CHAPTER- 4

Rights of Farmers

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CONTENTS

4.1 Introduction

Farmers play an imperative role as the basic foundation of very survival of mankind by growing the crops. Farmer means any person who cultivates the land by himself directly or indirectly under supervision through traditional or technological means for growing, developing or conserving any variety. Like farmers for southeast India created flooded resistant seeds and of west India have created drought resistant seeds. Farmers are the ones who have saved seeds, grown and harvested the seeds for years and exchanged according their comfort. By doing this exchange they have created many new varieties over the year by their experience and experiments. Farmers Rights are important for millions of farmers throughout the world, particularly in developing countries whose agriculture is based on cultivation of traditional varieties or varieties that farmers themselves conserve and improve. Farmers' right is a terminology which can be very closely related with farmers and rights for the benefits. Farmers' rights are the set of basic rights which are enjoyed by the farmers for their welfare. For getting into the farmer rights it is important to understand the farmer and the rights allotted to them.

To trace the evolution of their rights is like searching a coin in desert. However in this issue the coin was tossed globally when there was concerned about breeders' rights on international forum. And as a result The International Union for the Protection of New Varieties of Plants (UPOV) is an intergovernmental organization based in Geneva, Switzerland came into existence. Now also for the first time in 1986 in FAO the preposition of rights of the farmers for the seeds was discussed. This can be said to be the predecessor of the farmers' rights approach which later on laid to the international treaty on plant genetic resources for food and agriculture. This treaty discussed the rights of the farmers as well as for the preservation of farming plant variety. While discussing about the rights it is equally important to discuss about the concept of "intellectual property". Its application to plant varieties is a new area of law for many developing countries. It has developed since the Agreement on Trade-Related Aspects of Intellectual Property Rights obliges members of the World Trade Organization (WTO) to protect new varieties through the use of patent rights.

In addition, Convention on Biological Diversity (CBD) the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993. CBD has two supplementary agreements - Cartagena Protocol and Nagoya Protocol which majorly focuses the movements of living modified organisms (LMOs) resulting from modern biotechnology and the other focuses on the sustainable use and the fair and equitable sharing of Benefits from the Genetic Resources.

Similarly when globally all this was going around there were many changes internally in the country happening also, like because of Convention on Biodiversity India had formed Biodiversity Act in 2002 not only plant breeders but also farmers were given right under Protection of Plant Varieties & Farmers Right (PPVFR) Act, 2001 and things which are not patentable or excluded were also taken under section 3(j) in The Patents Act, 1970. In fact, that played important role for helping the farmers to claim their rights on plants.

It all started with recommendations given by Justice N. Rajagopala headed committee of Ayyanger which essentially made one of the recommendations was to allow the patent on process with regards to the major invention which was mainly based upon chemicals, medicines, food, drugs etc. It was later that India accepted to join hands and become signatory to many international treaties for making local patent law more proactive. As India became the signatory to Paris Convention and Patent Cooperation Treaty and thereafter the Budapest Treaty because of that the patent act came into force. Earlier in India, agriculture was generally excluded from intellectual property protection, and for decades there was no system of plant variety protection or farmers' rights. The Indian Seed Association, founded in 1985, has been actively involved in protecting plant breeders' rights in the country and the International Treaty on Plant Genetic Resources, Food and Agriculture of 2001 provides for the recognition of farmers' rights, but does not explicitly define them.

Subsequently because of coming of so many laws internationally and on national grounds farmers' rights are being on challenging position which the researcher has tried to discuss in the present chapter given below by the national and international perspective and aimed to find some of the rights which are identified as farmers

rights and other as the breeder rights as both are different when it comes to Indian Laws.

This chapter proposes to trace the evolution of the rights of the farmers International and national level. The researcher shall study the rights conferred on the farmers in context of the intellectual property rights, genetically modified crops and various legislative developments which are being created for giving farmer right or for granting a patent. Further in this chapter, researcher will also discuss about the legal position of seeds and genetically modified organisms in the light of Patent Act and the researcher shall also discuss and analyse Protection of Plant Varieties and Farmers Rights Act 2001, Biodiversity Act, 2002.

4.2 Concept of Farmers' Rights: Evolution

From many years farmers globally have sown, grown, harvested, saved seeds for plantation for the following coming years and exchanged the farm saved seeds with readily available farmer friends. In the 1960s and 1970s, developed countries began to grant Plant Breeder Rights (PBR) and patent right on plant varieties. UPOV was established in 1961 by the International Convention for the Protection of New Varieties of Plants. The mission of UPOV is to provide and promote an effective plant variety protection system to encourage the development of new plant varieties in the interest of society. Result to that plant breeding by the private seed sector has increased in developed countries.

The first use of farmers' rights as a political concept dates back to the early 1980s, when Pat Roy Mooney and Cary Fowler of the Rural Advancement Foundation Internationally coined the term resources to describe the valuable but unspoken contributions of farmers to production of genetic products the food and agriculture. This contrasted with the growing demand for plant breeders' rights expressed in international negotiations to highlight the unpaid innovations of farmers that underpinned all modern plant breeding. The agricultural sector of rich countries is different from India in many ways. Protection of Plant Varieties and Farmers' Rights Act, 2001 was originally based on breeders' rights claims in the seed sector.

In India, agriculture was generally excluded from the protection of intellectual property and for decades there was no legal system for breeders' rights.

The convention on biological diversity was inspired by world communities for their growing commitment towards a sustainable development which was need of the hour to show in response to United Nations Environment Programme (UNEP) working group of experts on biological diversity came in 1988 to establish various needs on international convention on biological diversity (CBD). So on 1992 biological diversity came with the sustainable development, which took a step forward towards conservation of biological diversity and use of its components with fair and equitable sharing of benefits arising from genetic resources.

To attend the aim of implementation of one of the three objectives of CBD that is fair and equitable sharing of benefits arising out of utilization of genetic resources and contributing to the conservation and sustainable use of biodiversity their came on need of Nagoya Protocol which properly talks about access to genetic resources and their fair and equitable benefits sharing arising from the utilisation of Convention of Biological diversity which is properly known as Nagoya protocol on access and benefit sharing was adopted in 2010.

The "common heritage" or the principle of free trade is based on the belief that the largest food factories in the world belong to no one and are part of our genetic heritage of the human being. The researcher has divided this study into two parts viz. the evolution of the farmers' rights at International level and the National level to understand the global changes and their effects on the policies.

4.2.1 Farmers Rights: International Perspective

The sui generis system the International Convention for the Protection of New Varieties of Plants UPOV is therefore one of the many options available to developing countries to comply with this requirement for the protection of intellectual property.[81] UPOV was established in 1961 by the International Convention for the Protection of New Varieties of Plants. Under the UPOV

[81]Anja Christinck and Morten W.T, *The UPOV Convention, Farmers' Rights and Human Rights An integrated assessment of potentially conflicting legal frameworks* June 2015

Convention, members can promote plant breeding by granting breeders of new plant varieties a right to intellectual property, breeder's right and on the other hand the political concept was tossed by Roy Mooney and Cary Fowler in 1980 where they tried to put a point that farmers are the unrewarded or they should be have their hold of rights on the seed. That gave the continuous demand for the rights of farmers globally and then they blow up demand for the rights of plant breeders for awarding for creating a new variety. The UPOV Convention mostly states that plant breeding by breeders of new plant varieties is an intellectual property right. In direct to obtain defence, the breeder's needs to submit single proof of his developed variety. The UPOV Convention mainly states the principle that UPOV members must change plant breeding by offering breeders of new plant varieties an intellectual property right. UPOV basically focuses on granting breeders their right for creating new variety.

However, the important role of farmers as custodians and innovators of plant genetic diversity that are of global significance to food and agriculture was not formally and explicitly recognised at the international level, with its essential dimensions, until the adoption of the International treaty on plant genetic resources for food and agriculture.[82] This led to the formation of the treaty ITPGRFA. This treaty established the farmers' rights regime at the International level for the first time. The researcher shall discuss the farmers' rights regime at the international level which can be in capsuled within three international convention and treaties namely UPOV, ITGPFRA and CBD (Convention of Biological Diversity). The UPOV convention confers a breeders rights for protection of plant varieties, ITGPFRA recognises farmers rights for the first time and the CBD along with its two major protocol Nagoya and Cartegena discusses farmers rights with benefit sharing of resources and LMO living modified organisms.TRIPs' influence on plant variety protection stems from the following sources: (1) its link to other international trade agreements; (2) its widespread adherence by states in both the industrialized and developing world; (3) its novel enforcement, review and dispute settlement provisions; (4) the requirement in TRIPs article 27.3(b) that its

[82]Food and Agriculture Organization*available at*www.fao.org/3/17820EN/i7820en.pdf (Visited on July 29, 2017).

signatories must provide protection for plant varieties "either by patents or by an effective *sui generis* system or by any combination thereof"; and (5) a formal review of article 27.3(b) which was scheduled to be held in 1999. The following paragraphs briefly address each of these five issues. Subsequent sections devote more detailed treatment to the protection of plant varieties with patents and to the elements necessary to create an "effective *sui generis* system."[83]

4.2.1.1 The International Convention for the Protection of New Varieties of Plants (UPOV)

UPOV has been revised in 1978 and 1991 and the revision has broaden the scope of the rights of commercial breeders while concurrently reducing the privileges of farmer breeders. UPOV system offers protection to the breeder of the plant variety in the form of a breeders' right. UPOV is about the rights of the breeder. Plant variety which is Novel, distinct, uniform and stable will be given protection under the UPOV system. UPOV also provides for the provision for the application for the grant of the breeders rights. The exception, extortion and restrictions of the exercise of the breeders' rights and the duration of the breeders' right are categorically discussed in the convention. The convention also discusses about nullity and cancellation of the breeders right.

The International Union for the Protection of New Varieties of Plants (UPOV) is an international organization headquartered in Geneva, Switzerland, which aims to create and promote an effective PVP system, thereby promoting the development of new varieties. It was founded in 1961 by the International Convention for the Protection of New Varieties of Plants, which was proposed by several European countries and their breeding industries.

The introduction of the UPOV system of plant variety protection and UPOV membership has been found to be associated with[84]:

i. increased breeding activities,

[83]International IPR Agreements Regulating Plant Varieties and Plant Breeders' Rights available *at*http://www.fao.org/docrep/.html (Visited on August 2, 2017).
[84]Impact of PVP, UPOV *available at*https://www.upov.int/overview/en/impact.html (Visited on august 6, 2017).

ii. greater availability of improved varieties,
iii. increased number of new varieties,
iv. diversification of types of breeders (private breeders, researchers),
v. increased number of foreign new varieties,
vi. encouraging the development of a new industry competitiveness on foreign markets,
vii. Improved access to foreign plant varieties and enhanced domestic breeding programs.

The UPOV System of Plant Variety Protection[85]:

1. Encourages the breeding of new varieties - enabling farmers to respond to the environmental and economic challenges confronting agriculture
2. Provides farmers and growers with access to the best local and global varieties
3. Enables variety choice to be combined with information and delivery of good quality planting material
4. Offers a tool for capturing value through farmer cooperation
5. Facilitates "win-win" cooperation between farmers and breeders
6. Provides business opportunities for small farmers and growers
7. Has the potential to be even more effective through improvements in implementation
8. Provides an incentive for farmers and growers to become breeders
9. Enables any farmer or grower to use the best available, protected varieties for breeding work
10. Offers an effective and transparent system that is easily accessible for small and medium-sized enterprises
11. Enables farmers and growers to develop local, national and international businesses
12. Empowers farmers and growers in the production chain

The UPOV Convention mainly states the principle that UPOV members must change plant breeding by offering breeders of new plant varieties an intellectual

[85] Ms. Kitisri Sukhapinda at Symposium on Plant Breeding for the Future *available at* https://www.upov.int/ edocs/pubdocs/en/upov_pub_357_1.pdf (Visited on august 6, 2017).

property right. The UPOV Convention protects the intellectual property rights of plant varieties and allows other breeders to use protected material without their own breeding authorization, a concession known as "livestock taking".

Article 2 discusses the forms of protection and the meaning of variety. It states that Each member State of the Union may recognise the right of the breeder provided for in this Convention by the grant either of a special title of protection or of a patent. Nevertheless, a member State of the Union whose national law admits of protection under both these forms may provide only one of them for one and the same botanical genus or species. According to the UPOV convention the word variety applies to to any cultivar, clone, line, stock or hybrid which is capable of cultivation.[86]

Article 4 discusses the botanically genera and species which must or may be protected. The rights and scope of protection to the breeder and new plant variety is dealt under article 5 of UPOV. While Article 6 prescribes the condition prescribe for protection of a new plant variety. Article 9 states the restrictions in the exercise of the rights protected while Article 10 deals nullity and fore features of rights protected. UPOV provides for procedure application for protection of plant variety under article 11.Article 12 gives the right of priority to any breeder or his successor. Article 13 deals denomination of new varieties of plants such denomination must enable the new variety to be identified; in particular, it may not consist solely of figures. Article 14 states that the right accorded to the breeder in pursuance of the provisions of this Convention shall be independent of the measures taken by each Member State of the Union to regulate the production, certification and marketing of seeds and propagating material.[87]

The country or states which are keen to become a member of UPOV need to take the recommendation of UPOV council by justifying the agreement of laws with its provisions by its main UPOV convention. The modus operandi in itself requires

[86]Article 2 of UPOV convention 1991
[87]Article 14 (1) of UPOV convention 1991

very high level of cooperation with the laws having channelized collaboration with internal laws and articles of the UPOV. There is UPOV system is of plant protection and their members are very closely united with enlarge breeding activities, broaden your horizons of the breeders, new overseas variety, persuade the enlargement of new corporate sectors for competitiveness in unknown markets and enhanced right of entry to distant plant varieties and superior in-house breeding programs.

The commitment of UPOV is to give and approve an effective system of plant variety protection, in the hope of seeing a new variety of facilities develop, to help civilization. Most state and intergovernmental society which have set up a plant variety protection (PVP) arrangement have selected to base their classification on the UPOV conference in order to afford an effectual, globally documented structure. UPOV has 75 members as of April 13, 2018. Sixteen countries and one intergovernmental society have started the process of approval of the UPOV Convention and 26 States and one intergovernmental organization that have been in contact with the Office of the Union for support in the advancement of laws on the UPOV Convention.

STATUS IN RELATION TO THE INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS (UPOV)

as of April 13, 2018

I. Members of UPOV

African Intellectual Property Organization[3, 5]
Albania[3]
Argentina[2]
Australia[3]
Austria[3]
Azerbaijan[3]
Belarus[3]
Belgium[1]
Bolivia (Plurinational State of)[2]
Bosnia and Herzegovina[3]
Brazil[2]
Bulgaria[3]
Canada[3]
Chile[2]
China[2]
Colombia[2]
Costa Rica[3]
Croatia[3]
Czech Republic[3]
Denmark[3]
Dominican Republic[3]
Ecuador[2]
Estonia[3]
European Union[3, 4]
Finland[3]
France[3]
Georgia[3]
Germany[3]
Hungary[3]
Iceland[3]
Ireland[3]
Israel[3]
Italy[2]
Japan[3]
Jordan[3]
Kenya[3]
Kyrgyzstan[3]
Latvia[3]
Lithuania[3]
Mexico[2]
Montenegro[3]
Morocco[3]
Netherlands[3]
New Zealand[2]
Nicaragua[2]
Norway[2]
Oman[3]
Panama[3]
Paraguay[2]
Peru[3]
Poland[3]
Portugal[2]
Republic of Korea[3]
Republic of Moldova[3]
Romania[3]
Russian Federation[3]
Serbia[3]
Singapore[3]
Slovakia[3]
Slovenia[3]
South Africa[2]
Spain[3]
Sweden[3]
Switzerland[3]
The former Yugoslav Republic of Macedonia[3]
Trinidad and Tobago[2]
Tunisia[3]
Turkey[3]
Ukraine[3]
United Kingdom[3]
United Republic of Tanzania[3]
United States of America[3]
Uruguay[2]
Uzbekistan[3]
Viet Nam[3]

(Total 75)

[1] 1961 Convention as amended by the Additional Act of 1972 is the latest Act by which 1 State is bound.

[2] 1978 Act is the latest Act by which 17 States are bound.

[3] 1991 Act is the latest Act by which 55 States and 2 organizations are bound.

[4] Operates a plant breeders' rights system which covers the territory of its 28 member States (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom).

[5] Operates a plant breeders' rights system which covers the territory of its 17 member States *(Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal, Togo)*.

88

There are 75 member states who have agreed to the UPOV. Only Belgium is the one state which is bound by 1972 amendment. Whereas the states like Argentina, Bolivia, Brazil, Chili, China, Columbia, Ecuador, Italy, Mexico, New Zealand, Nicaragua, Paraguay, Portugal, South Africa, Trinidad and Tobago, Uruguay are the other 17 states entered in 1978. Later other 55 states entered in 1991they are (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom). 17 member States Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal, Togo are the state who operates a plant breeders' rights system.

[88] Status in Relation to the International Union for the Protection of New Varieties of Plants (UPOV) *available at*https://www.upov.int/export/sites/upov/members/en/pdf/status.pdf (Visited on August 29, 2017).

II. States and intergovernmental organizations which have initiated the procedure for acceding to the UPOV Convention

States (16):

Armenia, Brunei Darussalam, Egypt, Ghana, Guatemala, Honduras, India, Iran (Islamic Republic of), Kazakhstan, Malaysia, Mauritius, Myanmar, Philippines, Tajikistan, Venezuela (Bolivarian Republic of) and Zimbabwe

Organization (1):

African Regional Intellectual Property Organization (ARIPO)
(member States of ARIPO (19): Botswana, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Rwanda, Sao Tome and Principe, Sierra Leone, Somalia, Sudan, Swaziland, Uganda, United Republic of Tanzania, Zambia, Zimbabwe)

16 states have still initiated the procedure for acceding to the UPOV Convention. Those Sates are Armenia, Brunei Darussalam, Egypt, Ghana, Guatemala, Honduras, India, Iran (Islamic Republic of), Kazakhstan, Malaysia, Mauritius, Myanmar, Philippines, Tajikistan, Venezuela (Bolivarian Republic of) and Zimbabwe. India position in UPOV can be grabbed as the state which has given the assent to the Convention. And one organization African Regional Intellectual Property Organization (ARIPO) in which 19 states members are Botswana, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Rwanda, Sao Tome and Principe, Sierra Leone, Somalia, Sudan, Swaziland, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

III. States and intergovernmental organizations which have been in contact with the Office of the Union for assistance in the development of laws based on the UPOV Convention

States (26):

Afghanistan, Algeria, Bahrain, Barbados, Cambodia, Cuba, Cyprus, El Salvador, Indonesia, Iraq, Jamaica, Lao People's Democratic Republic, Libya, Liechtenstein, Mongolia, Mozambique, Namibia, Nigeria, Pakistan, Saudi Arabia, Sudan, Thailand, Tonga, Turkmenistan, United Arab Emirates and Zambia

Organization (1):

Southern African Development Community (SADC)
(member States of SADC (15): Angola, Botswana, Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia, Zimbabwe)

89

There are other 26 states that are in continuous in contact with States and intergovernmental organizations with the Office of the Union for assistance in the

[89] Status in Relation to the International Union for the Protection of New Varieties of Plants (UPOV) *available at*https://www.upov.int/export/sites/upov/members/en/pdf/status.pdf (Visited on September 2, 2017).

development of laws based on the UPOV Convention and the organisation named Southern African Development Community (SADC). [90]

The Mission of UPOV, based on the UPOV Convention, is: "To provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society."[91] UPOV considers that plant breeding is a fundamental aspect of the sustainable use and development of genetic resources. It is of the opinion that access to genetic resources is a key requirement for sustainable and substantial progress in plant breeding. The concept of the "breeder's exemption" in the UPOV Convention, whereby acts done for the purpose of breeding other varieties are not subject to any restriction, reflects the view of UPOV that the worldwide community of breeders needs access to all forms of breeding material to sustain greatest progress in plant breeding and, thereby, to maximize the use of genetic resources for the benefit of society.[92]

4.2.1.2 Convention on Bio-Diversity

The Convention on Biological Diversity (CBD) provides the global legal framework for conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. The Convention on Biological Diversity (CBD) recognizes the dependence of indigenous and local communities on biodiversity and the unique role of indigenous and local communities in preserving life on Earth. This recognition is enshrined in the preamble to the Convention and its provisions. The Convention on Biological Diversity is the main international instrument which focuses and provides a comprehensive and holistic approach that was adopted at

[90] Status in Relation to the International Union for the Protection of New Varieties of Plants (UPOV) *available at* https://www.upov.int/export/sites/upov/members/en/pdf/status.pdf (Visited on September 2, 2017).

[91] Access to Genetic Resources and Benefit-Sharing *available at*https://www.upov.int/export/sites/upov/news/en/2003/pdf/cbd_response_oct232003.pdf (Visited on September 10, 2017).

[92] Access to Genetic Resources and Benefit-Sharing*available at* https://www.upov.int/export/sites/upov/news/en/2003/pdf/cbd_response_oct232003.pdf (Visited on September 10, 2017).

the Rio 1992 Summit on the Sustainable Use of its Components and the Fair and Equitable Sharing of Benefits Arising from the Use of Genetic Resources. To achieve the main objectives certain general principles are laid down: preservation of biological diversity, the sustainable use of its different components and the equitable sharing of benefits arising from the use of these genetic resources. The issue of farmers' rights was raised during the discussions on the Convention on Biological Diversity (CBD), the first legally binding international treaty for the conservation, sustainable use and equitable sharing of benefits resulting from the use of biodiversity.

The Convention on Biological Diversity (CBD) entered into force on 29 December 1993.

It has 3 main objectives:

1. The conservation of biological diversity
2. The sustainable use of the components of biological diversity
3. The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.[93]

Some of the other main key principles were identified as:

- Mutually agreed access terms should laid
- The consent of the Party in whose territory the resource is located should be subject to priority.
- That access shall be encouraged only if the Party seeking access will put the genetic resources to environmentally sound uses.

  It brings together the parties in the conference of parties (COP) which is the convection governing body that meets every two years.

  Other subsidiary bodies have been established by the COP to deal with the specific issues as they arrive these are called "Adhoc open ended working groups" because they are established mandated and period of time.
- The Working Group on Access and Benefit-Sharing (ABS) is currently the forum for negotiating an international regime on access and benefit sharing;
- The Working Group on Article 8(j) addresses issues related to protection of traditional knowledge;

[93] Working Group on Article 8(j) *available at*https://www.cbd.int/convention/wg8j.shtml (Visited on September 19, 2017).

Parties to the CBD commit to respect and preserve knowledge, innovation and traditional practices and promote their dissemination[94]. Article 8 (j) of the Convention on Biological Diversity requires Parties to respect maintain and promote the knowledge, innovation and practices of local and local communities in the conservation of biological diversity achieve wider use with the consent of knowledge holders and promote equitable sharing of benefits arising from the use of biodiversity. Because of their relevance to the work of the Convention, all the work programs of the Convention include reflections on traditional knowledge of indigenous and local communities.

Article 15 establishes the sovereignty of States over their genetic resources and that access is subject to national legislation. This right, however, is not absolute, as Article 15 also requires Parties to endeavour to make easy entrance to genetic resources for environmentally good utilization by others and not to enforce boundaries. . More specifically, Article 15 of the Convention, supplemented by Articles 16 and 19, discusses the terms and conditions for access to genetic resources and benefit-sharing.

The execution of the access and benefit-sharing provisions of the Convention should be undertaken in order to assist Parties and relevant stakeholders, a set of guidelines known as "the Bonn Guidelines" were adopted by the Conference of the Parties to the Convention, in April 2002. The Guidelines focuses on bridging the gap between policy development and implementation by providing the elements of a transparent and predictable framework for both users and providers of genetic resources. They assist Parties in their efforts to establish administrative, legislative or policy measures on access and benefit-sharing.[95]

Key elements of the current biennial work program of the COP includes the development of elements of the sui generis systems, the development of knowledge retention indicators and traditional methods, and measures to address the root

[94] Article 8j of Convention of Biological Diversity
[95]HamdallahZedan,'*Biological Diversity To The WIPO Seminar On Intellectual Property And Development*' Geneva, Switzerland, (Visited on September 25, 2017).

causes of the problem loss of such knowledge, the development of a code of conduct that ensures the respect of the cultural and intellectual heritage of indigenous and local communities regarding the conservation and sustainable use of biodiversity, contributes to the negotiation of an international regime of access and exchange, explore the consequences of climate change, even for the most vulnerable indigenous and local communities.

4.2.1.2.1 Cartagena Protocol

On 29 January 2000, the Conference of the Parties to the Convention on Biological Diversity adopted a supplementary agreement to the Convention known as the Cartagena Protocol on Biosafety. The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health.

4.2.1.2.2Nagoya Protocol

The triple objective of CBD was conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. And this was translated into national laws by several contracting parties. However, the national laws However, the national laws were unable to provide a legal remedy if genetic resources and associated traditional knowledge (TK) were accessed without prior informed consent having been sought in other jurisdictions. In other words, cases of illegal prospecting of biological resources and misappropriation of TK associated with the genetic resources could not be checked. The solution to this problem was seen in the form of an International Regime on Access and Benefit Sharing which could check such cross-boundary infringements involving the use of genetic resources and associated TK. The idea of an International Regime came up during the World Summit on Sustainable Development in 2002 at Johannesburg. Negotiations for an International Regime were initiated after the seventh meeting of the Conference of Parties of (COP) the CBD convened in 2004; finally it materialized in COP 10, which was held in October 2010, adopted the “Nagoya Protocol on Access to

Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization".[96]

Nagoya protocol is an International agreement which aims at sharing benefits arising from their utilization of genetic resources in a fair and equitable way. Nagoya protocol was adopted by COP to the CBD at its tenth meeting in 2010 in Nagoya, Japan. The 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 is an international agreement to share the benefits of using genetic resources fairly and fair including appropriate access to genetic resources and appropriate transfer of relevant technologies, taking into account all rights to those resources and technologies and appropriate funding, thereby contributing to the conservation of biological diversity and the utilization of its components.

The Nagoya Protocol applies to genetic resources that are covered by the CBD, and to the benefits arising from their utilization. The protocol also covers traditional knowledge associated with genetic resources that are covered by the CBD and the benefits arising from its utilization. The Nagoya Protocol sets out obligations for its contracting parties to take measures in relation to access to genetic resources, benefit-sharing and compliance.

Domestic-level access measures aim in Nagoya Protocol:

1. Create legal certainty, clarity, and transparency
2. Provide fair and non-arbitrary rules and procedures
3. Establish clear rules and procedures for prior informed consent and mutually agreed terms
4. Provide for issuance of a permit or equivalent when access is granted
5. Create conditions to promote and encourage research contributing to biodiversity conservation and sustainable use
6. Pay due regard to cases of present or imminent emergencies that threaten human, animal, or plant health

[96]Reji K.Jospeh, 'International *Regime on Access and Benefit Sharing: Where Are We Now?* 'RIS Research and Information System for Developing Countries,Asian Biotechnology and Development Review Vol. 12 No. 3, pp 77-94,2010. (Visited on October 3, 2017).

7. Consider the importance of genetic resources for food and agriculture for food security.

Domestic-level benefit-sharing measures

- Aim to provide for the fair and equitable sharing of benefits arising from the utilization of genetic resources with the contracting party providing genetic resources.
- Utilization includes research and development on the genetic or biochemical composition of genetic resources, as well as subsequent applications and commercialization.
- Sharing is subject to mutually agreed terms.
- Benefits may be monetary or non-monetary such as royalties and the sharing of research results.

4.2.1.3 International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

The International Treaty on Plant Genetic Resources for Food and Agriculture is the first global treaty to fully address the farmers' rights and monitoring of plant genetic resources in agriculture. The chief object of this treaty is sustainable and conservation use agricultural genetic resources for food and the fair and equitable sharing of the benefits arising out of their use, which is in co-operation with convention of biological diversity for equitable agricultural and food security. The treaty is also well known as **International Seed Treaty**. The treaty focuses on farmers' rights which recognise the farmers and their contribution towards aspects like traditional knowledge, benefits sharing and development of plants genetic resources. Here protection of traditional knowledge by saving seeds, benefits sharing includes exchange of information, transfer of technology etc.

The International treaty on plant genetic resources for food and agriculture endeavours at following points:[97]

- The diversity of crops that feed the world recognizing the enormous contribution of farmers.

[97]International Treaty on Plant Genetic Resources for Food and Agriculture, *available at*http://www.fao.org/plant-treaty/overview/en/ (Visited on September 17, 2017).

- To provide farmers, plant breeders and scientists with access to plant genetic materials for establishing a global system.
- Taking care that the beneficiaries share benefits that they have derived from the use of these genetic materials with those countries where they have been originated.

ITPGRFA focuses to help the future farmers for proper preservation and optimal use of their cultivation. The primary aim of the treaty aims at recognizing the major contribution of the farmers for the diversity of crops that are been developed and cultivated which feeds the entire population of the world. The aim of the treaty is to have proper channel through which farmers, breeders, agriculturist, and scientists can have proper access to the genetic resources.

Access to the resource of genetic material for research, breeding, and deploying training for food and agriculture is provided in the treaty. The ratified nations to the treaty should have the access the resources. The treaty protects the beneficiary of the said resource from declaring any right in IPR through which it is been received to them, and give access to these resources which are already been secluded by intellectual property rights is trustworthy with international and national laws. Benefit sharing machinery established by this treaty have mainly access to the resources by this system and mainly agrees to share any benefits for their use.

The preamble reinforces the substantive rights as being fundamental to the realisation of farmers' rights.

Part III provides for farmers rights in article 9.

Farmers' Rights.

9.1 The Contracting Parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.

9.2 The Contracting Parties agree that the responsibility for realizing Farmers' Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:

a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;

b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and

c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.[98]

Thus, article 9 confers the specific rights as follows

To protection of traditional knowledge relevant to plant genetic resources for food and agriculture is the first substantial right.

The right to equitably participate in benefits sharing is the second extensive right given accordingly to ITPGRFA Article 9.2(b). Use of all plant genetic a resource is adhered right to equitable participation in sharing benefit.

The right to participate in decision-making at the national level is the third right. These three rights are to be practiced and applied at the national level. At national level right to be included in decision-making can be seen as procedural right on the technique to set up the material rules, or it can be well thought-out as a substantive right to decision making relating to plant genetic resources. So therefore Article 9 might as well be interpreted in such a way that creating such provisions on

[98]Article 9, of ITPGRFA

Farmers' Rights is in accordance with needs and priorities as appropriate is the obligation.

ITPGRFA further putting one point ahead in spelling out the mainprinciples for the internal distribution of benefits to famers by benefit sharing connected to Farmers' Rights in it. Nevertheless, there are structural challenges in ITPGRFA to considerate the users of plant genetic resources to ways such a fair sharing of benefits. Article 9.2 involves that these three elements are not an exhausted list and so others can be added.

Mainly Article 9.3 is one of the Farmers' Rights referred as specific legal content, 'Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law'. The Berne Declaration stipulates substantive rights defined by farmers. Also the ITPGRFA preamble reinforces this as being fundamental to the realisation of Farmers' Rights. The liability for understanding Farmers' Rights lies with the parties and the preamble makes it clear that the above mentioned key elements are fundamental for realising Farmers Rights and for their promotion at national and international levels all this is interpreted in Article 9. The preservation of these privileges of treaty requires administration to take for granted accountability under Article 9, this is, however a licence to do something as they please. "Benefits arising from the use of plant genetic resources for food and agriculture should flow to farmers who conserve and sustainably utilise plant genetic resources for food and agriculture." have been led down whose cultivation is based on the farming of conservative variety or varieties they themselves protect and work for the progress of them; these cluster groups of Farmers' Rights should also get advantage of the International Treaty on Plant Genetic Resources for Food and Agriculture. Although ITPGRFA does not define farmer's right but it mainly provides various methods through which rights can be protected, promoted and enlarged.

4.2.1.4 Trade-Related Aspects of Intellectual Property Rights (TRIPS) and Plant varieties protection

The agreement on Trade Related aspects of IPR which is administered by WTO imposes on all member states the introduction of plant variety protection either through patents or an alternative system. TRIPs does not apply in any way that member states have to adopt plant breeders rights if they do not which to introduce patents on plant varieties. However, there has been pressure on developing countries to choose plant breeders rights as an alternative to patents.

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced. [99]

2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect order public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law. [100]

3. Members may also exclude from patentability:

(b) Plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.[101]

The scope of patentable subject matter under article 27 has been widened after coming of TRIPS agreement. Article 27 provides that all inventions are patentable

[99]Article 27 3(b) clause1 of TRIPS
[100]Article 27 3(b) clause2 of TRIPS
[101]Article 27 3(b) clause3 of TRIPS

whether work the locally or imported in the country of its grant. Article has already provided in exemption clause that the provisions of Art. 27 (3) (b) is to be reviewed after four years time after the implementation of the TRIPs Agreement by the entering country with certain exemptions.[102]

Third, members can exclude other plants and animals as microorganisms and essentially biological processes for the production of plants or animals as non-biological and microbiological processes. However, any country that excludes plant varieties from patent protection must establish an effective sui generis protection system. In addition, the entire provision may be reviewed four years after the entry into force of the agreement.[103]

4.2.2 Farmers' Rights: Indian Perspective

Years ago, agriculture in India was generally excluded from the protection of intellectual property rights and for decades there was no legal system for plant breeders 'or breeders' rights. Farmers could freely use, save and exchange their seeds. As breeders could not obtain plant variety protection, there was no benefit-sharing or compensation system. Initial requests for intellectual property rights in agriculture were made when the private sector was allowed to enter the seed sector with New Policy on Seed Development, 1988. The Seed Association of India that was founded in 1985, initially actively advocated for the need to ensure plant breeders' rights in India. In the beginning there was oppose for plant variety protection from the public sector as for the reason that private companies can use their breeding materials. However the attitude changed due to the changed role of private sector.

Looking at the Indian history for agriculture after independence main concern was a food. Many hybrid and high yielding varieties were being introduced particularly in rice and wheat. At those time seeds were high yielding seeds furthermore those were even not protected by intellectual property rights. Moreover, after coming of

[102] Review of Article 27.3(b) Under TRIPs Agreement: A Critical Analysis. *Available at* https://www.researchgate.net/publication/228175008_Review_of_Article_273b_Under_TRIPs_Agreement_A_Critical_Analysis [accessed Aug 02 2018].
[103]Article 27.3 (b) of TRIPS Overview: the TRIPS Agreement *available at* https://www.wto.org/english/tratop_e /trips_e/intel2_e.htm (Visited on October 22, 2017).

TRIPS, gradually IPR was even extended to agriculture altogether by developed countries as some of those did have pertaining laws for the same. With the adoption of the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), bilateral and multilateral pressure has also been applied in India to strengthen intellectual property rights in Agriculture. However, the Non-governmental organizations (NGO) and the rural lobby strongly protested against the implementation of the TRIPs agreement. Their strongest and most powerful argument was that the TRIPS-based IPR system only recognizes agricultural innovations of breeders and companies, ignoring informal innovation by farmers and communities, especially in developing countries.

Bija Satyagraha-Defending Farmers Seed Freedom in 1991, organised awareness campaigns and rallies to alert farmers across the country about the emerging seed monopoly. It was a movement to protect the farmers' rights to biodiversity, rights of seed saving and seed exchange. In 1993, half a million farmers participated in a historic Bija Satyagraha rally at Bangalore's Cuban's Park. This was the first international protest against WTO. In the background of this debate on plant breeders 'rights in India, the Government formulated a draft law on plant breeders' rights in 1993-94. The project provoked considerable controversy, despite the government's attempts to take into account the different demands of the protestor when drafting the bill. The law has examined breeders' rights through provisions based on UPOV. The first bill also included a clause on community rights and farmers' rights. Farmer's rights included in this draft were to stock, use, exchange and share seeds. There was no concept of farmers' rights as property rights or rights to register their varieties in this draft.

NGOs and industry opposed this bill and in this bottleneck, the government began reviewing the draft. The Ministry of Agriculture prepared a second draft in 1996 and a third draft in 1997. The third draft added writing "Farmers' Rights" to the title. Non-governmental organizations, however, criticized the two drafts for failing to provide adequate protection for farmers. Non-governmental organizations claimed that the distribution of benefits was vague in the draft, that there was no representative of farmers in the authority and no system for the registration of varieties of farmers. The process of taking account of the interests

of different farmers began with another draft submitted to Parliament in 1999 (Protection of Plant Varieties and Farmers Rights Bill) and sent to a Joint Committee of Parliament (JPC).

The joint committee travelled the country to gather the views of NGOs, industry, scientists and farmers. Taking into account the requests of the various stakeholders, the Joint Committee reformulated the draft bill in 2000 and the new version was presented to Parliament. The main revision of the Joint Parliamentary Committee (JPC) has been the inclusion of a separate chapter on farmers' rights. A chapter on farmers' rights was included in the draft under pressure from various NGOs.

The final version of the draft regulation was widely accepted by key stakeholders. The industry understood that the idea of farmers' rights as an alternative IPR system actually reinforced their position on intellectual property rights and allowed them to obtain plant breeders' rights in India. Non-governmental organizations have accepted the bill as it provides a mechanism to treat varieties of farmers in the same way as breeders' varieties. Likewise, the Protection of Plant Varieties and Farmers Rights Act, 2001 came into existence.

The main objective of the PPVFR Act of 2001 is to establish a system for the protection of plant varieties and the rights of farmers and breeders, and to encourage the development of new varieties to know and protect the rights of farmers. The Indian Law PPVFR not only confirms the right of farmers to save, use and exchange seeds and propagating material, but also aims to give farmers the opportunity to enforce certain types of intellectual property rights on their land and seed varieties. The law provides for the protection of plant varieties for new varieties (mainly based on UPOV), existing varieties and essentially derived varieties. It can be said that the law has granted farmers nine rights, including: The law on plant varieties and farmers' rights is presented. On this background, the concept of farmers' rights is presented and defined in terms of nine components: The law on plant varieties and farmers' rights is presented. On this background, the concept of farmers' rights is presented and defined in terms of nine components: (1) farmers' rights to seed, (2) farmers' rights to register traditional varieties, (3) farmers' rights to reward and recognition, (4) farmers' rights to benefit sharing, (5)

farmers' rights to compensation for the loss of registered varieties, (6) Rights of farmers for reimbursement for undisclosed use of traditional varieties; (7) Rights of farmers to the seeds of registered varieties; (8) farmers' rights for receiving services; and (9) farmers' rights to protection against innocent infringement[104]. All the above nine rights are being explained in the latter portion of the chapter in detail.

In addition to this after the formulation of PPVFR Act 2001 due to the change in the global scenario then came The Biodiversity Act of 2002 which has its focus on benefit sharing and access to the traditional knowledge. Since, India has ratified Nagoya Protocol, as per article 4.2 and 4.4 of the Protocol "nothing in this Protocol shall prevent the Parties from developing and implementing other relevant international agreements, including other specialized access and benefit-sharing agreements, provided that they are supportive of and do not run counter to the objectives of the Convention and this Protocol".

Farmers Rights in India has seen its change over the years with respect to the law relating to the seed and IPR laws and this is due to the various global changes happening into these areas. After the TRIPs coming with the Article 27 (3) (b) patent subject matter and due to this section 3(j) had included into it. Same way Convention of biodiversity opened the gateway for national law on biodiversity which talked about benefit sharing and traditional knowledge. Internationally breeders right were given the great importance globally under The International Union for the Protection of New Varieties of Plants (UPOV) and The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) one talked about breeders rights and the other discusses about farmers rights globally. The treaty commits the parties to "develop and maintain appropriate policy and legal measures to promote the sustainable use of plant genetic resources for food and agriculture" (Article 6.1) and proposes various solutions measures, including "Review and, where appropriate, adaptation of breeding strategies and rules for variety distribution and seed distribution" (Article 6 (2) (g)). No international treaty

[104]Vandana Shiva *"Agricultural Biodiversity, Intellectual Property Rights and Farmers' Rights"*, Economic and Political Weekly, 1996

is perse binding. It shall be binding only after legislative measures are undertaken by the nations that have signed and ratified it India came with the combination of both under Protection of Plant Varieties & Farmers Right (PPVFR) Act, 2001 which has both breeders as well as farmers' rights. The Act not only protects but also promotes their rights.

4.2.2.1 Protection of Plant Varieties & Farmers Right (PPVFR) Act, 2001

Indian law is unique in that it is also intended to protect breeders and farmers. Being one of the first countries in the world to pass legislation that guarantees farmers' rights in the form of the Protection of Plant Varieties and Farmers Rights Act, 2001 (PPVFR). As per the international scenario such as which says that Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof.[105] The main objective of the PPVFR Act, 2001 is to establish a system for the protection of plant varieties and the rights of farmers and breeders, and to persuade the development of new varieties to know and protect the rights of farmers. The Act not only confirms the right of farmers to save, use and exchange seeds and propagating material, but also aims to enable farmers to claim certain types of intellectual property rights in their varieties. It tries to give farmers the right to register their innovations and protect existing varieties. The Act mainly provides for the protection of plant varieties for new varieties (mainly based on UPOV), existing varieties and essentially derived varieties. Known varieties include farmer varieties, including publicly available and known varieties. It can be said that the Act gives farmers nine rights, including: the right to retain, trade and (to a lesser extent) sell seeds and propagating material, register varieties, recognize, reward, to benefit sharing, to information about expected performance of a variety, compensation for failure of variety to perform, availability of seeds of registered variety, free registration, variety review, legal claims and protection against damage. This act can be considered as unique because of it brings farmers and breeders under one single window.

[105]27 3 (b) of TRIPS

This Act provides the effectual structure for developing the protection of plant varieties, the rights of farmers and plant breeders and also to promote the development of various new varieties of plants. As to the need of the hour it was considered necessary to recognise and give protection to the rights of farmers with respect to the contribution made by them in conserving, improving and making available plant genetic resources for the development of new plant varieties for accelerating the agricultural development of the country. The Act is also important as the protection of rights gives increase in the level of research for the development of new plant varieties by the farmers and the breeder's at various levels both in the public and private sector. Again this is benefiting the growth of the seed industry and other planting materials to the farmers.

4.2.2.1.1 Salient features of PPVFR Act, 2001

The Act contains 11 Chapters and is divided into 97 clauses. The first chapter contains title and the definitions used in context of the Act. The last chapter is on miscellaneous clauses. The other nine chapters deal with PVPFR authority, registration of plant varieties, duration and effect of registration and benefit sharing, surrender and revocation of certificate, farmers' rights, compulsory licence, plant varieties protection appellate tribunal, finance, accounts, audit, infringement, offences and penalties, etc.

1. Act extents to the whole of India including the state of Jammu and Kashmir.

2. **"breeder"** means a person or group of persons or a farmer or group of farmers or any institution which has bred, evolved or developed any variety.[106] Where breeder means both the breeder and farmer who breeds or develops new variety individually or in group.

3. **"Extant Variety"** *defined under section 2(j)means the variety which is available in India.*

i) Variety notified under section of Seed Act 1966 i.e. Power to notify kinds or varieties of seeds.

[106]Section 2 (c) The Protection of Plant Varieties and Farmers' Rights Act, 2001

ii) Farmers' variety which developed by him.
iii) Some common knowledge variety
iv) or any other variety which already in the public domain.

4. **"Farmer"** *defined under section 2(k) means any person who*
i) Basically cultivates all his crops by cultivating his land by himself.
ii) Cultivates his crops by supervising of his land by some other person.
iii) or the any person who conserves and preserves, severally or jointly any of the wild species or any of the traditional varieties or by his knowledge and expertises adds some value to these varieties through some identification of their useful properties.
All of these are considered to the farmers

5**. "Farmers' Variety"***defined under section 2(l)* means a variety which is
i) Evolved variety by farmers in their field through traditional cultivation.
ii) known to farmers through common knowledge or traditional knowledge and the variety is the wild relative or the land race variety to the original one.

6. **"Seed"** *defined under section 2(x)* means is a type of living embryo i.e. kernel which is having capability of regenerating and giving birth to the new plant.

7. Section 14 of the Act deals with **Application for registration** where any person who is breeder or the farmer according to section 16 of PPVFR Act can make an application to the registrar for registration of varieties such as
i) Varieties which are excluded by central government by notification under official gazette.
ii) Extant variety
iii) Farmers variety

8. Section 15 deals with the Registrable varieties i.e. a variety can be recorded for fortification if it fulfils the benchmarks of Novelty, Distinctness, Uniformity and Stability.

i) Novel means the breeder has sold or transferred the variety for one year in India or outside of India no more than four years before the date of filing for commercial exploitation.

ii) Distinctmeans the variety is clearly distinguished by at least one essential characteristic of each other variety, the existence of which is known at the time of application in each country.

iii) Uniformitymeans the variety is sufficiently uniform for essential characteristics other than the variation that may be expected within the variety due to its mode of reproduction.

iv) Stabilitymeans the variety remain unchanged for its essential characteristics even after repeated propagation.

9. Who can make an application is dealt under section 16 by any person who is claiming himself to be breeder, any of the successor of the breeder of the variety, any of the assignee of the breeder, farmer or group of farmers or their community claiming to be the breeder of that particular variety, any authorised person or any university or publicly funded agricultural institution claiming to be the breeder of the variety.

10. Chapter VI of the Act under section 39 deals with the various **Farmers' Rights** they are as follows.

i) A farmer who has developed new variety shall be entitled for registration and protection as same as the breeder

ii) Farmers variety shall be entitled for registration if the application contains declarations as that material for breeding is acquired lawfully.

iii) Farmer would be entitled for recognition and reward from the Gene Fund, provided the material has been used as donors of genes in varieties registrable under the Act.

iv) Farmer would be free to entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety in the same manner as he was entitled before the coming into force of this Act but **the farmer shall not be entitled to sell "branded seed" of a variety protected.** Here "branded seed" means any seed put in a package or any other container and labelled in a manner indicating that such seed is of a variety protected under this act.

v) If the propagating material fails to give the prescribed result under such given conditions, the farmer or the group of farmers or the organisation of farmers, the case may be, may claim compensation in the prescribed manner before the Authority. After giving breeder of the variety notice after providing him an opportunity to file opposition in the prescribed manner and after hearing the parties. Authority may direct to pay compensation as it deems fit, to the farmer or the group of farmers or the organisation of farmers.

11. Section 40 deals with certain application to be given in application registration sub section (1) says a breeder or other person making any application for the registration of ay variety under the given chapter III which is registration of plant varieties and essentially derived varieties shall have to disclose the information for dealing with the use of the genetic material conserved by the tribal or rural families if any in the breeding or development of such variety.

12. **Rights of communities** is granted under section 41 are as any person or group of persons whether actively engaged in farming or not or are may be from any governmental or non-governmental organisation or from any local community in India can contribute if they have evolved any new variety and report its finding to the authority.If it is satisfied that such village or local community has contributed significantly to the evolution of the variety which has been registered under this Act, it shall report its findings to the Authority. After such inquiry as it may deem fit, that the variety with which the report is related has been registered, it may issue notice in the prescribed manner to the breeder of that variety and after providing opportunity to such breeder to file objection. And then grant such sum of compensation to be paid to a person or group of persons.

13. **Section 42** gives the protection to the innocent farmer against the innocent infringement by protecting that innocent farmer from the infringement of right that he actually made but was not aware of the existence of such right.

14.**Exemption from fees** given under section 44 of the Act No proceeding fees would be charged from farmer or group of farmers or village community before

any authority or registrar or the Tribunal or High court. Here fees include the fees payable for inspection of any document or even copy of any decision.

15. **Compulsory Licence** is provided under section 47 The legislation authorizes the granting of compulsory licenses to ensure availability of seed plant or reproductive material of the protected variety in reasonable quantity at reasonable price if

i) three years have elapsed since the date of issue of a certificate of registration

ii) reasonable requirements of the public for seeds or other propagating material of the variety have not been satisfied, and

iii) the seed or other propagating material of the variety is not available to the public at a reasonable price.

After the expiry of a period of three years from the date of issue of a certificate of registration of a variety, any person interested may make an application to the Authority for obtaining a compulsory license. The application can be made on the grounds that the reasonable requirements of the public for seed or other propagating materials of the variety have not been satisfied or that the seed or other propagating material of the variety is not available to the public at a reasonable price.

16. Section 65 focuses on **Suit for infringement** the suit for infringement of the registered variety under this particular act or relating to any right in the variety registered under this act shall not lie in any of the inferior court to the District Court within local limits of whose jurisdiction this cause of action has taken place.

Rule framing power is vested with central government. Under the Plant varieties and farmers' right rules, 2003 certain rules are followed as

i) **Rule 66 and 67** deals with the claim and process for compensation. Compensation can be claimed by farmer, group of farmers or the organisation of the farmers may make an application to the authority to claim for the compensation. Various procedures to be followed for claim for compensation like notice should be given to registered breeder about the claimed compensation received in respect of the registered variety.

ii) **Rule 68** deals with the notice under section 41 i.e right of communities. Once the notice received from the authority within three months from the notice registered breeder may file a notice. If the counter notice is not filed within stipulated time than it will be supposed that he has no opposition to such claim and accordingly such claim shall be decided. Once the opposition is received from the breeder, authorities give chance to both the parties of being heard and if proved may direct the breeder to pay compensation to the affected farmer, the group of farmers or the organisation of the farmers, as the case may be, as it deems fit. If notice is received from the centre notified in respect of claims filed by a person or group of persons or governmental or nongovernmental organisation for compensation and if satisfies to the authority than they may issue notice to the registered breeder or agent. The registered breeder or his assignee or registered agent may file objection to the claim for compensation within three months. The Authority shall give opportunity of being heard to both the parties and after deciding on the eligibility for and shall direct the breeder to pay compensation and deposit the requisite funds within a period of two months with the Gene Fund.

iii) **Rule 69** and **70** says of the manner of receiving benefit sharing and manner of applying the Gene fund under section 45 i.e. Gene fund. The breeders of varieties shall deposit the amount of benefit sharing. The authority shall pay the amount of benefit sharing as compensation required for use of genetic material towards evolution of new and essentially derived variety to meet the expense incurred for conservation and sustainable use of genetic resources and for the framing of schemes related to benefit sharing. The following purposes in accordance with the priority made hereunder may apply for Gene Fund.

1. Community of farmers to be supported and rewarded especially the communities engaged in conservation, improvement and preservation of genetic resources of economic plants;
2. Ex suite conservation capacity building to be done at local level by local body in particular regions identified as agro-biodiversity hot spots and for supporting in-situ conservation;
3. Benefit sharing and compensation in accordance to be needed.
4. Other operation cost of administering the Gene Fund

4.2.2.2 Bio-diversity Act, 2002

The Act was thought about because of India being party to the United Nations Convention on Biological Diversity signed at Rio de Janeiro on the 5th day of June, 1992. The Biodiversity Act, 2002, based on the Convention on Biological Diversity, regulates access to and use of genetic resources in India. Act aims to promote conservation, sustainable use and equitable sharing of benefits of India's biodiversity resources, including habitats, cultivators, domesticated stocks and breeds of animals and micro-organisms. This Act also focuses on benefit sharing, protection of traditional knowledge and prior informed consent.

The main focus of this act is on sustainable use of its components and fair and equitable sharing of the benefits arising out of utilization of genetic resources. The Act deals with the conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and other matters connected there with. The Act also emphasizes the distribution of benefits, the protection of traditional knowledge and the prior informed consent.

4.2.2.2.1The features of The Biological Diversity Act, 2002:

The Act broadly has the following features

1. For transfer of any kind of Indian genetic material outside the country permission from the Indian government is needed and even for claiming the patent over biodiversity or traditional knowledge.
2. Only the local communities were not restricted from using the biodiversity but other Indian nationals are not allowed to use biodiversity.
3. Various methods for sharing of benefits from the use of biodiversity like transfer of technology, financial returns, development and joint research, and even ownership on IPR, etc.
4. Efforts to preserve and sustainably use biological resources including habitat and species protection, projects on **Environmental Impact Assessments (EIAs),** using biodiversity into the various programmes and policies.
5. Various provisions to be implemented for the local communities to charge the fees from others for using their resources and knowledge.

6. To protect indigenous or traditional knowledge by incorporating the appropriate laws and other provisions like registration of the available knowledge.
7. Regulating the use of Genetically Modified organisms;
8. To support conservation and benefit sharing Setting up of National, State, and Local Biodiversity Funds;
9. Starting up various committees at local and central level like **Biodiversity Management Committees (BMC)** at the village level locally, **State Biodiversity Boards (SBB)** at state level, and **National Biodiversity Authority (NBA)** for central level.

The Act plays important role from the aspects of the farmers' rights point of view. As access to the traditional knowledge and the benefit sharing are the features of which effect farmers. The Act consists of 12 chapters with 65 sections dealing with it.

1. The act extends to the whole of India.

2. **"Benefit claimers"** come under section 2(a) of the act which deals with the conservers of the biological resources and their by-products. They are the creators and holders of knowledge and information relating to the use of such biological resources, innovations and practices associated with such use and its application.

3. **"Biological diversity"** comes under section 2(b) of the act which deals with the variability among living organisms from all sources and also with the ecological complexes of which they are part. It also includes diversity within species or between species and of eco-systems.

4. **"Biological resources"** comes under section 2(c) of the act which deals with the meaning of , animals and micro-organisms or parts thereof and also their genetic material and by-products (excluding value added products) with actual or potential use or value, but does not include human genetic material.

5. **"Bio-survey and Bio-utilisation"** comes under section 2(d) of the act which deals with survey or collection of species, subspecies, genes, components and extracts of biological resource for any purpose and includes characterization, inventorisation and bioassay. Inventorisation hereby means detailed itemized list, report or the record of the things which are with the possession; it's basically a periodic survey of all goods and materials in stock.

6. **"Commercial utilisation"** comes under section 2(f) of the act which deals with uses of biological resources for commercial utilisation such as drugs, industrial enzymes, food flavors, fragrance, cosmetics, emulsifiers, oleoresins, colors, extracts and genes used for improving crops and livestock through genetic intervention, but it does not include conventional breeding or traditional practices in use in any agriculture, horticulture, poultry, dairy farming, animal husbandry or bee keeping.

7. **"Fair and equitable benefit sharing"** comes under section 2(g) of the act which deals with sharing of as determined by the National Biodiversity Authority (NBA) under section 21 i.e. Determination of equitable benefit sharing where by granting the approval under section 19 and section 20 whereby transfer or biological resource or knowledge is done.

This is one of the main objectives of CBD and the Biodiversity Act. The idea behind this concept is that communities or individuals that have been instrumental in conserving biodiversity must have the benefit of continual use of the resources and not simply a mere share in the profit from commercialization of bio-resources and forms and associated knowledge.

8 **"Sustainable use"** comes under section 2(o) of the act which deals with use of the components of biological diversity in such a way were its left for the generations to come and also using it in such a way that more and more potentially to meet the needs.

9. Chapter 2 covers regulation of access to Biological Diversity whereby section 3 deals with certain persons not to undertake Biodiversity related activities without approval of National Biodiversity Authority. Section 4 deals with results of research not to transferred to certain persons without approval. Section 6 No application be filed for intellectual property rights without national biodiversity authority.

10. Section 8 covers National Biodiversity Authority central government by the official gazette notification for the purpose of this Act may form a body.

11. **Chapter 5** covers approval by the National Biodiversity Authority whereby section 19 deals with approval by National Biodiversity Authority for undertaking certain activities. Whereas **section 20** covers Transfer of biological resource or knowledge which means without the permission of the National Biodiversity Authority nothing can be transferred. **Section 21 (1)** deals with the Determination

of equitable benefit sharing by National Biodiversity Authority shall while granting approvals ensure that the terms and conditions subject to which approval is granted secures equitable sharing of benefits arising out of the use of accessed biological resources, their by-products, innovations and practices associated with their use and applications and knowledge relating thereto in accordance with mutually agreed terms and conditions between the person applying for such approval, local bodies concerned and the benefit claimers. **Sub section (2)** says determining the benefit sharing given effect in following manner in clauses given below

(a) Says granting the joint ownership of IPR to National Biodiversity Authority NBA or where the benefit claimers are identified for such benefit claim.

(b) Deals with transfer of technology.

(c) Location of production, research and development units in such areas which will facilitate better living standards to the benefit claimers.

(d) deals with association of Indian scientists, benefit claimers and the local people with research and development in biological resources and bio-survey and bio-utilisation.

(e) setting up of venture capital fund for aiding the cause of benefit claimers.

(f) payment of monetary compensation and other non-monetary benefits to the benefit claimers as the National Biodiversity Authority may deem fit.

Sub section 3 says if any amount where any amount of money is ordered by way of benefit sharing, the National Biodiversity Authority may direct the amount to be deposited in the National Biodiversity Fund. Given that where the biological resource or knowledge was a result of the access from group or individual groups or the organizations. NBA may direct the amount shall be paid directly. Sub section 4 deals with NBA with consultation with the Central Government may make regulation or frame guidelines.

12. Under **section 40** of the Act Central Government has given power to exempt certain biological resources from the application of the provisions of this Act. No such notifications have been issued as of now, the effect being that, all plants, animals or micro organisms or their parts should be accessed only in accordance with the provisions of the Act.

13. **Chapter 10 deals with Biodiversity Management Committees** where section 41 discuss that every local body shall constitute a Biodiversity Management Committee within its area for the purpose of promoting conservation, sustainable

use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity. Where "folk variety" means a cultivated variety of plant that was developed, grown and exchanged informally among farmers.

14. Conservation and Effective Management of Traditional Knowledge Relating to Biological Diversity Rules, 2009 Where the word "Traditional Knowledge" is defined as , "**the collective knowledge of a traditional community** including of a group of families, on a particular subject or a skill and passed down from generation to generation, either orally or in written form, relating to properties, uses and characteristics of plant and animal genetic resources; agricultural and healthcare practices, food preservation and processing techniques and devices developed from traditional materials; cultural expressions, products and practices such as weaving patterns, colors, dyes, pottery, painting, poetry, folklore, dance and music; and all other products or processes discovered through a community process including by a member of the community individually but for the common use of the community"[107] The traditional knowledge possessed by the communities including farmers into that helps in access to benefit sharing.

However, the Act does not give existing right holders the opportunity to defend their rights. In cases where the benefits are distributed in the form of funds, the Authority may allocate the payment to a Biodiversity Fund, the proceeds of which may then be paid to the applicants or used in general for activities of Biodiversity management. Potential candidates do not automatically have access to certain benefits. Moreover, the Act is remarkably silent in dealing with traditional and local knowledge and merely requires the central government to respect and protect that knowledge such knowledge. As the preservation of the traditional knowledge play a very vital role for the protection of the seeds and also saving of farmers rights.

[107]Rule 2(v) Conservation and Effective Management of Traditional Knowledge Relating to Biological Diversity Rules, 2009

4.2.2.3 Seeds and GMO: Indian Legal Position (3j Patent)

Advances in plant breeding, the development of fertilizers, herbicides and pesticides, various cultivation techniques and the introduction of genetically modified crops have significantly increased agricultural productivity. Advances in plant breeding have led to the development of plant varieties with superior properties such as resistance to drought, stress or disease, large seed and superior yield. These changes have also changed the nature of proprietary technologies and Intellectual Property Rights (IPR). Agricultural patents cover technologies ranging from the chemical composition of fertilizers, pesticides, herbicides, and devices to gene sequences and methods of plant genetic transformation.

In India, a new product or process involving an inventive step that can be applied industrially is an invention within the meaning of Section 2(j) of the Patents Act 1970, as amended in 2005. However, **section 3 of the Indian Patents Act, defines what are not inventions**. The Patents Act provides patent protection for inventions. An invention is defined as a new product or process that involves an inventive step and is applicable industrially. Article 3 of The Patents Act lists what is not an invention in India. To qualify for a patent in India, the claimed invention must not only meet the eligibility criteria, nor be excluded from the list of exceptions in Section 3.

In this section, section 3(j) is the most relevant section for GM seeds. Plants, whole or partial, seeds, plant varieties and essentially biological processes of plant production and propagation are categorically excluded from patentability. Section 3(j) was introduced when the Patent Amendment Act of 2002 was amended to comply with India's obligations under Article 27 of the Agreement on Trade-Related Intellectual Property Rights (TRIPs). Although the Indian provision is similar to Article 27, it makes important changes. For example, Article 27 refers to "plants or animals", but Section 3(j) also refers to "plants and animals, in whole or in part". While Article 27 says nothing about "seeds", Section 3(j) expressly mentions "seeds" as excluded. To understand the reasons for these changes and to better understand the correct scope of Section 3(j), it is helpful to review the presentation history. Under Article 27.3(b) of the TRIPS Agreement, members may exclude plants, animals, varieties and 'essentially' organic processes from

patentability. Biology and microbiology are patentable. Article 27.3(b) also states that plant varieties must be protected by a patent or a system specially created for that purpose ("sui generis") or a combination of both. Immediately Contracting States should reconsider Article 27.3(b) in 1999. In its opinion of 20 October 1999, India commented on the patenting of life forms. Section 3(j) was incorporated into the Patent Act following the amendment of 2002, Section 3(j) of India's Patent law, amended to implement the Trade Related Intellectual Property Rights Agreement of the WTO.

Section 3(j) excludes from patentability "plants and animals in whole or in any part thereof other than microorganisms but including seeds, varieties, and species, and essentially biological processes for production or propagation of plants and animals".[108]

This article is an implementation of article 27(3) (b) of TRIPs.

Section 3 (j) excludes in whole or in part the plants and animals of the invention, including seeds, varieties and species, and essentially biological processes for their production or propagation. However, the law does not define the term "essentially biological process", which is contrary to the **European Patent Convention (EPC)**, which according to Rule 23 b (5) the process for the production of plants or animals is essentially biological, being exclusively natural Phenomena such as crossing or selection. Various patents are granted for the manufacturing process of transgenic plants or animals. This procedure consists of a technical or human intervention that cannot be considered as a substantially biological process. Therefore, transgenic plants and animals cannot be considered as a patentable subject, but their method of production can be considered as patentable. However, in India, plants and plant varieties are protected by the Protection of Plants Varieties and Farmers Right Act, 2002.

With respect to microorganism inventions, the micro-organism section expressly excludes non-patentable inventions from the group. Microorganisms modified by human intervention are considered patentable provided they meet the other mandatory criteria for patentability. On the other hand, the patentability of Section

[108]Section3(j) of Indian Patent Act, 1970

3 (c) of the Indian Patent Act explicitly excludes the patentability of naturally occurring microorganisms, according to which "the discovery of living objects or non-living matter in the nature is not an invention.

The third dimension concerns the detection of microorganisms in the context of the section 3(c). The section calls for patenting microorganisms, non-biological and microbiological processes. This would mean that the microorganism, which is the genetically modified bacterium, would have passed the patentability test. India intends to propose human-made gene sequences in the form of "chemicals" and not in the form of life forms such as patents or plants. The introduction of the terms "seed" and "varieties" in Section 3 (j) is also important in that they exclude all types of seeds and varieties without qualification from patentability. Therefore, seeds and varieties of natural and genetically modified origin in India are excluded from patent protection. The words " any part thereof " in Section 3 (j) logically include all parts of plants and animals such as genes, enzymes, proteins, cells, cell lines, tissues and tissues which in turns organs that would not be patentable. Therefore, genes or nucleic acid sequences and natural proteins are not patentable. However, synthetic or artificial nucleic acid sequences and proteins can be patented if they meet other patentability criteria. Such nucleic acid sequences or proteins are treated as chemical compositions. India's arguments for reviewing Article 27.3(b) refer to "microorganisms" and "biological processes". Although microorganisms are patented, they have not been defined in patent law. Microorganisms are generally defined as any microscopic organism, including bacteria, viruses, unicellular algae and protozoa, and microscopic fungi. They are considered a different category of life than plants and animals. The cells and tissues of plants and higher animals, although microscopic in size, are not microorganisms.

A "biological process" refers to any biological activity that a living organism performs at the molecular, cellular or organizational level. The Patents Act published in 2013 by the Indian Patent Office (IPO) and the Biotechnology Guidelines (the Guidelines) do not define the term "Essentially Biological Processes ", but allow conclusions to be drawn on the meaning of this term. For example, in the guidelines, a claimed process involving the crossover phase for the

production of pure hybrid seed, plants and crops would be essentially a biological process and would therefore not be allowed in Section 3 (j).

4.3 Analysis of Farmers' rights

UPOV that farmers' world over, particularly from the biodiversity rich developing countries including India, are singularly responsible for creation and conservation of rich genetic resources in all crop plants which provide the base and launch pad of global agriculture. No new plant variety can be developed, now or in future, without these genetic resources and associated traditional knowledge. Hence, Farmers' Rights are defined as the rights arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in the centres of origin.

UPOV has been revised in 1978 and 1991 and the revisions have tended to broaden the scope of the rights of commercial breeders while concurrently reducing the rights afforded to farmer breeders. Under the UPOV 1978, most of the countries introduced farmers' rights. The scope of the "farmer's rights" varies under different national laws, but generally farmers are allowed to continue their tradition of using a part of one year's harvest as seeds for the next year and also to exchange seeds with their farm neighbours. These activities are not considered part of "commercial marketing" under Article 5 (1) 3 of the 1978 Convention. But this form of farmers' rights falls well short of what is allowed under the farmers' rights provisions in the PPVFR Act, which enshrines the rights of farmers' as breeders, farmers as conservators and farmers as cultivators, into law. Farmers under this PPVFR Act are able to save, use, re-sow, exchange or share or sell their farm produce, including seeds. However, they cannot sell branded seeds.

The latest version of the convention has, for instance, made optional the previously compulsory exception to breeders' rights in favour of farmers. It has also strengthened the purview of plant breeders' rights by allowing the registration of 'essentially derived varieties' which could previously be freely commercialized by anyone and by extending the scope of protection to harvested material of the protected variety.

The present PPVFR Act is in compliance with Article 27 3 b of TRIPs. Although India has decided to be part of UPOV it is apprehended that the Indian legislation would have to undergo several change to be in conformity with the UPOV 1991 version, which is presently open for signature. Hence, another line of argument propounded by the champions of farmers rights is, that why do we need an International approval for a National legislation.

New chapter on farmers' rights, putting a stamp of legislative authority on farmers' claims,[109]thus came into being a unique provision that not only provided plant variety protection to breeders but also granted rights to farmers over their plant varieties. It was an implied acknowledgement of the fact that farmers are as much holders of intellectual property as the modern biotechnologically assisted plant breeders.[110] Further codification for the first time of rights of farmers where in India has expanded its scope and legally recognised Farmers' Rights as well, to retain the freedom of farmers to produce, sell and modify seeds and of the scientists to breed new varieties using the breeders' varieties.

Under the conditions under which the benefits of the use of genetic resources should be shared with the countries where the resources are geographically located were coined under the Convention on Biological Diversity. Indeed, the convention gave the recognition to states sovereignty over their natural resources and the need to share the benefits fairly and equitably arising out of the use of genetic resources. Through active participation, farmers and rural people must exercise their concrete power over genetic resources and the rural population on both sides of the formal system, taking into account their technical, institutional and political analyses, experiences and changes at the same time respecting it's their international obligations and the consideration of the sustainability of biodiversity. The reason of preserving our genetic diversity is to encourage innovation from these biogenetic resources to improve people's quality of life. This must always be taken

[109]Lok Sabha Secretariat, Joint committee on *the protection of plant varieties and farmer's rights bill, 1999*. Report of the Joint Committee presented in the Lok-Sabha on August,2000
[110]Brahmi, P., S. Saxena& B.S. Dhillon. *Protection of plant varieties and Farmer's Rights Act of India*. *Current Science,* 86 (3), pp. 392–8. 2004.

into account before any change to the invention or the Directive; otherwise our existence would be in danger.

The issues in particular the conservation of biodiversity raise questions about farmers' rights and allow traditional farmers to understand nature and develop the multitude of traditional agricultural practices around the world. Multidimensional diversity not only means a variety of cultures, but also a variety of applications for a single plant. However, at the end of the twentieth century and at the beginning of the twenty-first century, the richness and extent of this diversity is particularly vulnerable, as the IPR system is applied to agriculture, which does not recognize the farmers' contribution to agriculture.

It remains to be seen if farmers' rights should be seen as a form of intellectual property rights or development, for example as measures to promote the preservation of traditional varieties. Without an urgent consideration of this ambiguity, farmers' rights could become a theoretical and unrealistic concept.

After studying and analysing the various legislations dealing with Farmers Rights: Nationally and internationally, the researcher shall study and analyse the judicial view point in this regard in the next chapter. The researcher has tried to find out and study the important and landmark judgements, wherein the judiciary has dealt with the Seed Law, IPR, PPVFR Act and various provisions of Consumer Protection Act.