

PLANT VARIETY PROTECTION: Salient features

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Plant Variety Protection (PVP) in the form of Plant Breeder's Rights has been in existence for a long time especially in the United States and has substantial impact on research in agriculture. Plant Breeder's Rights (PBR) are granted for plant varieties which exhibit the following characteristics:

1. Stability (over repeated propagation)
2. Homogeneity (uniformity of salient characteristics over a single planting)
3. Distinctness

TRIPS Agreement related to Agriculture

Article 27.3 of TRIPS allows members to exclude from patentability, plants and animals other than micro-organism, and essentially biological processes for the production of plants and animals other than non-biological and microbiological processes. This actually means that:

- ◆ All types of genes can be patented as long as an inventive step has been involved to identify, isolate, modify and / or transfer them. Plants and their offspring containing patented genes, and possibly the entire transformed plant may be protected. Plant related inventions which are considered against the moral order may not have protection.
- ◆ Plants found in the wild and other land races cannot be protected under an IPR system as they do not meet the requirements for protection.
- ◆ Plant varieties and inbred lines may be patentable or protected under an effective *sui generis* system. Members of the WTO can, in principle, design this system.

Members have to provide protection for plant varieties either through patents or effective *sui generis* system or combination thereof. Thus TRIPS offers three options for protection of plant varieties:

1. Not to exclude plant varieties from patentability
2. To exclude plant varieties from patentability and grant *sui generis* rights for the protection of plant varieties
3. Provide protection to plant varieties through patents and *sui generis* system

Proposed *sui generis* system for plant varietal protection in India.

India chose to opt for a *sui generis* system for protection of plant and plant varieties. Recently, the Protection of Plant Varieties and Farmer's Rights Act 2001 (PPVFR Act 2001) was enacted by India. The major objectives of the act were to stimulate research and private plant breeding, enhance technology transfer, foreign investment

and trade, promoting conservation of agro biodiversity and sustained use of varieties and facilitating access to genetic resources and sharing benefits. The objectives as stated are "to provide for the establishment of an Authority to give an effective system of protection of the rights of the plants breeders and farmers, and to encourage the development of new varieties of plants and to give effect to sub-paragraph (b) of paragraph 3 of article 27 in Part II of the Agreement on Trade Related Aspects of Intellectual Property Rights."

The unique features of the PPVFR Act, 2001 are:

1. Protection for new plant varieties, essentially derived varieties, extant varieties and farmers' varieties. Farmers' varieties and extant varieties need not fulfill the requirement of newness.
2. Safe guard for genetic use restriction technology such as "terminator gene"
3. Recognizing farmers as innovators, conservers, breeder, preserver of plants and plants varieties in addition to cultivators.
4. Simplified procedure for protection of farmer's variety.
5. Special arrangements for benefit sharing
6. Creation of gene fund conservation of agro biodiversity
7. Special provision for compensation to the farmers in case material supplied is not meeting the expected performance.
8. Waiver of fees to farmers
9. Failure to supply adequate material to farmers at a reasonable price is made a ground for compulsory license
10. Establishment of Tribunal Board.

Thus the Indian PPVFR Act 2001 is harmonious with TRIPS, CBD and UPOV. The Indian PPVFR Act, 2001, includes feature of the UPOV, which sets the minimum standards for PBR protection for contracting parties (Countries). The UPOV Convention was revised in 1991, and the Indian Act includes elements of both the revised act of 1991, and the act of 1978 together with some new features. PBR's are subjected to two exemptions- the farmers and the researchers. The first confers on the users (farmers) the right to retain part of the harvest for subsequent planting as seed. The second exemption permits breeders (researches) to use a protected variety in subsequent breeding experiments, the outcome of which qualifies for protection under certain conditions. Thus PBRs constitute a weaker form of protection than patents. Different countries have been following different systems of PVP to suit their own needs.

Registration of new plant varieties

- (1) A new variety shall be registered under this Act if it conforms to the criteria of novelty, distinctiveness, uniformity and stability.
- (2) No variety shall be registered under this Act if it contains any gene or gene sequences involving any technology including terminator technology which is injurious to the life or health of human beings, animals or plants.
- (3) A new variety shall be deemed to be

- (a) **Novel**, if at the date of filing of the application of registration for protection, the propagating or harvested material of such a variety has not been sold or otherwise disposed of by or with the consent of its breeder or his successor for the purpose of exploitation of such variety –
- i) in India earlier than one year, or
 - ii) outside India in the case of trees or vines earlier than six years, or, in any other case earlier than four years before the date of filing such application.
- (b) **Distinct**, if it is clearly distinguishable by at least one essential characteristic from any other variety whose existence is a matter of common knowledge in any country at the time of filing that application.
- (c) **Uniform**, if it is sufficiently uniform in its essential characteristics subject to the variation that may be expected from the particular features of its propagation.
- (d) **Stable**, if its essential characteristics remain unchanged after repeated propagation, or in the case of a particular cycle of propagation, at the end of each such cycle.

Essentially derived variety:

In respect of a variety (in this clause to be called “ the initial variety”), an ‘essentially derived variety’ shall be said to be essentially derived from each initial variety when it:

- (i) is predominantly derived from such initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety;
- (ii) is clearly distinguishable from such initial variety; and
- (iii) conforms to such initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety except variation in such characteristics which result in the process of derivation.

FARMERS’ RIGHTS

In case of UPOV 1991, the farmer’s right to save the seeds for subsequent use is actually forbidden and is conditional upon ‘legitimate’ interests of the breeders’, i.e. the royalty that should be paid to the breeder. The Indian PVP Act goes beyond allowing the farmers privilege since it explicitly recognizes community and farmers rights by including a specific clause on the subject. Nothing shall affect the right of a farmer to save, use exchange, share or sell his farm produce of a protected variety except in case where the sale is for the purpose of reproduction under commercial marketing arrangement (Ch. VII, Sec. 31). The Farmers’ right also include the rights arising from conserving, improving and making available the genetic resources. However, the concept of farmers rights suffers from the weakness that at present no internationally accepted instrument exists which can address problems such as who should be compensated, how, with how much and for precisely what.

RESEARCHERS’ RIGHTS

There will be a free access to protected varieties for conducting experiments or for bonafide research purposes. The use of variety by any person as an initial source of variety for the purpose of creating other varieties (Ch. 7, Sec. 30). Authorisation of

breeder will be needed for repeated use of protected variety as a parental material for commercial production or marketing arrangement.

RIGHTS' OF COMMUNITIES

Any person/organization may stake a claim on behalf of a village or local community in regard to the contribution of that village or local community in the evolution of a variety. Compensation may be granted by PVP authority for their contribution in evolution of a new variety. The quantum of compensation will be determined by the Authority (Ch X. Sec. 48).

Sharing of benefits accruing to a breeder is provided for in case of a variety that is developed from indigenously derived plant genetic resources(of governmental institutions, non-governmental organizations, private breeders, village and tribal communities).

Benefit Sharing

In relation to a variety, 'benefit sharing' means such proportion of the benefit accruing to a breeder of such variety or such proportion of the benefit accruing to a breeder from an agent or a licensee of such variety, as the case may be, for which a claimant shall be entitled as determined by the Authority.

National Gene Fund

A National Gene Fund is to be created using benefit sharing proceeds, royalties, communities' compensation, and contributions. The Fund will be utilized for (through appropriate schemes) disbursing share of organizations/individuals, compensation to village communities, maintenance and conservation of plant genetic resources and varietal development. (Ch. XII, Sec. 52).

COMPULSORY LICENSING

At any time after the expiry of three years after registration of a variety, any person may apply to the Authority alleging that the reasonable requirements of the public for seeds or other propagating material of the variety have either not been satisfied or unavailable at a reasonable price and request for grant of compulsory license to produce, distribute and sell the seed or other propagating material of a variety. (Ch. X, Sec. 41-49)

DUS TESTING

There are certain requirements for making a variety eligible for protection. The variety must be distinct, uniform and stable (DUS). The variety must have a denomination and must be novel. For being novel, the variety should not have been sold (offered for sale) or marketed earlier than one year for the country and four years for other countries where protection is desired. In the case of trees and wines it is six years.

For being distinct the variety should be clearly distinguishable from any other variety of common knowledge. The variety shall be deemed to be sufficiently uniform (homogeneous) if, subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its relevant characteristics. The variety shall be deemed to be stable if its relevant (essential) characteristics remain unchanged after repeated propagation or, in the case of a particular cycle of

propagation or, in the case of a particular cycle of propagation, at the end of each cycle.

In India for DUS testing, we need to set up centers, which can carry out these tests. Crop-wise standardization of field testing parameters and table of characteristics for DUS testing needs to be worked out. Location for testing needs to be identified. We should undertake collection of reference varieties and other varieties as standard for phenotypic expression of a character. A database for different plant species for the different characteristics must be developed. Storage facilities will have to be created for storing the plant varieties. We need to create lead Centers for facilitating DUS testing including development of appropriate technology using morphological, biochemical and molecular markers.

A National research center for DNA fingerprinting which is set up at National Bureau of Plant Genetic Resources (NBPGR), New Delhi can help in the identification of a plant variety using molecular markers. We need to identify and strengthen more centers for DUS testing.

A comparison of salient features of UPOV Acts of 1978 and 1991 with those of the PPVFRA Act will also be presented.

