until recently. Even though the Protection of Plant Varieties and Farmers' Rights Act was passed in 2001 to comply with TRIPs obligations, the issue of plant variety protection remains unresolved from a legal standpoint. This can be due to number of reasons as highlighted: *"Firstly, plant variety protection is an issue which goes beyond giving incentives to the private sector. In fact, while the TRIPs agreement is the direct trigger for the introduction of plant variety protection, it is not the only relevant treaty. The Biodiversity Convention and the International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA Treaty) are also of major importance. Secondly, while plant variety protection is directly related to innovation in the field of agriculture, it must also be understood in the broader context which includes conservation of biological resources. Thirdly, plant variety protection is opposed to the idea that agricultural management should be based on the sharing of knowledge and resources."*¹²

On both a conceptual and a practical viewpoint, this may be criticized. However, given the widespread ratification of TRIPs and the extremely precarious existence of farmers' control over their resources and expertise, it is important to look past critique and consider the additional conditions of the new international legal framework in terms of farmer needs and, more generally, food security for all people.

The importance of UPOV was increased after adoption of TRIPs agreement, since UPOV, which was already in place when the TRIPs agreement was signed, offers a unique plant variety protection model, it served as a ready-made solution for several countries seeking to establish

¹² Dr Philippe Cullet & Radhika Kolluru *Plant Variety Protection and Farmers' Rights: Towards a Broader Understanding*, Delhi Law Review 2002, p-41

internal plant variety protection regimes. Many countries were members of UPOV and modeled their national plant variety protection regimes in line to the UPOV conventions and provisions.

RELEVANCE OF NAGOYA PROTOCOL AND CBD

The Convention on Biological Diversity (CBD) or the Biodiversity Convention is an international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising out of the utilization of genetic resources."¹³

The Biodiversity Convention provides for the ABS system which the Nagoya Protocol implements. The implementation of the ABS system is one of the major objectives of the Protocol. The Nagoya Protocol is an agreement recognized globally. It is an agreement supplementary to the CBD.¹⁴ The Protocol has many benefits. The Protocol establishes a framework to make the genetic resources easily accessible to the researchers for R&D, biotechnology, and many other activities. Such accessibility of the genetic resources is made in return for a fair share of any benefits which arose from the use of such genetic resources. This also forms a need within the community of research and development to invest in biodiversity-based research. Benefits through legal framework would be provided to the local and indigenous communities. The benefits provided to such communities are in return for using their traditional knowledge and biological resources.¹⁵

The Nagoya Protocol helps the owners and users of genetic resources by creating transparency and legal certainty. It also ensures benefit-sharing, which results in the sustainable use of genetic resources. This Protocol is a legally binding international agreement. Initially, the industrialized countries were not legally obligated to ensure equitable benefit sharing. It requires the nations to take measures for the benefit of the local and the indigenous communities.

¹³ "Convention on Biological Diversity, key international instrument for sustainable development", UNO, <https://www.un.org/en/observances/biological-diversity-day/convention>

¹⁴ Emily Marden, Josefine Sommer, "The Nagoya Protocol's Impact on Research and Development", SIDLEY, (Nov, 2020), <https://www.sidley.com/en/insights/publications/2020/11/the-nagoya-protocols-impact-on-research-and-development>

¹⁵ "The Nagoya Protocol- Convention on Biological Diversity", AUSTRALIAN GOVERNMENT, <https://www.environment.gov.au/science-and-research/australias-biological-resources/nagoya-protocol-convention-biological>

India signed the Nagoya Protocol in 2011 and ratified it in October 2012. India implements the Convention of Biological Diversity domestically by enacting the Biological Diversity Act, 2002.

INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE (ITPGRFA)

The Food and Agriculture Organization adopted ITPGRFA on November 3, 2001. It was enforced on June 29, 2004. The FAO adopted the treaty in the 31st session of the Organization's conference.¹⁶ This treaty is also known as the Seed Treaty, as this agreement ensures food security by the conservation, sustainable use, and exchange of the plant genetic resources of the world.¹⁷ It is a multilateral treaty. It establishes a Multilateral System of Access and Benefits-sharing to facilitate plant germplasm exchange and share the benefit through the Standard Material Transfer Agreement. India is also a signatory to this treaty.

There are four primary objectives¹⁸ of this treaty:

1. Establish a global system for the access of plant genetic materials to farmers, breeders, and scientists.
2. To recognize the farmers' contribution to a diverse variety of crops used in the world for food.
3. An opportunity for benefit sharing. The benefit acquired by using the genetic materials shall be shared with the countries from where those genetic materials come from or have been retrieved.
4. The sustainable use and conservation of genetic resources.

This treaty furthermore encourages the contracting parties to take measures for the protection of farmers' rights. One of the rights of the farmers provided under this treaty is that the farmers

¹⁶ “*International Seed Treaty*”, DRISHTIIAS, (Nov 12, 2019), <https://www.drishtiias.com/daily-updates/daily-news-analysis/international-seed-treaty>

¹⁷ *Ibid.*

¹⁸ “*International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRF)*”, SANSOR, <https://www.sansor.org/industry-in-action/international-treaty-of-plant-genetic-resources-for-food-and-agriculture-itpgrfa/>

also get the benefits earned by conserving sustainable using the genetic resources. The treaty under Article 9 aims to recognize the contribution of the farmers and the local indigenous communities for the origin of different crop varieties, conservation of plant genetic resources which feeds the world, of all the regions in the world.¹⁹ Moreover, section 12(d) of the treaty says,

"Recipients shall not claim any intellectual property or other rights that limit the facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components, in the form received from the Multilateral System."

CONCLUSION

The analysis presented underscores the complex dynamics between India's agricultural policies and international intellectual property rights frameworks. India's Protection of Plant Varieties and Farmers' Rights Act (PPV&FR) stands out as a progressive model that strives to balance the competing interests of farmers and plant breeders. However, challenges remain, particularly in ensuring that the rights and livelihoods of small-scale farmers are not undermined by the expanding influence of private sector interests and global IPR norms.

The TRIPS Agreement, while offering flexibilities, still pressures developing nations to conform to standards that may not fully address their unique socio-economic realities. India's cautious approach to adopting UPOV standards reflects its recognition of these challenges, as it seeks to protect agricultural biodiversity and food security alongside fostering innovation.

Way Forward: India must continue refining its legal frameworks to better integrate international obligations with domestic needs. Strengthening the enforcement of farmers' rights, enhancing awareness and capacity-building among farmers, and promoting public sector research in agriculture are crucial steps. Moreover, active participation in global forums to

¹⁹ Marcel Bruins, "A closer look at the interrelation between Farmers' Rights and Breeders' Rights," EUROPEANSEES, (Apr. 4, 2017), <https://european-seed.com/2017/04/closer-look-interrelation-farmers-rughts-breeders-rights/>

advocate for more equitable IPR standards that recognize the contributions of developing countries will be key in shaping a fair and sustainable global agricultural system.