



Research Article

Intellectual property rights and limitations on farmers' rights in Pakistan

Muhammad Saleem Korejo^{1*}, Erum Naseer Korejo², Nazir Ullah³, Suresh Kumar⁴, Hyder Ali Khawaja⁵

^{1,2,4,5}Department of Business Administration, Sukkur IBA University, Sukkur, Pakistan

³Faculty of Law, The National University of Malaysia, Bangi, Malaysia

*Corresponding Author email: saleem.korejo@iba-suk.edu.pk

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ABSTRACT

Farmers are the life blood of agriculture. The role of farmers for the services done to agro diversity and their efforts to seed preservation, sufficiently justify their rights to seed. In the wake of World Trade Organization- Trade Related Aspects of Intellectual Property (WTO-TRIPS) agreement on Intellectual Property Rights (IPR) protection for all innovations including plants. Farmers' traditional rights are compromised over breeders of new plant varieties. This paper aims to describe international plant protection systems under WTO-TRIPS and examines two international conventions on plant protection i.e., Seed treaty and Convention on Biological Diversity. This paper employs a doctrinal method to examine the rights of farmers in Pakistan by adoption of "Plant Breeders' Rights Act". It is revealed that the Act limits the traditional rights of farmers' and have helped to gratify plant breeders; Pakistan despite signatory to seed treaty has ignored to protect rights of farming communities while, in compliance to WTO-TRIPS went on to a stricter model of IPR barring farmer's right even to seed except saving and exchanging'. The study proposes some strategies to balance between the rights of farmers with that of breeders, thus, to achieve a better reform system for both growers' and agro technologists.

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1. INTRODUCTION

Farmers have been considered the pioneers of human civilization who have offered their knowledge and skill in farming agriculture. Their efforts in producing and supplying food from centuries to humankind are appreciable. They contribute to the delivery of seed for food, agriculture, and commerce; hence, they play a significant role in the economics of society. Farmers are better known as custodians of seed, who preserve it in human history for a continuous supply of food. Besides this, they have been instrumental in selecting and creating viable seed varieties that can be adopted and yield more to meet the needs of society in general and for their own livelihood in particular. It is therefore crucial to diagnose the role and rights of farmers pertaining to the preservation, protection, and innovation of genomic resources. This customary right to sow, save, exchange, and sell seems pivotal in regard to their food supply and production, as they are the guardians of agro-biodiversity, and their continuous efforts to preserve and ensure food security are sufficiently valuable to justify their rights to seed. In the wake of the World Trade Organization's Trade Related

Aspects of Intellectual Property (WTO-TRIPS) and Agreement on Intellectual Property Rights (IPR) protection for all innovations, including those encompassing plants, farmers' traditional rights are compromised over those of breeders of new plant varieties.

There is growing research exploring the impact of the IPR regime on developing countries and the imbalance of rights between breeders' and farmers' rights (Yazdani & Ali, 2017; Gupta and Negi, 2019; Kabau & Cheruiyot, 2019; Prasanna et al., 2021). The results from the previous literature show that the matter of farmers' rights came under limelight consequent to the adoption of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) signed in 2001. This treaty is a holistic covenant among nations towards biodiversity, with the aim of ensuring food supply through the preservation and exchange of genetic resources on the basis of the just sharing of benefits arising from the manipulation of breeders while recognizing the rights of farmers. However, the focus turned more on the other aspects of the treaty, like access to seeds and benefit sharing (FAO, 2001). Nevertheless, the studies on farmers' rights and implementation have fallen short (Feyissa, 2006; Munyi et al., 2016). The issue of farmers' rights is still of concern, as their rights are eroded further from genetic resources to the steady expansion of IPR laws over plant varieties (Wattnem, 2016, Verma, 2021, Ghimire et al., 2021). In response to IPR and WTO-TRIPS development, Pakistan also enacted the Plant Breeders' Rights Act in 2016. There is a dearth of literature in relation to farmers' rights and breeders' rights in the context of Pakistan; Yazdani and Ali (2017) studied the impact of seed law and policy implementations; in the work of Remark (Sadeque, 2014) seed is a heritage of farmers that is under threat of sale by breeders; and one of the important recent studies conducted by Abbas (2020) holistically analyzes Pakistan's legislation: The study is concerned with Pakistan's legislative compliance with the TRIPS Agreement, key elements of the Act, opportunities and difficulties facing the seed industry, and practical implications for farmers, yet issues pertaining to farmers' rights remain untouched. This study therefore raises the question of whether the rights of farmers' are in line with international instruments like ITPGRFA and CBD and how the PBR Act (2016) impacts the farmers' right to seed. This article aims to shed light on the IPR, with a special focus on farmers' rights under the new sui generis statute called Plant Breeders' Rights Act 2016 (PBR). The article is divided into five parts: first, it provides the historical perspective of farmers' rights; second part highlights the development of plant breeders' rights and the degeneration of farmers' rights under IPR system and plant protection. The third part discusses the concept of farmers' rights and a sui generis system under the prism of the international instruments ITPGRFA and CBD. The fourth part analyzes technical aspects of the Pakistan's BPR Act 2016 and uncovers limitations on customary farmers' rights in Pakistan, especially "right to seed." Lastly, it concludes and provides suggestions to balance farmers' and breeders' rights in Pakistan.

2. FARMERS' RIGHTS IN HISTORICAL PERSPECTIVE

Historically, there has been no explicit legal mechanism ensuring farmers' rights; however, their role in plant material and customary rights has been acknowledged worldwide (Sonnino, 2017). With the advent of biotechnology, most countries have put efforts into

agriculture to produce new high-yielding varieties which gave rise to a concept of plant breeders contrary to plant farmers. The breeders of new plant varieties argued for the protection of all such plant varieties which were produced in labs with involvement of biotechnology and research as Intellectual Property in plants which gave birth to the International Union for the Protection of New Varieties of Plants (UPOV). Hitherto, plants have served as a vehicle of research for new drug discovery and a food supply for human consumption (Hsu, 2015). Therefore, when discussing IPR protection in plants, rights related to farmers' and their traditional contribution to plant resources are important considerations. Formerly, plants, being the products of nature, were not subject to patents. However, in 1961, some European nations drafted an international convention to address the issue of intellectual property in plant protection, which led UPOV. The convention was adopted in Paris in 1961, and it was revised in 1972 and 1991. According to the UPOV, members are required to amend domestic laws and initiate a process of protecting new plant varieties consequently, many countries enacted or amended their domestic legislation; some by naming either as "Plant Variety Protection Act" others refer it as "Plant Breeders' Right Act," and some others amend to the existing "Seed and Seedling Act" (Hsu, 2015). Resultantly, a pull started between farmers and breeders in plant resources. Although Pakistan is not a member of the UPOV yet it enacted a new law as PBR Act 2016.

The concept of farmers' rights came into lime light in 1980s in response to a conflict over genetic resources, generally called the seed wars (Frison et al., 2012). The justification behind this conflict was to prevent the new doctrine of IPR over plant genetic resources (Peschard, 2017). Yet, the Food and Agriculture Organization (FAO) recognized the inconsistency between plant breeders' and farmers' rights in 1989, leading to the introduction of the concept of farmers' rights. According to FAO, farmers' rights are defined as all entitlements ascending from the historical, existing and upcoming involvements of farmers in preserving, cultivating and affording plant genetic material, (Sonnino, 2017). Additionally, it is regarded that the rights of farmers belong to the global community, which serves as a custodian for both current and generations to come; this acknowledgment is to guarantee and encourage that planters obtain all advantages associated with seed and forming. (Pistorius, 1997). The United Nations Convention on Biological Diversity (CBD), which was established in 1992 as a tool for the conservation and sustainable use of biological diversity, recognized farmers' rights as a result, opened the door for international legislation protecting such rights. Under the provisions of Article 8(j) of the CBD members are obliged to venerate, maintain the knowledge, novelties, and implementation of native and resident communities that represent old-style means pertinent for the preservation and maintainable use of genetic variety. Furthermore, member states are also required to ensure the just distribution of benefits resulting from the use of knowledge, novelties, and practices of farmers (UN, 1993).

In 1995, WTO-TRIPS was negotiated to deal with IPR, which included patents, including new plant varieties. In 2001, the Food and Agriculture Organization's (FAO) International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), hereinafter called the "Seed Treaty," formally and explicitly highlighted the importance of farmers and their contributions in the past, present, and future for supplying food and sustainability (FAO,

2001). Article 9 of the Seed Treaty, besides recognizing farmers' contributions, required governments to implement farmers' rights and to take protective measures to respect and realize those rights. Further, the Article 10, in connection with Article 1, which identifies the free right of a nation over its plant genetic resources. Moreover, the seed treaty introduces a system of benefit sharing and access to the plant material through a bi party or multiparty agreement among nations for plant genetic resources. In addition to this, Article 13 provides a payment system for commercial use of such material based on equitable sharing. Thus, the benefit sharing principles of the Seed Treaty recognize the moral rights of the farmers, who are better known as the custodians of plant genomic resources for a long time (Sonnino, 2017).

3. IPR SYSTEMS AND PLANT PROTECTION

IPR are property rights, just like any other kind; they enable the owner, inventor, or creator to benefit from their creations in the form of copyright, trademarks, and patents. These rights are outlined in the United Nations Universal Declaration of Human Rights, specifically in Article 27, which grants the right to the protection of and to profit from the moral and material interests arising from creative, literary, or scientific output (UNO). The World Intellectual Property Organization (WIPO) is responsible body for overseeing the Paris Convention of 1883, which was the first global accord to adapt intellectual property rules for the protection of industrial property. It expanded protection beyond industrial property to include all manufactured and natural products, as well as extractive industries and agriculture (Singh et al., 2011); The agriculture protection included seed registration and seed control systems. However, the first initiative to recognize IPR in plants for breeders was the adoption of the Plant Patent Act by the USA in 1930. The Act protects asexually reproduced plants as patentable inventions. However, this enactment gave rise to controversy about whether patents extend to plant protection or whether plants should be protected under the sui generis system. Later in 1973, the European Patent Convention established that biological processes used to produce plants and animals, as well as plant and animal variations, are not considered patentable matters. However, these may be protected by other mechanisms. The same was replicated by the WTO agreement on Trade Related Aspects of Intellectual Property Rights (WTO-TRIPS) in 1995.

3.1. WTO-TRIPS

One of the comprehensive agreements that explicitly deals with intellectual property is the TRIPS agreement. It covers patents covering of novel plant varieties, trademarks, circuit designs, industrial designs, related rights and copyrights, and undisclosed information. It sets minimum standards and elements of protection, the rights conferred upon them, and the duration of protection by contracting countries. TRIPS-Agreement requires the compliance of all rules and standards by contracting parties besides their obligation to conventions overseen by WIPO such as the Berne Conventions with their latest iterations, and the Paris Convention.

Under Article 27(1) of the TRIPS Agreement, in order to grant patents for any inventions (products or processes) in all technological domains, the standard requirements are

originality, creativity, and industrial applicability. In addition, it is essential for patents to be available without regard to the site of invention, production or the import goods. Whereas, the TRIPS Agreement provides three permissible exceptions: First, according to Article 27.2, inventions that endanger humans, plant life, or animals cannot be patentable because they violate public order or morals; Second, it is optional for the contracting parties to remove from patentability procedures used for human or animal treatment that are diagnostic, therapeutic, or surgical (Article 27.3(a)); Third, the Article 27.3(b) requires all the signatories to prohibit the use of plants and animals in patents that do not pertain to microorganisms or fundamental biological processes for the making of animals and plants. Furthermore, the TRIPS Agreement makes it obligatory for member countries to provide a separate mechanism i.e., sui generis for plant-related inventions.

3.2. SUI GENERIS SYSTEM FOR PLANT PROTECTION

Sui generis is a system of protection of IP in plant varieties, whereby signatories of TRIPS are obliged to provide a system for safeguarding plant varieties, either by a new special system exclusively for plant and genetic resources or by patents or a combination of the two. In this regard, the development in the fields of biotechnology and genetics led to the creation of new transgenic plant species, which became an impetus in solidification of IPR over plants. Most of the agribiotech industry and multinational seeds then stressed the worldwide IPR laws being imposed on plant varieties; ultimately, industry succeeded in signing an international agreement: WTO-TRIPS. The sphere of such a regime expanded further in the UPOV Convention of 1991. This protection over plant variety and genetic resources gave rise to a new controversy and debate between farmers', who have a long history of using, saving seeds, and conserving plant varieties for producing food, and breeders', who claim rights of ownership over plant varieties for their development into new varieties.

4. FARMERS' RIGHTS AND SUI GENERIS SYSTEM

Farmers' attain an important position in the economy of a country. In the 1980s, the notion of farmers' rights was created following the escalating battles for plant genetic resources, popularly known as "the seed wars" (Frison et al., 2012) or threat (Kloppenborg, 2013), to seed sovereignty, which refers to people's ability to save, replant, breed, and distribute seeds as well as their ability to influence laws and regulations governing their use and access (Wattnem, 2016). The justification behind this conflict was to prevent the new doctrine of IPR over plant genetic resources (Frison et al., 2012). A dispute arose over the ownership of plant genetic resources as a result of the 22nd session of the United Nations Organization for Food and Agriculture (FAO) conference held in Rome in 1983, pioneering the International Undertaking on Plant Genetic Resources, though not binding to regulate, conserve, and use plant genetic resources (PGRs). Yet, it states that such genetic resources ought to be viewed as a shared human legacy, which can be used without putting restrictions for plant breeding, scientific, and development purposes. On one hand, this governing principle of common heritage made it easy to float seeds freely across nations, but it also met opposition from tropical and developing countries, which hold a great deal

of genetic diversity as compared to developed countries (Mekouar, 2002), which possess the methodical capacity to accumulate, use, and profit using PGRs (Kloppenburger, 2013), and that private companies were taking full advantage of this by manipulating developing nations genetic possessions without rewarding them or even asking their authorization (Sullivan, 2004). In response to this, representatives from third-world countries demanded undertaking cover for free access to unusual genomic stocks, which included exclusive breeders' lines, which was straightaway opposed and refused by private seed companies with support from developed nations, and they declined to sign the undertaking (Sonnino, 2017).

4.1. CONCEPT OF FARMERS' RIGHT

The 25th FAO Conference put the idea of farmers' rights in the spotlight for the first time in 1989: the resolutions 4/89 and 5/89 identified that plant breeders' rights were inconsistent with the International Undertaking on Plant Genetic Resources of 1983 (Sonnino, 2017). The latter brought up the idea of farmers' rights, which is demarcated as rights deriving from farmers' past, current, and future endeavors to preserve, improve, and make accessible plant genomic possessions (especially those found in places of origin and biodiversity). In order to guarantee farmers' rights and encourage the persistence of their efforts, the resolution further declared that farmers' rights are regarded worldwide thus global community must maintain their rights for future generations of farmers. That, farmers' rights are comprised of the habitual rights that farmers possess since the beginning of agriculture as agents of agro-biodiversity to preserve, share, breed, grow, and sustain plant varieties. Further, their valid right needs to be recognized and reinforced for their contributions to the growth of marketable plant varieties and the global genetic resource pool, as well as their right to take part in decision-making on matters that may affect these rights, according to Andersen (2017).

4.2. FARMERS' RIGHTS UNDER INTERNATIONAL INSTRUMENTS

Consequent upon the exploitation of the provision of International Undertaking on Plant Genetic Resources (FAO, 1983) by developed countries and the world's large seed companies, developing countries demanded "access to special genetic stocks" on equal treatment on the same common heritage principle, which was rejected by developed countries. This paved the way for international legislation for farmers' rights.

4.2.1. International Treaty on Plant Genetic Resources for Food and Agriculture

The treaty, commonly called the "seed treaty" purposes to create harmony among farmers, plant breeders, and scientists around the world by realizing the great contribution made by farmers in biodiversity, the field of agriculture, and feeding the world at large. Besides this, it focuses on the principle of benefit sharing through the use of genomic resources from where they have originated. In 2001, the Seed Treaty formally and explicitly highlighted the importance of farmers and their contribution in the past, present, and future to supplying food and sustainability. Article 9 of the treaty exclusively deals with the rights of farmers; Article 9.1 recognizes their earlier, current, and upcoming efforts to the

preservation and progress of PGR; Article 9.2 requires governments to implement farmers' rights and also puts responsibility upon nations to take protective measures to respect and realize those rights. Above all, Article 9.3 emphasizes farmers' rights to keep, exchange, utilize, and sell seed or propagation material stored on farms in accordance with national legislation and where necessary. Similarly, Article 9.3 emphasizes farmers' rights to keep, exchange, utilize, and sell saved seeds and propagation materials from farms in accord with state legislation and where necessary. Other rights include safeguarding customary knowledge on plant genomic possessions for sustenance and cultivation, the entitlement to an unbiased portion of profits resulting from the application of plant genetic possessions in agriculture and food production, and the entitlement to join in countrywide decision-making on issues relating to the preservation and sustainable usage of plant genomic possessions for food and agriculture (FAO, 2001).

Moreover, the Article 10 of the seed treaty, in connection with Article 1, provides a multilateral system, i.e., mutual and complementary founded on the philosophies of efficiency, effectiveness, and transparency, whereby sovereign parties may agree to form a structure to access PGR for sustenance and cultivation and sharing of profits arising out of the use of those possessions. Additionally, the Article 13 provides a payment system based on equitable sharing ascending from marketable usage. Thus, the profit-sharing principle of the Seed treaty recognize the economic and moral rights of the farmers, who have been the guardians of plant genetic possessions for a long time.

4.2.2. United Nations Convention on Biological Diversity (CBD)

CBD is a transnational legal device dedicated for the preservation and maintainable usage of living diversity. Among others, the main areas of the CBD are to bridge the gap between developing and developed nations by acknowledging the need of cost and benefit sharing, and to identify strategies and tools for encouraging local innovation. The Article 8(j) of the CBD, requires counties to provide provisions in national legislations, to preserve, respect, and sustain the knowledge, inventions, and does of native communities that represent conventional existences pertinent to the maintainable usage of life varieties and their conservation. It also encourages the broader use of these practices, knowledge and novelties with the consensus and involvement of such persons who keep them, and encourages the just distribution of the profits that resulting from their usage (UN1993). Meaning that the CBD regards the right of a nation over biological diversity, it also stresses the respect and preservation of knowledge besides benefit sharing. Therefore, the convention accepts the contribution of local farmers and their customary rights. However, the CBD limits the principle of common heritage as mentioned in *International Undertaking on Plant Genetic Resources*, that the right over plant material is of beyond borders, nevertheless, CBD regard that it is the sovereign right of the nation over plant genetic resources within their boundaries.

5. LIMITATIONS ON FARMERS' RIGHTS IN PAKISTAN

Pakistan is a WTO member since January 1, 1995. Pakistan improved and enacted two pieces of legislation on the issue of plant protection. In a way, the country has fulfilled its

commitment under Article 27.3(b) of the WTO-TRIPS agreement. Consequently, the nation has made framework for the progress of new plant diversities and granted protected rights to the breeders of such new varieties while giving farmers and scientific researchers exceptions. In addition to WTO-TRIPS, Pakistan is also a signatory to two international instruments, i.e., the Seed Treaty and CBD. Pakistan is an agricultural country that is mainly managed by the efforts of farmers. The agriculture sector contributes nearly 23.4% to nation's economy. The agriculture sector is essential for food security for the people (Usman, 2016) and the livelihood of farmers (Sadeque, 2014). Unfortunately, there has been less done for farmers' rights. According to Yazdani and Ali (2017), knowledge of farming has always been freely given and shared, much like the distribution of seeds. Plant Breeders' Rights was the initial attempt by the Western countries to monopolize seeds. The title suggests that breeding new crop types was limited to highly skilled professional farmers or agricultural experts. Not at all for over 10,000 years, peasants, particularly farmers, have chosen and bred seeds and crops, a fact that governments with little regard for the rights of their constituents have studiously avoided mentioning.

The agricultural historical context of Pakistan seems to have transformed from an informal seed sector controlled and managed by farmers to a formal one. With the increased role of Pakistan's government in the seed sector and PBR legislation, that favors the entry of private seed companies, thus reducing the importance of local farmers and their role in seed. Seed keeping and development, which all farmers used to do in the past, were reduced to a privilege. Even this further went down with the new PBR Act 2016 as an exception to farmers, i.e., neither right nor privilege. As a replacement for, farmers are compelled to repel from the growing and saving of their indigenous species in favor of commercial seeds (Yazdani & Ali, 2017). Thus, the legislation regarding the Seed and PBR was revised in the Seed Act of 1976 and enacted in the PBR Act 2016 to meet the demands of WTO-TRIPS at the cost of farmers in Pakistan. There is no such explicit legislation that ensures farmers' rights; however, some implicit provisions are provided in both legislations.

5.1. THE SEED ACT 1976

The Seed Act 1976 was introduced to set forth the principles governing seed worth, accreditation, and registering of plant species, and it was of the very first kind to effort which put check on seeds of different crop species by registration and regulation as mentioned in the preamble of the Act. The Seed Act established regulatory and certifying bodies, defined key terms that are pertinent to the seed industry, and provided for fines on commercial conduct involving mislabeled or unregistered seed. Following the ratification of the TRIPS Agreement and its Article 65, Pakistan, being a developing country, was allowed extra time to implement the Agreement by implementing changes in national laws by 2005. Thus, the amendment to the Seed Act 1976 was put in process in Bill 2009, but it made progress in October 2014 when the Standing Committee on Food Security and Research of the National Assembly (NA) approved the Seed (Amendment) Bill 2014, which led to its passage by the NA in March 2015. The same was approved by the Senate Standing Committee in June 201 and in July 2015, the Senate swiftly enacted and the law eventually got assent of the president on July 23, 2015.

The critical analysis of the Seed Act 1976 and the Seed (Amendment) Act 2015 shows that although farmers address private interests, the latter weighs more on private enterprises. As per the "Statement of Objects and Reasons for change in the Seed Act of 1976, the requirements of the modern seed industry are not met thus, in order to provide both sectors i.e., farmers and the seed industry with an even playing field, yet, the Seed (Amendment) Act takes into account the growing reality of the government sector's impairment and the might of the private sector. Furthermore, it claims that the seed market has changed as a result of recent advancements in biotechnology and genetically modified crops (GMCs); thus, the Act 2015 set forth to provide access and protection to private seed enterprises in Pakistan and therefore set aside the customary rights of farmers.

Moreover, consequent to 18th Constitutional amendment and under the provisions of Article 144 of the Islamic Republic Pakistan, provinces are empowered to legislate or change in national legislation as best suited to the provinces through provincial legislative assemblies. As long as the provinces agree, the national parliament may legislate on their behalf under Article 144 of the Pakistani Constitution. However, any legislation approved this way may still be amended or repealed by the provincial assembly. Although the Seed Act 1976 does not contain any clear provision regarding farmers' rights, it was still seen as farmer-friendly, and Pakistan's laws kept people sovereign over their seeds, leaving the public sector alone in charge of seed development and registration. As a result, there was minimal worry about gene tampering (Waheed Jamali, 2017). The Policy Advocacy Officer of Action Aid Pakistan, Mr. Nasir Aziz, believes that the Seed Act permits global companies to establish accredited seed testing laboratories in addition to producing basic seed for multiplication and certification. The Seed (Amendment) Act 2015, which permits transnational corporations (TNCs) to register genetically modified (GM) varieties subject to certain restrictions but does not include a damage clause in the event that the GM varieties are found to harm human health or the environment, is the subject of a position paper created by SEARCH Pakistan with assistance from Action Aid. The position paper goes on to say that our governments' compliance with wealthy multinational businesses is illustrated by the Seed Act and regard as the Pakistan's most anti-farmer acts, although the amended Act complies with TRIPs, which ensures the private sector will take over small farmer' means of subsistence. This dreadful action has made Pakistan's food crisis worse, especially in Sindh province.

Furthermore, the definitions listed in the Seed (Amendment) Act 2015 have undergone numerous additions and modifications. According to the Seed Act of 1976, a "basic seed" was one that was created by a provincial government-established agency, whereas the private sector is included in the definition Section 2(4) of the Seed (Amendment) Act 2015: "basic seed" refers to offspring of pre-basic seed that has been verified by the Federal Seed Certification & Registration Department (FSC&RD) and generated by any government or private sector entity. The 2015 Amendment Act defines a "seed business" as any commercial seed activity that includes seed production, processing, conditioning, packing, distribution, importation, and exportation. Regarding seed company registration, the Seed Act of 1976 was silent. However, the Seed Act 2015 introduced the concept of "truthfully labeled seed" as a registered seed variety or hybrid species formed indigenously or imported. Likewise,

an exhaustive description of term “misbranded seed(s)” as a seed which is a replacement for, or bear a resemblance to, in a way possible to defraud, another plant variety or cross variety of seed and it is sold under a true name which is not purely and obviously branded so as to show its correct nature; or a seed which is falsely specified to be the creation of any locality or nation; or a seed is traded by a tag that is a member of different kind or plant species; or untrue claims are made through label or otherwise or the descriptions are not clearly mentioned when the seed is packed; or packaging does not contain the essential attention for the environment, human and plant life. Trades involved in misbranded seeds attract penalty according to the rules of the Act 2015.

Above all, the recent amendment in 2015 to the Seed Act is an attempt to grant more weight to private seed sector companies, neglecting further the farmers’ rights; a step more to curb farmers’ rights which eventually led to the start of the new PBR law in Pakistan.

5.2. PLANT BREEDERS’ RIGHTS ACT 2016

PBRs in Pakistan are mainly established to give rights to owners of new varieties and prohibit other persons from making profit out of such created species for marketable use. Pakistan, being a signatory to the TRIPS agreement under Article 27 of the agreement, is bound to provide a mechanism for the protection of “patentable subject matter” “Patentable Subject Matter”. Under subsection 3(b) of the same article, which elaborates the plant variety protection by all member states whichever nations want i.e., under “patents” or through a “*sui generis*” system or a mixture of both, the agreement does not specify the nature or regulations of the *sui generis* system. Hence, member states have the freedom to develop a mechanism that can serve both to secure the interests of their own people and economies and to the global community as well. However, it appears that Pakistan's Plant Breeders' Rights (PBR) laws serve the special interests of international seed companies and plant breeders, with insufficient attention paid to farmers' rights, food sovereignty, and the preservation of regional varieties (Yazdani and Ali, 2017).

The preamble of the PBR states that, its objectives are first to uphold the rights of those who breed new plant types and to promote their development; second, Pakistan’s food security is to be ensured, with a sustainable seed industry in order to supply farmers with first-rate seeds and plant resources; third, to establish guidelines for the creation of novel plant types and safeguard the rights of those who breed them, with exceptions granted to farmers and scientists conducting related or incidental research. However, nothing mentions about farmers’ rights instead, it explicitly highlights repeated regulating laws on “plant breeders’ rights. Nevertheless, The PBR Act merely provides few “exceptions” for researchers and farmers.

In definitions in Section (xxiv) breeders are granted protection against “protected variety.” A protected variety is a plant variety for which a certificate of protection is issued under this Act. Whereas, there is nothing mentioned about “local, public, or farmer ‘variety’” existed since ages. Besides this, to obtain the certificate of protection, variety has to pass through the tests of novelty, distinctiveness, uniformity, and stability. The “distinctness” criteria

mentioned in PBR are broader in scope, which may limit farmer's ability to seek protection against their variety.

On one hand, section 22 of the PBR contains long list of exclusive breeders' rights which includes right to sale, market the generative or vegetative proliferating material of the protected variety in Pakistan; import of the such reproductive or vegetative proliferating material into Pakistan or exporting out from Pakistan and habituation or reproducing the such material of the protected variety. On the other hand, farmers are given so-called rights as mentioned "exceptions" which are stipulated in Section 25(d) of the PBR Act, 2016 as the right to store, sow, use, re-sow, share, sell or exchange the produce from the farm, subject to that, a farmer complies with the requirements of the Seed Act 1976 and of 2015, before selling the seed of any variety protected under the PBR Act 2016 for a profit. This right does not extend to selling the seed but to selling produce only. Additionally, it permits farmers to interchange "reasonable" quantities of propagation materials.

It is significant to note that the PBR was amended in March 2016 by deleting section 25(f), which even snatched the right to sell farm-saved seeds in cases where farmers are unable to use them on their own holdings because of uncontrollable circumstances like natural catastrophes or other crises, as long as the quantity of seeds traded does not exceed what is needed for the farmer's self-keeping. The proposal to change this section was made with the reasoning that it was highly improbable that this allowance would be used fairly and that no other country's PBR law had established a precedent for this particular provision.

A violation of the rights granted to plant breeders by the PBR Act is referred to as an infringement of the Act. This includes using a variety that is protected by law without authorization. Contrary to this, there is no damage clause or provision for compensation to farmers in the case of a protected or GM variety found to damage health and the environment. In short, the PBR Act 2016 has pushed farmers' even away from their historical right over seeds.

5.3. INTERNATIONAL INSTRUMENTS AND IMPACT OF NEW LEGISLATION

The major focus of the aforesaid Seed Act and PBR legislation in this study involves regulatory mechanisms and control over seed and plants, which seems to favor the multinational seed corporations (Sadeque, 2014) and assist their benefits at the cost of the rights of minimal planters and farmhouse workforces, which now have the power to manipulate and compromise our indigenous seeds and patent them as their own.

Pakistan, being a signatory to two different international agreements, one pro-conservation CBD and the Seed Treaty, and another pro-trade WTO-TRIPS, has prioritized the enactment over the other. It has ignored the provisions of the Seed Treaty and CBD, which call for the realization and acceptance of farmers' rights for their historical log services to seed, biodiversity, and food safety. Article 9.2 of the "Seed Treaty" requires the government of Pakistan to implement farmers' rights and also puts responsibility upon nations to take protective measures to respect and realize those rights; unfortunately, nothing such appears, neither in the Seed Act nor in the PBR 2016. In addition to this, Article 9.3 highlights the farmers rights to retain, use, share, and sell farm-saved seed and

propagating material; however, PBR 2016 does contain provisions for saving and exchanging but restricts farmers from selling. Furthermore, Articles 13 and 18 of the treaty provide support to farmers who conserve PGR; hence, they give farmers the right to be rewarded, which is not available in the PBR Act.

Most importantly, although adherence to WTO-TRIPS is mandatory, it does not direct any strict provisions for legislation to member countries. Members are at some liberty to legislate what is best in the public interest. However, Pakistan has followed the stricter version of the IPR, which replicates UPOV 1991, thus creating an imbalance between the farmers rights and those of breeders. Hence, even though some countries like India and Brazil have tried to balance the rights of both farmers' and breeders' in terms of local verities, biosafety, and benefit sharing (Peschard, 2017).

6. CONCLUSION

Intellectual property rights in Plant protection has created controversy between the rights of breeders' and farmers' rights. The Pakistani gap has evolved with the adoption of new legislation, i.e., the Seed Act (Amendment) and the PBR Act 2016 concerning seed and agriculture. The new legal regimes have helped to gratify plant breeders' rights while limiting the rights of farmers. The Seed Amendment 2015 Act prohibits farmers from using unbranded seeds, forcing them to buy registered and costly seeds. The Act also imposes hefty penalties for the use of misbranded seeds. Farmers not only ensure food supply but have indeed been the custodians of agriculture. The PBR Act 2016 enormously provided rights to plant breeders, contrary to this merely mentioning exceptions for farmers. Agriculture is nowadays a provincial subject for legislation, so in both the revision Act 2015 and the PBR Act 2016 seem to be attempts to trespass in the domain of provinces. Pakistan, despite being a signatory to the seed treaty, has ignored the need to protect the rights of farming communities while, in compliance with the WTO-TRIPS, it went on to adopt a stricter UPOV model of IPR, barring farmers' rights even to seed except saving and exchanging seeds. A sui generis system allows WTO members to balance incorporating protection for breeders and fulfilling their needs, like in India and Brazil. Pakistan's legislation tilts towards corporate agriculture, thus enacting large and exclusive rights for breeders. The Seed Treaty and TRIPS agreements are in conflict with each other, and Pakistan must weigh both treaties to provide just and equitable legislation that is better for both breeders' and farmers', as well as food security and agriculture. This can be achieved by reviewing national IPR regimes and overhauling national legislation to acknowledge and ensure farmers customary and moral rights are protected as mentioned in the seed treaty. Importantly, post-eighteenth constitutional amendment, the agriculture department is a provincial subject, so provinces should also be taken onboard for legislation or representation from provinces, and farmers must also be ensured in the law-making pertaining to food and agriculture.

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M Saleem Korejo; writing—review and editing, Dr. Suresh Kumar; supervision. All authors have read and agreed to the published version of the manuscript.” Please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

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- Abbas, M. Z. (2020). Plant Breeders' Rights Act 2016: Prospects and challenges for Pakistan as an agricultural country. *The Journal of World Intellectual Property*, 23(3-4), 185-201. <https://doi.org/10.1111/jwip.12148>
- Andersen, R. (2017). The international treaty on plant genetic resources for food and agriculture: Toward the realization of farmers' rights as a means of protecting and enhancing crop genetic diversity. In *Routledge Handbook of Biodiversity and the Law* (pp. 135-153). Routledge.
- FAO. (1983). *Report of the Conference of FAO - Twenty-Second Session*. FAO. <https://www.fao.org/publications/card/en/c/335ec817-8e3f-52e9-9c2a-25d7f001e97a/>
- FAO. (2001). *International Treaty on Plant Genetic Resources for Food and Agriculture*. <https://www.fao.org/plant-treaty/overview/texts-treaty/en/>
- Feyissa, R. (2006). Farmers' rights in Ethiopia: a case study. *Genetic Resource*, 16, 1205.
- Frison, C., Lopez, F., & Esquinas-Alcazar, J. (2012). International Non-governmental Organizations: The Hundred Year (or so) Seed War—Seeds, Sovereignty and Civil Society—A Historical Perspective on the Evolution of 'The Law of the Seed'. In *Plant Genetic Resources and Food Security* (pp. 169-182). Routledge.
- Ghimire, S., Barizah, N., Soeparna, I., & Van der Borght, K. (2021). Plant variety protection law and farmers' rights to save, exchange and breed seeds: the case of Indonesia. *Journal of Intellectual Property Law and Practice*, 16(9), 1013-1025. <https://doi.org/10.1093/jiplp/jpab085>
- Gupta, A., & Negi, P. (2019). Protection of 'Plant Varieties' Vs. Balancing of rights of Breeders and Farmers. *International Journal of Reviews and Research in Social Sciences*, 7(4), 741-745. <https://doi.org/10.5958/2454-2687.2019.00050.9>
- Hsu, S. L. (2015). Fair and Equitable Exceptions for Farming Practice in Plant IPR Protection in Taiwan.

- Kabau, T., & Cheruiyot, F. (2019). The Arusha Protocol on plant varieties protection: balancing breeders' and farmers' rights for food security in Africa. *Queen Mary Journal of Intellectual Property*, 9(3), 303-325. <https://doi.org/10.4337/qmjip.2019.03.04>
- Kloppenborg, J. (2013, September). Re-purposing the master's tools. In *Food sovereignty: A critical dialogue, International Conference, Yale Univ., New Haven, CT* (pp. 14-15).
- Mekouar, A. (2002). A global instrument on agrobiodiversity: the International Treaty on Plant Genetic Resources for Food and Agriculture. *FAO legal papers online*, 24, 3-5.
- Munyi, P., Jonge, B. D., & Visser, B. (2016). Opportunities and threats to harmonisation of plant breeders' rights in Africa: ARIPO and SADC. *African Journal of International and Comparative Law*, 24(1), 86-104.
- Peschard, K. (2017). *Seed wars and farmers' rights*. T. J. o. P. Studies.
- Pistorius, R. (1997). *Scientists, plants and politics: a history of the plant genetic resources movement*. Bioversity International.
- Plant Breeders' Rights Act, (2016). http://www.na.gov.pk/uploads/documents/1485437584_777.pdf
- Prasanna, P. L., Rao, L. S., Prasad, A. H., Waris, A., Meera, S. N., Nirmala, B., Kumar, S. A., & Symaladevi, D. P. (2021). Impact of Intellectual property rights protection for plant varieties on rice varietal development and biodiversity in India. *Journal of Cereal Research*, 13(1).
- Sadeque, N. (2014). Seed Heritage for Sale. *The Nation*.
- Singh, A. P., Manchikanti, P., & Chawla, H. S. (2011). Sui Generis IPR Laws vis-à-vis Farmers' Rights in Some Asian Countries: Implications under the WTO. *Journal of Intellectual Property Rights*, 16, 107-116.
- Sonnino, A. (2017). International instruments for conservation and sustainable use of plant genetic resources for food and agriculture: An historical appraisal. *Diversity*, 9(4), 50. <https://doi.org/10.3390/d9040050>
- Sullivan, S. N. (2004). Plant genetic resources and the law: past, present, and future. *Plant physiology*, 135(1), 10-15. <https://doi.org/10.1104/pp.104.042572>
- UN. (1993). *The Convention on Biological Diversity*. <https://www.cbd.int/convention/>
- UNO. *Universal Declaration of Human Rights*. Retrieved 11/20/2021 from <https://www.un.org/en/about-us/universal-declaration-of-human-rights>
- UPOV. *The International Union for the Protection of New Varieties of Plants*. <https://www.upov.int/portal/index.html.en>
- Usman, M. (2016). Contribution of agriculture sector in the GDP growth rate of Pakistan. *Journal of Global Economics*, 4(2), 1-3. <https://doi.org/10.4172/2375-4389.1000184>
- Verma, A. (2021). Plant Breeders' Rights v Farmers' Rights: a contradistinction between the Indian approach and international protection. *Journal of Intellectual Property Law and Practice*, 16(9), 958-967. <https://doi.org/10.1093/jiplp/jpaa186>
- Waheed Jamali, A. (2017). Protecting small farmers in Pakistan in the wake of the new seed Act. *South Asia@ LSE*.
- Wattnem, T. (2016). Seed laws, certification and standardization: outlawing informal seed systems in the Global South. *The Journal of Peasant Studies*, 43(4), 850-867. <https://doi.org/10.1080/03066150.2015.1130702>
- WIPO. (10/15/2021). *Paris Convention*. <https://www.wipo.int/about-wipo/en/history.html>
- WTO. *The TRIPS Agreement*. Retrieved 11/15/2021 from https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm
- Yazdani, A. T., & Ali, N. (2017). Seed policy in Pakistan: The impact of new laws on food sovereignty and sustainable development. *Lahore Journal of Policy Studies*, 7(1), 77-106.