Himachal Pradesh National Law University, Shimla (India)
HPNLU JOURNAL OF LAW, BUSINESS AND ECONOMICS (HPNLU JLBE)

JOURNAL ARTICLES *ISSN: 2584-0436* **HPNLU JLBE**

Volume III (2024)

PROTECTING FARMERS' RIGHTS IN THE AGE OF INTELLECTUAL PROPERTY: A COMPARATIVE LEGAL STUDY

Alok Kumar & Tijender Kumar Singh

CONTENTS

Essay & Comments

PROTECTING FARMERS' RIGHTS IN THE AGE OF INTELLECTUAL PROPERTY: A COMPARATIVE LEGAL STUDY

Alok Kumar* Tijender Kumar Sing**

Abstract

The rapid globalisation of intellectual property rights (IPR) regimes has triggered significant debates over the marginalisation of farmers' rights, particularly in countries with deep-rooted agrarian traditions. While international frameworks such as the Convention on Biological Diversity (CBD), the Nagoya Protocol, and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) advocate for equitable benefit-sharing and protection of traditional knowledge, national legal systems differ significantly in their recognition and implementation of these principles. This paper provides a comparative legal analysis of India, the United States, and Japan—three countries representing diverse agricultural economies and legal approaches to IPR in the agricultural sector. With a primary focus on India's Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act), the paper evaluates how each jurisdiction balances breeders' rights with farmers' entitlements and examines the extent to which international obligations under WTO-TRIPS, CBD, and the Nagoya Protocol have been domesticated. It further explores the legal lacunae and enforcement challenges that hinder the realisation of farmers' rights in the face of biopiracy, seed monopolisation, and digital Agri-tech interventions.

The study recommends a rights-based approach to IPR in agriculture, which centres farmer autonomy, traditional knowledge preservation, and access to justice within a globally harmonised legal order.

I

Introduction

Today, the world economy is growing fast, and new ideas in farming, like biotechnology and plant breeding, are using intellectual property rights (IPR) to earn money from farm-related inventions. But this growth has also raised an important issue—how to give legal and fair respect to farmers' rights, especially

in countries where farming is based on traditional knowledge and rich biodiversity. While breeders and corporations gain exclusive control over plant varieties and genetic materials through patents and plant variety protections, millions of farmers—especially in the Global South—remain vulnerable to legal exclusion, despite their historic role in conserving, improving, and sharing seeds and biological resources.[1]

The global discourse around IPR and agriculture intensified in the 1990s following the adoption of the Convention on Biological Diversity (CBD)[2] and the World Trade Organisation's TRIPS Agreement[3]. Both instruments significantly shaped how countries developed national legislation for genetic resource protection, but neither explicitly recognised farmers as rights-holders. In response to rising inequities, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)[4], signed in 2001, introduced the concept of "Farmers' Rights" as a formal legal and policy category. It emphasised the role of farmers in conserving plant genetic resources and allowed countries to implement measures protecting traditional knowledge, ensuring benefit-sharing, and involving farmers in decision-making processes.

Despite these developments, the practical realisation of farmers' rights remains inconsistent across jurisdictions, with wide disparities in legal enforceability, policy implementation, and institutional support. In India, a rare sui generis legislative approach was adopted through the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act)[5], which offers statutory protection to farmers and recognises their contribution to agricultural innovation. Conversely,

---

* Professor of Law, Himachal Pradesh National Law University, Shimla.
** Assistant Professor of Law, School of Legal Studies, K R Mangalam University, Gurgoan.

[1] Suman Sahai, *Plant Variety Protection and Farmers' Rights Law in India: A Review*, GENE CAMPAIGN (2003).

[2] Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79.

[3] WORLD TRADE ORGANIZATION, *TRIPS Agreement*, A.27.3(b), *available at:* https://www.wto.org/ english/docs_e/legal_e/27-trips_01_e.htm (Last visited March 12, 2025).

[4] FOOD AND AGRICULTURE ORGANIZATION OF UNITED STATE, *International Treaty on Plant Genetic Resources for Food and Agriculture,* Nov. 3, 2001, 2400 U.N.T.S. *available at:* https://www.fao.org/ plant-treaty/en/ (Last visited March 12, 2025).

[5] PROTECTION OF PLANT VARIETIES AND FARMERS; RIGHTS AUTHORITY, DEPARTMENT OF AGRICULTURE & FARMERS WELFARE, MINISTRY OF AGRICULTURE AND FARMERS WELFARE, GOVERNMENT OF INDIA, *Acts & Rules*, The Protection of Plant Varieties and Farmers' Rights Act, 2001, *available at:* https://plantauthority.gov.in/acts-rules (Last visited March 12, 2025).

countries like the United States and Japan follow models that are either entirely patent-driven or aligned with the UPOV Convention,[6] which essentially restricts traditional seed-saving practices and promotes exclusive breeders' rights.

The Indian model, under the PPVFR Act, is particularly significant for its attempt to balance the rights of farmers, breeders, and researchers. Farmers in India can freely save, use, sow, re-sow, exchange, and share seeds, including protected varieties (as long as they are not sold under a brand name)[7]and are also eligible for reward and recognition if they contribute to developing or conserving plant varieties.[8] This legislation also provides remedies for failure of performance, allowing farmers to seek compensation if a registered variety does not deliver the traits promised by the breeder.[9] In addition, the Act includes exemptions for innocent infringement and provides for benefit-sharing obligations, further strengthening the position of farmers.[10]

In contrast, the United States primarily offers protection through three legal mechanisms: utility patents under the U.S. Patent Act, plant patents for asexual reproduction, and plant variety protection certificates under the Plant Variety Protection Act (PVPA)[11]. While the PVPA allows farmers to save seeds for use on their own farms, utility patents offer stronger protection, and even seed-saving for personal use may be deemed infringement, as seen in the landmark case *Bowman* v. *Monsanto Co.*[12]. This dual system heavily tilts the balance in favour of corporate breeders, with little or no space for customary farming practices or equitable benefit-sharing mechanisms.

Japan follows a similarly breeder-centric framework and has been a UPOV Convention (1991 Act) member[13]. The Seed and Seedling Law of Japan provides strong legal rights to breeders but does not recognise farmers' rights

---

[6] UPOV, *UPOV Lex*, The Convention (International Union for the Protection of New Varieties of Plants), revised Dec. 19, 1961 (as amended on Mar. 19, 1991). *available at:* https://upovlex.upov. int/en/convention (Last visited March 12, 2025).

[7] PROTECTION OF PLANT VARIETIES AND FARMERS; RIGHTS AUTHORITY, DEPARTMENT OF AGRICULTURE & FARMERS WELFARE, MINISTRY OF AGRICULTURE AND FARMERS WELFARE, GOVERNMENT OF INDIA, *Acts & Rules*, The Protection of Plant Varieties and Farmers' Rights Act, 2001, *available at:* https://plantauthority.gov.in/acts-rules (Last visited March 12, 2025).

[8] *Id.*

[9] *Supra note 6.*

[10] *Supra note 7.*

[11] Plant Variety Protection Act, 1970, S.1-132 (7 U.S.C. 2321–2582)

[12] *Bowman* v. *Monsanto Co.*, 569 U.S. 278 (2013).

[13] *Supra note 7.*

independently.[14] In 2020, Japan amended its law to criminalise the saving and reusing of protected seeds without authorisation, even for domestic use, citing the need to protect national agricultural brands from being exported without permission.[15] While this amendment strengthens breeders' rights, it also undermines farmers' autonomy and traditional practices, leading to growing domestic opposition and international concern.

The Nagoya Protocol[16], an international legal instrument adopted in 2010 under the CBD, introduces a procedural mechanism to ensure prior informed consent (PIC) and mutually agreed terms (MAT) when accessing genetic resources or associated traditional knowledge. While not exclusive to agriculture, its potential for supporting farmers' rights and benefit-sharing mechanisms is significant, especially in biodiversity-rich countries like India. However, implementing the Nagoya Protocol in countries like the U.S. and Japan remains weak or narrowly construed, offering little real-world protection to farming communities and indigenous knowledge holders.[17]

Although Article 27.3(b) of the TRIPS Agreement allows WTO members to adopt a sui generis system for plant variety protection, it does not mandate the protection of farmers' rights or traditional knowledge.[18] This absence of clarity has allowed developed countries to adopt restrictive interpretations favouring commercial plant breeders. The lack of a uniform global standard has left developing countries to shoulder the burden of protecting biodiversity and knowledge commons, often without adequate international support or enforcement mechanisms.[19]

---

[14] FOOD AND AGRICULTURE ORGANIZATION OF UNITED STATE, *FAOLEX Database*, Seed and Seedling Law, Act No. 83 of 1998 (Japan), *available at:* https://www.fao.org/faolex/results/details/en/c/LEX-FAOC027516/ (Last visited March 12, 2025).

[15] Revisions to Seed and Seedling Law, MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES, JAPAN (2020).

[16] CONVENTION ON BIODIVERSITY, Nagoya Protocol on Access and Benefit Sharing, Oct. 29, 2010, UNEP/CBD/COP/10/27, entered into force Oct. 12, 2014, *available at:* https://www.cbd.int/abs/text (Last visited March 12, 2025).

[17] Hideaki Shiroyama, *The Implementation of the Nagoya Protocol in Japan*, in *The Implementation of the Nagoya Protocol* 215–235 (Elisa Morgera et al. eds., 2021).

[18] WORLD TRADE ORGANIZATION, TRIPS Agreement, *available at:* https://www.wto.org/english/ docs_e/legal_e/27-trips_01_e.htm (Last visited March 12, 2025).

[19] Ruchi Pant, *Farmers' Rights and Access to Plant Genetic Resources: The Indian Context*, in GLOBALIZATION, POVERTY AND LIVELIHOODS: SUSTAINING RURAL LIVELIHOODS 163 (M. Bhatt ed., (2006).

Although not without challenges, India's approach offers a valuable alternative to the dominant UPOV and patent models. It attempts to institutionalise fairness within the innovation system by acknowledging the role of farmers as creators, not just consumers, of agricultural knowledge. Meanwhile, the restrictive frameworks in the U.S. and Japan highlight the disconnect between technological progress and social equity, calling into question the democratic legitimacy and sustainability of current IPR models.

By analysing these three legal systems, this paper contributes to the global effort to reimagine intellectual property law through inclusivity, biodiversity conservation, and justice for farming communities.

II

International Legal Framework on Farmers' Rights

The international recognition of farmers' rights has been an evolving yet contested domain within global intellectual property and biodiversity governance. This section analyses three key international legal frameworks that serve as the backbone for national efforts to protect farmers' rights: the Convention on Biological Diversity (CBD)[20]The Nagoya Protocol[21], and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)[22]. In addition, the section explores the implications of the World Trade Organisation's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement)[23], which indirectly impacts the protection of traditional agricultural practices.

Convention on Biological Diversity (CBD), 1992

The CBD marked a paradigm shift in international law by recognising the sovereign rights of states over their biological resources and affirming that the

[20] Convention on Biological Diversity, A. 8(j), June 5, 1992, 1760 U.N.T.S. 79. *available at:* https://www.cbd.int/convention/text (Last visited March 12, 2025).

[21] CONVENTION ON BIOLOGICAL DIVERSITY, *Nagoya protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization to the convention on biological diversity,*12 October 2014, *available at*: https://www.cbd.int/abs (Last visited March 12, 2025).

[22] FOOD AND AGRICULTURE ORGANIZATION OF UNITED STATE, *International Treaty on Plant Genetic Resources for Food and Agriculture,* Nov. 3, 2001, 2400 U.N.T.S. *available at:* https://www.fao.org/ plant-treaty/en/ (Last visited March 12, 2025).

[23] *Supra note. 18*.

conservation of biodiversity and the sustainable use of its components are common concerns of humankind. Crucially, Article 8(j) of the CBD obliges state parties to respect, preserve, and maintain the knowledge, innovations, and practices of indigenous and local communities, including farmers.[24] The emphasis on equitable benefit-sharing is the cornerstone for supporting farmers as biodiversity and traditional knowledge custodians.

The Nagoya Protocol, 2010

Adopted as a supplementary agreement to the CBD, the Nagoya Protocol on Access and Benefit-Sharing (ABS) provides a detailed mechanism for ensuring prior informed consent (PIC) and mutually agreed terms (MAT) when genetic resources and associated traditional knowledge are accessed.[25] This protocol strengthens farmers' legal positions by allowing them to assert control over their biological resources, demand fair compensation, and engage with bioprospecting entities on equal terms. However, its implementation varies significantly across jurisdictions, particularly in developed countries.[26]

International Treaty

The ITPGRFA explicitly recognises "Farmers' Rights" under Article 9.[27] It acknowledges farmers' contributions to conserving and developing plant genetic resources and encourages national governments to take legislative and policy measures to:

1. Protect traditional knowledge relevant to plant genetic resources.
2. Ensure equitable participation in benefit-sharing; and
3. Enable farmers to participate in decision-making.[28]

While the ITPGRFA is legally binding, Article 9(2) obliges contracting parties to "take measures," allowing room for domestic interpretation and implementation, often leading to under-enforcement of farmers' rights.[29]

---

[24] Convention on Biological Diversity art. 8(j), June 5, 1992, 1760 U.N.T.S. 79.
[25] *Supra note.21.*
[26] Olivier De Schutter, *Seed Policies and the Right to Food: Enhancing Agrobiodiversity and Encouraging Innovation*, Report to the UN Human Rights Council, A/HRC/25/57 (2014).
[27] FOOD AND AGRICULTURE ORGANIZATION OF UNITED STATE, *International Treaty on Plant Genetic Resources for Food and Agriculture,* Nov. 3, 2001, 2400 U.N.T.S. *available at:* https://www.fao.org/ plant-treaty/en/ (Last visited March 12, 2025).
[28] *Id.* A.9(1)-(3).
[29] *Id*. A. 9(1)-(3).

The TRIPS Agreement and Its Impact

Although the TRIPS Agreement does not mention farmers' rights directly, Article 27.3(b) mandates WTO member countries to protect plant varieties by patents, a sui generis system, or a combination of both.[30] This flexibility has enabled countries like India to develop distinct legal frameworks, such as the PPVFR Act, while others like the U.S. have favoured patent-centric approaches.[31] Critics argue that TRIPS often marginalises community-based innovations by promoting stronger IPR standards and undermining informal seed systems, disadvantaging traditional farmers.[32]

UPOV Convention: A Restrictive Model?

The International Union for the Protection of New Varieties of Plants (UPOV) Convention, especially its 1991 Act, has faced criticism for promoting breeders' rights at the expense of traditional farming practices.[33]. The 1991 version restricts farmers' rights to save, use, exchange, or sell seeds of protected varieties—activities central to agrarian livelihoods in many developing countries.[34]. India has opted not to join UPOV but has formulated the PPVFR Act to safeguard farmers' autonomy.[35]

III

Comparative Legal Analysis – India, United States & Japan

This section compares how three jurisdictions—India, the United States, and Japan—approach farmers' rights within their IPR systems. The comparison focuses on legal frameworks, enforcement models, key case law, and international alignment. Farmers' rights, although recognised globally in principle, have vastly divergent legal recognition and enforceability across jurisdictions. This section undertakes a comparative legal analysis of India, the

[30] *Supra note. 18.*
[31] Carlos M. Correa, *Plant Variety Protection in Developing Countries: A Tool for Designing a Sui Generis Plant Variety Protection System*, GRAIN (2000).
[32] Graham Dutfield, *Intellectual Property Rights and the Life Science Industries: Past, Present and Future*, 2nd ed., World Scientific Publishing (2009).
[33] Suman Sahai, *Implications of the UPOV Convention on Farmers' Rights in India*, GENE CAMPAIGN POLICY BRIEF NO. 3 (2011).
[34] Peter Drahos, *When Cosmology Meets Property: Indigenous People's Innovation*, 6 INTELL. PROP. Q. 131, 141 (2004).
[35] *Supra Note.33.*

United States, and Japan, three nations with distinct legal traditions and economic roles in agriculture and biotechnology. While India offers a unique sui generis legislative model directly enshrining farmers' rights, the U.S. and Japan follow more breeder-focused legal regimes rooted in the UPOV model and patent law.

India: A Rights-Based *Sui Generis* Framework

India is one of the few countries that has legislatively recognised and defined farmers' rights through the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act)[36]. The Act was enacted in response to India's TRIPS obligations, utilising the sui generis option under Article 27.3(b) of the TRIPS Agreement.[37]. The PPVFR Act stands out for balancing the rights of plant breeders, researchers, and farmers. Under this law, Indian farmers are:

1. Entitled to save, use, sow, re-sow, exchange, share or sell farm-saved seed, including protected varieties (except branded seeds);[38]
2. Eligible for recognition and rewards for conserving genetic resources and contributing to varietal development;[39]
3. Protected from innocent infringement, a legal shield where farmers are unaware of existing protection on varieties;[40]
4. Allowed to claim compensation if a seed variety fails to deliver promised performance under prescribed conditions.[41]

Furthermore, the Act has established the Protection of Plant Varieties and Farmers' Rights Authority, a specialised body for registration, enforcement, and benefit-sharing administration. However, challenges in awareness, access to legal

[36] PROTECTION OF PLANT VARIETIES AND FARMERS; RIGHTS AUTHORITY, DEPARTMENT OF AGRICULTURE & FARMERS WELFARE, MINISTRY OF AGRICULTURE AND FARMERS WELFARE, GOVERNMENT OF INDIA, *Acts & Rules*, The Protection of Plant Varieties and Farmers' Rights Act, 2001, *available at:* https://plantauthority.gov.in/acts-rules (Last visited March 12, 2025).

[37] WORLD TRADE ORGANIZATION, *TRIPS Agreement*, A.27.3(b), *available at:* https://www.wto.org/ english/docs_e/legal_e/27-trips_01_e.htm (Last visited March 12, 2025).

[38] The Protection of Plant Varieties and Farmers' Rights Act, 2001, S.39(1)(iv).

[39] *Id.*, S.41.

[40] *Id.*, S.42.

[41] *Id.* S. 39(2).

remedies, and bureaucratic hurdles often prevent farmers from realising these entitlements.[42]

United States: Patent-Dominant Model with Minimal Farmers' Rights

The United States protects plant varieties through a combination of:

1. Utility patents under the U.S. Patent Act, 1952;
2. Plant patents for asexually reproduced plants; and
3. Plant Variety Protection (PVP) Certificates under the Plant Variety Protection Act (PVPA), 1970.[43]

Farmers' rights in the U.S. are limited and largely subordinated to the rights of patent holders. The PVPA allows farmers to save seeds for replanting on their farms but prohibits commercial sales of protected varieties.[44] In contrast, utility patents provide stronger exclusive rights, and any unauthorised seed saving, even for personal use, may result in infringement. A landmark example is the *Monsanto Case (2013)* [45] , where the U.S. Supreme Court ruled against an Indiana farmer who replanted patented GMO soybean seeds without Monsanto's permission, holding that patent exhaustion did not permit such reuse.

The U.S. model has been criticised for promoting seed monopolies and undermining traditional seed-saving practices. No dedicated statutory framework exists to compensate farmers for conventional knowledge, nor is there provision for participation in benefit-sharing or conservation recognition.

Japan: UPOV-Compliant Framework with Growing Restrictions on Farmers

Japan is a member of the UPOV Convention (1991 Act) and protects breeders' rights through the Seed and Seedling Law (1978), amended in 1998 and 2020.[46] The law provides for registering and protecting new plant varieties, giving breeders exclusive rights to produce and sell propagating material.

Historically, Japanese farmers had limited rights to reuse seeds. However, the 2020 amendment introduced a ban on seed saving of protected varieties without

[42] Jaya Iyer, *Farmers' Rights in India: Current Status and Future Agenda*, 5 INDIAN J. INTELL. PROP. L. 45 (2013).
[43] Plant Variety Protection Act, 1970, S. 1- S.132 (7 U.S.C. 2321–2582).
[44] *Id.* S. 2543.
[45] *Bowman* v. *Monsanto Co.*, 569 U.S. 278 (2013).
[46] Seed and Seedling Law, Act No. 83 of 1998 (Japan).

permission to prevent the unauthorised export of Japanese agricultural brands.[47] This move was controversial, as it significantly curtailed traditional seed practices and imposed criminal sanctions for violations.

Unlike India, Japan does not legally recognise farmers' rights as a separate category. Instead, the legal system favours the interests of seed developers, and compliance with UPOV has led to increasing privatisation of the seed sector. Although Japan has ratified the Nagoya Protocol, its implementation of benefit-sharing obligations remains weak in the context of farmers and indigenous knowledge holders.[48]

3.1 Key Comparative Observations

Feature	India	United States	Japan
Legal Basis	PPVFR Act (2001)	PVPA (1970), U.S. Patent Act	Seed and Seedling Law (1978, amended)
Farmers' Rights Recognised	Yes (statutory)	Limited (under PVPA only)	No dedicated recognition
Seed Saving & Use	Allowed (except branded sale)	Allowed only for own use (PVPA); prohibited under patent	Prohibited for protected varieties
TRIPS Compliance	Sui generis system	Patent + PVPA dual system	UPOV-compliant regime
Benefit Sharing / TK Protection	Yes, with limited enforcement	No	Weak/Narrow implementation

IV

Challenges and Enforcement Issues in Farmers' Rights Protection

[47] Revisions to Seed and Seedling Law, MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES, JAPAN (2020).

[48] Hideaki Shiroyama, *The Implementation of the Nagoya Protocol in Japan*, in THE IMPLEMENTATION OF THE NAGOYA PROTOCOL 215 (Morgera et al., eds., 2021).

This part examines the real-life problems that stop farmers from getting the rights promised under different laws and international agreements. Even though many laws say farmers have these rights, they are not appropriately protected. There are many reasons behind this, like weak systems, legal confusion, poor government work, and social and financial issues. These problems make it hard for farmers to get justice and benefits. In this section, we will seriously look at these issues. The primary focus is on India, where such rights are written in law, and we will also briefly look at the USA and Japan, where farmers' rights are not mentioned in their legal systems.

Legal Ambiguity and Overlap

One of the primary hurdles in enforcing farmers' rights is the lack of legal clarity. While treaties like the ITPGRFA, CBD, and the Nagoya Protocol recognise traditional knowledge and equitable benefit-sharing, language such as "should take measures" is non-mandatory and allows states to interpret obligations as mere policy options rather than binding duties.[49]

In India, although the PPVFR Act, 2001[50] It recognises and codifies farmers' rights and operates within a broader IPR regime, including patents, biodiversity laws, and seed certification standards. Often, these legal instruments conflict or overlap, creating confusion and administrative delays.[51] For example, there is no clear demarcation between plant variety protection and biodiversity access and benefit-sharing (ABS) laws under the Biological Diversity Act, 2002, leading to jurisdictional disputes between authorities.

In the U.S. and Japan, the legal absence of farmers' rights as a category makes enforcement structurally impossible. Without statutory recognition or administrative mechanisms, claims by farmers are treated as policy concerns, not legal rights.

Limited Institutional Capacity and Awareness

Enforcement also suffers from institutional deficiencies. The Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA) oversees implementation in

[49] *Supra Note.4.*

[50] *Supra Note. 36.*

[51] Nidhi Srivastava, *Legal Conflicts Between PPVFR and Biodiversity Act in India*, 18 J. INTELL. PROP. RTS. 321 (2013).

India, but it is understaffed, underfunded, and lacks regional outreach.[52] Farmers often remain unaware of their legal entitlements in rural areas, let alone the procedure to register a claim or seek benefit-sharing for conserved varieties.

As per a 2020 report by the National Biodiversity Authority, less than 5% of eligible farming communities had formally engaged in ABS mechanisms or registered varieties for protection.[53] Further, the complex documentation requirements, reliance on English, and digital application portals pose accessibility barriers for small and marginal farmers, particularly women and tribal communities.

In contrast, the U.S. Department of Agriculture (USDA) and Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF) have well-resourced IPR enforcement systems—but they are oriented toward breeder protection, not farmer empowerment. There is no public mechanism to support farmers negotiating access, benefit-sharing, or asserting community-based seed systems.

Market Concentration and Seed Monopolies

Another major challenge is the growing corporatisation of seed systems. Global agribusiness giants like Bayer-Monsanto, Corteva, and Syngenta dominate the commercial seed market, often holding patents or plant variety protection (PVP) over high-yielding or genetically engineered varieties. This dominance undermines seed sovereignty, limits farmers' access to diverse planting material, and increases dependency on external inputs.[54]

In India, while the PPVFR Act permits farmers to reuse and exchange seeds, the growing trend of hybrid and genetically modified seeds, backed by aggressive marketing, has reduced the use of traditional varieties. Furthermore, contract farming arrangements and intellectual property clauses in purchase agreements restrict farmer autonomy.

In the U.S., the *Monsanto* v. *Bowman* case[55] established that patent rights extend to second-generation seeds, criminalising replanting. In Japan, amendments to

[52] Jaya G. Iyer, *Farmers' Rights in India: Current Status and Future Agenda*, 5 INDIAN J. INTELL. PROP. L. 45 (2013).
[53] National Biodiversity Authority, *Annual Report 2020–21*, MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE, GOVT. OF INDIA (2021).
[54] *Supra Note. 34.*
[55] *Bowman* v. *Monsanto Co.,* 569 U.S. 278 (2013).

the Seed and Seedling Law (2020) now prohibit saving protected seeds without authorisation, further limiting farmers' independence.[56]

Lack of Judicial Precedents and Remedies

A weak enforcement environment is also reflected in the lack of judicial precedents upholding farmers' rights. In India, very few cases have reached courts where farmers successfully claimed benefit-sharing or compensation for crop failure under the PPVFR Act.[57] The cost of litigation, time delays, and lack of legal aid mechanisms deter farmers from pursuing justice.

Even when remedies exist, quantifying traditional knowledge or contribution to varietal development remains complex. Courts and tribunals are often unfamiliar with community knowledge systems, resulting in evidentiary gaps and dismissal of claims. In countries like the U.S. and Japan, farmers rarely litigate because they have no legal standing in the IPR framework unless they are commercial breeders themselves.

Exclusion of Women and Indigenous Communities

Globally, women farmers and indigenous groups play a central role in seed conservation and knowledge transmission, yet are structurally excluded from legal recognition. In India, although the law allows registration by communities, in practice, most registered varieties are from public institutions or individual male farmers.[58] The collective nature of innovation in traditional societies does not fit well into individualistic IPR frameworks, resulting in exclusion.

In Japan, indigenous Ainu communities have expressed concern over genetic bioprospecting without appropriate consultation. However, under Japanese seed law, there is no statutory mechanism to assert community rights or claim benefit-sharing.[59] Similarly, in the U.S., Native American communities lack legal pathways to assert custodianship over heritage seeds, unless they establish a commercial entity.

---

[56] Seed and Seedling Law Amendment, MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES, JAPAN (2020).

[57] *Supra Note. 36*.

[58] Vandana Shiva et al., *Demystifying Farmers' Rights in India*, RESEARCH FOUNDATION FOR SCIENCE, TECHNOLOGY & ECOLOGY (2018).

[59] Junko Nakanishi, *Ainu Indigenous Rights and Genetic Resources in Japan*, 9 INT'L J. HUMAN RIGHTS & BIODIVERSITY 71 (2020).

Poor Integration of International Norms

While many countries have ratified instruments like the Nagoya Protocol, implementing ABS principles remains piecemeal and inconsistent. Japan's ratification did not result in legislation directly affecting domestic seed policies. The U.S. remains non-party to the CBD and Nagoya Protocol, escaping any international legal obligation to recognise or protect farmers' rights.[60]

Although the Biological Diversity Act provides for benefit-sharing in India, the mechanism to integrate it with the PPVFR Act is weak, resulting in fragmented enforcement. The lack of coordination between the National Biodiversity Authority, State Biodiversity Boards, and the PPVFRA leads to missed opportunities for realising farmers' rights in ABS transactions.

V

Way Forward

This part of the paper provides actionable legal, policy, and institutional reforms for strengthening farmers' rights, based on the comparative and analytical findings of the previous sections. The comparative analysis and enforcement challenges discussed in the earlier sections underscore a fundamental truth: recognising farmers' legal rights does not guarantee their realisation in practice. Bridging the gap between legal entitlement and actual empowerment requires well-drafted laws and robust institutional frameworks, political will, and participatory mechanisms. This section puts forward a set of concrete and jurisdiction-sensitive recommendations, structured across legal reforms, administrative improvements, and international cooperation.

Strengthen and Harmonise Legal Frameworks

India should amend the Protection of Plant Varieties and Farmers' Rights Act, 2001,[61] to clarify its interface with the Biological Diversity Act, 2002 and the Seed Act, 1966. At present, overlapping jurisdiction and fragmented enforcement undermine legal certainty. A harmonised legal framework can ensure that a single-window mechanism handles benefit-sharing, variety registration, and

[60] Elisa Morgera et al., *The Implementation of the Nagoya Protocol*, Oxford University Press (2021).

[61] *Supra Note. 36.*

farmers' recognition.[62] Further, the definition of "farmer" under the PPVFR Act should be broadened to include women farmers, tribal cultivators, and collective communities explicitly, to ensure inclusive benefit-sharing.[63]

The U.S. and Japan should adopt legislative frameworks that formally recognise farmers' rights, even if limited to seed saving, benefit-sharing, and participation in variety development. The U.S. could incorporate a "Farmers' Rights Chapter" within the Plant Variety Protection Act (PVPA)[64]Providing space for indigenous and smallholder knowledge systems. Japan should revisit its Seed and Seedling Law to create exceptions for non-commercial, traditional seed-saving practices, particularly in rural and island communities.[65]

Implement Inclusive and Decentralised Governance

Farmers' rights enforcement cannot succeed with centralised, top-heavy institutions. In India, the Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA) should delegate responsibilities to state-level or district-level nodal bodies, ensuring proximity and accessibility to farmers.[66]

In Japan, the Ministry of Agriculture could pilot "seed heritage zones", where farmers can save and exchange traditional varieties without breeder restrictions, thereby preserving genetic diversity and cultural practices. In the U.S., local seed networks and tribal seed banks should be granted legal personality to act as custodians and beneficiaries under a community-based IP framework.

Enhance Awareness and Legal Literacy

The widespread lack of awareness among farmers—especially women, Dalits, and Adivasi communities in India—requires urgent attention. The following steps should be taken:

1. Integrate legal literacy on farmers' rights into agricultural extension programs.

---

[62] Nidhi Srivastava, Legal Conflicts Between PPVFR and Biodiversity Act in India, 18 J. INTELL. PROP. RTS. 321 (2013).
[63] *Supra Note. 52.*
[64] Plant Variety Protection Act, 7 U.S.C. S. 2321–2582 (1970).
[65] Seed and Seedling Law Amendment, MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES, JAPAN (2020).
[66] *Supra Note. 52.*

2. Translate IPR materials into regional languages and use audio-visual mediums.
3. Create online and offline helplines for guidance on PPVFR registration and benefit-sharing claims.
4. Partner with NGOs, panchayats, and Krishi Vigyan Kendras (KVKs) to disseminate information.[67]

In the U.S. and Japan, educational programs for indigenous communities and smallholders should include modules on rights under domestic and international IP regimes. Universities can facilitate legal aid clinics for rural seed-saving networks.

Develop Community-Led Registration and Recognition Models

The current IPR system is structured around individual applicants and is ill-suited for communities operating through collective knowledge and innovation. India should expand its community registration mechanisms by allowing group submissions, oral evidence, and customary documentation for variety registration. An example can be drawn from the National Innovation Foundation's community knowledge models.[68]

Japan and the U.S. should pilot "Open Source Seed Systems", granting legal recognition to seeds declared public goods by communities. This model promotes innovation while resisting over-commodification of plant resources.

Enable Fair and Transparent Benefit Sharing

For benefit-sharing to work, a clear and enforceable framework is essential. India must operationalise a national benefit-sharing fund, jointly managed by the PPVFRA and National Biodiversity Authority, with fixed timelines for royalty payments and community incentives.[69] It must also adopt fair valuation tools for farmers' contribution to genetic conservation, including traditional seed breeding and climate-resilient agriculture.

[67] *Supra Note. 52.*

[68] National Innovation Foundation, Grassroots to Global: Documentation of Local Agricultural Innovations in India (2017).

[69] Nidhi Srivastava, Legal Conflicts Between PPVFR and Biodiversity Act in India, 18 J. INTELL. PROP. RTS. 321 (2013).

In Japan, policymakers should align the implementation of the Nagoya Protocol with seed law exceptions, offering farmers royalty rights when their local varieties are genetically enhanced and commercialised.

The U.S., though not a signatory to the CBD or Nagoya Protocol, should voluntarily promote benefit-sharing schemes through public–private partnerships, ensuring that local seed developers and indigenous groups are not excluded from gains.

Encourage Participatory Breeding and Seed Innovation Hubs

Farmers should not be passive recipients of new seed technologies but co-developers of innovation. Participatory plant breeding (PPB) initiatives allow farmers to collaborate with public institutions and scientists in developing varieties adapted to local conditions. Further, the Governments should consider the following points:

1. Fund Participatory Breeding Projects under national seed missions.
2. Create regional seed innovation hubs led by farmer cooperatives and supported by agricultural universities.
3. Include farmers as co-authors on breeding outcomes for IPR attribution.[70]
4. This democratises the innovation process and strengthens bio-cultural resilience.

International Advocacy and Standard-Setting

There is an urgent need to codify farmers' rights more explicitly in international law. India should lead a coalition at the World Trade Organisation (WTO) and WIPO to demand a binding protocol on Farmers' Rights and Traditional Knowledge Protection, complementing TRIPS.[71]

A proposed Farmers' Rights Protocol could include:

1. Minimum obligations for seed saving exemptions;
2. Mandatory benefit-sharing clauses for IPR agreements involving traditional varieties;
3. Reporting obligations on implementation by state parties.

---

[70] National Innovation Foundation, Grassroots to Global: Documentation of Local Agricultural Innovations in India (2017).

[71] Nidhi Srivastava, Legal Conflicts Between PPVFR and Biodiversity Act in India, 18 J. INTELL. PROP. RTS. 321 (2013).

4. The U.S. and Japan, as developed economies, must support these reforms to bridge the global equity gap in agricultural IPR.

Address Gender and Indigenous Exclusion

Policymakers must ensure that women cultivators and indigenous communities are beneficiaries and decision-makers in IPR processes. India should require at least one-third women's representation on seed registration committees and include customary authorities in consultation processes.[72] Japan must initiate dialogues with the Ainu people and designate geographical indication (GI) protections for community-developed varieties. The U.S. should establish an Office for Indigenous Genetic Resources within the USDA, similar to the Office of Tribal Relations, to channel funding, legal aid, and research partnerships directly to Native American agricultural groups.[73]

Conclusion

This final section offers a reflective and critical summary of findings, emphasises unresolved systemic inequities, and outlines a normative vision for the future of farmers' rights under IPR regimes.

The journey of farmers' rights—from mere policy aspirations to legal recognition—has been fraught with contradictions, gaps, and asymmetries. While the international community has taken tentative steps through instruments like the CBD, Nagoya Protocol, and ITPGRFA, their implementation remains highly fragmented, non-binding, and dependent on national discretion.[2] The core issue is that farmers, the original innovators and stewards of biodiversity, remain largely excluded from the benefits of the intellectual property systems they helped create.

Through a comparative legal lens, this paper has demonstrated that India, despite structural deficiencies, represents a progressive outlier by statutorily enshrining farmers' rights through its PPVFR Act, 2001.[74] The Act provides recognition and mechanisms for benefit-sharing, seed-saving, compensation, and legal immunity for traditional practices. Yet, the farmers it seeks to protect often remain unaware of its provisions or unable to access remedies due to

[72] *Supra Note. 52.*
[73] *Supra Note. 59*
[74] *Supra Note. 36.*

bureaucratic barriers, lack of institutional capacity, and linguistic or digital divides.[75]

In contrast, the United States and Japan, as technologically advanced economies with influential roles in global IPR governance, continue to adopt breeder-centric frameworks. In both jurisdictions, the influence of the UPOV Convention and patent law has led to the criminalisation or contractual restriction of seed-saving and sharing practices.[76] These frameworks effectively exclude traditional knowledge holders, indigenous communities, and smallholder farmers from participating in the innovation ecosystem. The tragic irony is that the same seed systems developed collectively over generations are now privatised, patented, and sold back to those who once nurtured them.

This legal colonisation of biodiversity, often termed "biopiracy" by scholars, is not just a technical matter but a moral and developmental crisis. In its current form, the TRIPS Agreement offers flexibility for sui generis protection but fails to mandate farmers' rights, benefit-sharing, or recognition of customary laws.[77] This permissive silence has allowed powerful jurisdictions to craft IPR systems that valorise capital and formal innovation while marginalising collective knowledge and agro-ecological resilience.

Moreover, a fundamental conceptual mismatch exists between Western IPR models—which rely on individual ownership, novelty, and marketability—and the communal, iterative, and sustainable practices of farmers and indigenous peoples. International law must acknowledge that knowledge systems are plural and that uniformity in legal design creates epistemic injustice.

This paper has argued for reorienting the global IPR regime toward a rights-based, inclusive, and ecologically grounded framework. Farmers' rights must be understood not as derivative of breeders' rights, but as independent, foundational, and non-negotiable entitlements. They are not a concession; they are a rectification of historic dispossession. There are critical insights and normative reflections pointed out hereinafter:

> **Recognition ≠ Realisation:** In India, having a statutory right does not automatically translate into empowerment. Rights must be enforceable, accessible, and embedded in institutions responsive to community needs.

[75] *Supra Note. 52.*
[76] *Supra Note. 6.*
[77] *Supra Note. 18.*

TRIPS Needs Reform: The WTO's failure to meaningfully integrate farmers' rights or benefit-sharing mechanisms into TRIPS has reproduced colonial hierarchies in the knowledge economy. A Farmers' Rights Protocol, similar to the Nagoya Protocol, is urgently needed.

Market Forces Cannot Dictate Ethics: The dominance of multinational agribusinesses in seed markets, primarily through patents and licensing agreements, demonstrates the danger of unchecked commodification. The law must draw ethical lines between innovation and exploitation.

Gender and Indigenous Justice: Without the active inclusion of women and indigenous communities in seed governance, any legal framework will remain incomplete and unjust. Their exclusion is not accidental but structural and must be consciously undone.

A Global Coalition Is Needed: India, as a leader among biodiversity-rich countries, should forge alliances with nations in Africa, Latin America, and Southeast Asia to advocate for equity-centred international IPR reforms.

Law Must Reflect Agro-Ecology: The future of intellectual property law cannot be divorced from the climate crisis, food insecurity, and biodiversity loss. Any farmers' rights model that does not address ecological sustainability is incomplete.

Authors are at a crossroads. One path leads to an innovation regime that protects knowledge only when capitalised, privatised, and patented. The other path acknowledges that sustainable development, food security, and biodiversity conservation cannot be achieved without restoring farmers to the centre of agricultural governance.

If the law is to be a tool of justice, then it must recognise farmers as rights-holders, not just recipients of residual benefits. The time has come to transform recognition into restitution, and statutes into systems that work for those who feed the world.