

Ensuring Food Security and Protection of Plant Varieties

Dr. Sreenivasulu N.S* and Dr. Chandranayak**

Majority of the Indians are farmers or plant breeder who endeavors in the agriculture sector are providing for a leap for the development of the economy and as well the nation. The contribution of these farmers and breeders to the society is enormous in facilitating staple food for the hunger needs of the society. It was felt that there is a need to acknowledge and protect the interests of the farmers and plant breeders in order to encourage them in feeding the hunger needs. It was felt that their endeavors should be identified through rewards. In fact, it was a long-standing urge to evolve a suitable and comprehensive legal framework where in farmers and breeders are encouraged and rewarded. International community identifying the need evolved a convention on the protection of plant varieties to which India is a party. Further, TRIPS (Trade-related Aspects of Intellectual Property Rights) agreement a comprehensive legal framework on intellectual property rights stressing on the significance of farmers and breeders contribution mandates its member states to evolve a sui generis system for the protection of plant varieties. India following the suit brought up its law on the protection of plant varieties, i.e. Protection of Plant Varieties and Farmers Rights Act, 2001, where in it offers protection for plant varieties and rewards the efforts of farmers and plant breeders. The present paper focuses on the legal framework on the protection of plant varieties and discusses how effective the same is in rewarding the endeavors of farmers and breeders. It tries to throw light on the mechanism for the protection of plant varieties and the legal and scientific requirements that a variety needs to satisfy before obtaining the protection. The paper also conducts a study on the peculiar features of Indian plant variety system such as; benefit sharing by the community groups and farmers rights.

1. Introduction

Agriculture sector is the major source of income for our economy. It would not be wrong or unrealistic in saying that “Indian economy is depending on the income generated from agriculture”. India is a country where two-thirds of the population is dependent on agriculture either directly or indirectly. Agriculture has played and is playing a significant role in the building of the nation’s economy. “The number of people without enough food to eat on a regular basis remains stubbornly high, at over 800 million, and is not falling significantly. Over 60 per cent of the world’s undernourished people live in Asia, and a quarter in Africa. The proportion of people who are hungry however, is greater in Africa (33 per cent) than Asia (16 per cent). The latest FAO figures indicate that there are 22 countries, 16 of which are in Africa, in which the undernourishment prevalence rate is over 35 per cent (FAO, 2003).”¹

2. Food Security and India

Developing countries are facing a tough battle against time in safeguarding their natural resources under changing global environment. This situation has arisen particularly after establishment of the World Trade Organization with effect from 1st January 1995. Of the several World Trade Organisation (WTO) agreements, the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) is of great significance for most developing

* Professor of Law & Head, School of Business Laws, National University of Juridical Sciences, Salt Lake City, Kolkata, India

** Project Scientist, Department of Studies and Research in Biotechnology, University of Mysore, Mysore, India

countries since its ratification by member countries implies important changes in their respective intellectual property laws. Notably, at the time of signing of the WTO Agreement, Intellectual Property Rights (IPRs) laws in developing countries were nil or relatively under-developed compared to developed countries whose laws were already mostly in conformity with the TRIPs Agreement (Carlos *et al.* 1998).² Food security has been a major developmental objective in India since the beginning of planning. India achieved self-sufficiency in food grains in the 1970's and has sustained it since then. But the achievement of food grain security at the national level did not percolate down to households and the level of chronic food insecurity is still high. Over 225 million Indians remain chronically under nourished. In 2000-01, about half of the rural children below five years of age suffered from malnutrition and 40 per cent of adults suffered from chronic energy deficiency. Such a high level of wasting away of human resources should be a cause for concern.

3. India and WTO

World Trade Organisation (WTO), established in 1995, aims to provide institutional and regulatory mechanisms to promote world trade including agricultural commodities. India is one of the founding members of WTO along with 134 other countries. India's participation in an increasingly rule-based system in governance of International trade, would ultimately lead to better prosperity for the nation. Various trade disputes of India with other nations have been settled through WTO. India has also played an important part in the effective formulation of major trade policies. By being a member of WTO several countries are now trading with India, thus giving a boost to production, employment, standard of living and an opportunity to maximise the use of the world resources. Being a signatory to WTO agreement, India respond with enactment of protection of Plant Varieties and Farmer's Rights Act, 2001 to promote Indian seed Industry and to provide farmers the best available varieties besides protecting interests of plant breeders, researchers and farmers.

Protection of plant varieties was a long-standing and deeply felt demand. India being dependent on the agriculture sector, there were moves to accelerate the development in the sector in order to foster the development of the economy. In this context, it is very much essential to protect the endeavors in the agriculture sector. A plant variety a result of endeavours in the sector attracts special attention here. Traditionally, farmers and breeders involve in evolving new varieties of plants capable of meeting the needs of the dynamic society. Researches in the agriculture sector are based on the traditional methods practiced by the farmers and breeders. Farmers and breeders played significant role in the conservation and improvement of plant genetic resources and use of such resources for the development of new varieties. Research in the agriculture field mainly focuses on evolving new plant varieties capable of catering the modern day needs. Research in this field involves huge investment and highly laborious efforts. Such laborious efforts deserve protection. At the same time farmers and other groups contributed to the conservation of plant genetic resources and in making them available for use in evolving new varieties deserve recognition through rewards. Protection of such endeavors encourages further research in the field resulting in the growth of the industry and in turn the development of the economy. Therefore, there is an urgent need to encourage research in the agriculture sector by offering protection to the newly evolved plant varieties. At the same time, the efforts of farmers and breeders in the development of new varieties shall also be protected.

4. Plant Variety

Before going for discussing the intricacies involved in the protection of plant varieties, it is pertinent to know what does a plant variety mean? The Protection Of Plant Varieties And Farmers Rights Act, 2001 defines Plant variety to mean—"a plant grouping except microorganism within a single botanical taxon of the lowest known rank" which is distinct, stable, uniform and novel compared to the existing varieties. It includes propagating material of such variety, extant variety, transgenic variety, farmer's variety and essentially derived variety.³ Propagating material means any plant or its component or part thereof including seeds capable of regenerating into a plant.⁴ Extant variety means a variety, which is a part of public domain or common knowledge of farmer's variety available in India.⁵ Farmers variety is given a meaning as a variety which has been traditionally cultivated and

evolved by the farmers in their fields or a wild relative or land race of a variety about which the farmers possess the common knowledge.⁶ Essentially, derived variety in the sense a variety essentially derived from an initial variety or derived from a variety that is predominantly derived from such initial variety retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety but clearly distinguishable from the initial variety.⁷ Transgenic variety is a variety possessing foreign genes incorporated unnaturally. It is variety, which is a result of genetic engineering. A variety defined under the Act means and includes a plant variety which may be an extant variety or farmers variety or essentially derived variety or transgenic variety its parts, its propagating material and its seeds.

5. Protection of Plant Varieties

A registered plant variety is protected from exploitation except by the breeder who has registered it after having worked on it. A farmer or breeder intending to get protection for their newly evolved variety shall apply for registration under the Act. The Plant Varieties Authority under the Plant Varieties Act intends to provide for the registration and documentation⁸ of new plant varieties. For all the above practical purposes, the authority is vested with the powers of Civil Court.⁹ For the purpose of registration of new plant varieties there established a Registry known as the Plant Varieties Registry.¹⁰ Registration is done through the branches of the Registry established at different locations throughout the country. Registry maintains a register called The National Register¹¹ of plant varieties, which is kept at the head office of the registry. The details of the registered plant varieties such as; its silent features, its denomination, seeds, propagating material, along with the name and addresses of the breeder, their rights are entered in the National Register.

6. Determination of Credentials of a Variety

A variety, which is not prohibited or excluded and confirming to the requirements under the Act, is registrable. A variety is registrable if it is novel, distinct, uniform and stable. Considering the knowledge in the public domain novelty of a variety is determined. If the knowledge in the public domain does not suggest the variety than the variety is said to be novel. A variety is distinct if its characteristic features are distinguishable from the existing varieties. A variety is uniform if it transfers its common characteristics to its next generation after propagation. A variety is stable if its essential characteristics are equally expressed in its next generation. A plant variety must possess certain prescribed characteristics under the Plant Varieties Act in order to be protected. In essence a variety must be novel, stable, uniform and distinguishable. A variety must be novel in the sense; it must be a variety newly evolved, which is not available in the public domain. A variety must be stable in expressing its characteristics; in the sense such variety must be stable in possessing and expressing its characteristics after its propagation. A variety must possess uniform and common features throughout its generations. Its uniform characteristic features must be transferred from generation to generation. The last characteristic feature of a variety is distinctiveness. A variety must be clearly distinguishable from other varieties. Any variety possessing all the above characteristic features is eligible¹² for protection and deserves protection.

7. Registration of Plant Varieties

It is only the breeder of the variety or his successor, assignee or any farmer group or any University or publicly funded agricultural institution or any person authorised who are eligible to apply for the registration claiming the newly evolved variety.¹³ Applications could be made either individually or jointly. Any variety that is not prohibited or excluded from registration could be claimed in the application.¹⁴ There are few varieties excluded from registration, such varieties could not be claimed in the application. In the public interest or common interest few varieties are excluded or prohibited from registration. Varieties exploitation of which is against public order or morality or prejudicial to human, animal and plant life and health or to the environment are excluded from registration.¹⁵ The Act specifically excludes a variety, which involves the use of any technology, which is injurious to human, animal, plant life or health from registration.¹⁶ In particular use of technologies such as terminator technology in evolving a variety leaves the variety incapable of reproduction. Varieties evolution, which involves use of the above technology, is totally excluded from registration. Terminator technology involves using of gene technology to

incorporate a gene into a plant, which terminates the plants capacity to reproduce. Moreover, a variety is not registrable if it is not identifiable¹⁷ or is not different from other existing varieties. On the same lines, if a variety is likely to deceive or confuse the public, or hurt religious sentiments of any class of India citizens is not registrable. Further, a variety is not registrable if its denominated name or emblem is prohibited from use.¹⁸ Dishonest denomination of a geographical name also leaves a variety unregistrable.

8. Process of Registration

Application shall be made in a prescribed form along with prescribed fee as specified in the Act and the regulations made there under. The application shall give information with regard to the varieties parental lines, its geographical location, acknowledgement of contribution of farmers or community group or tribal or rural families if any in evolving the variety.¹⁹ The application shall contain a declaration that the genetic material or parental material used for evolving, developing and breeding of the variety has been lawfully acquired. There shall also be an affidavit sworn by the applicant that such variety does not contain any gene or gene sequence involving terminator technology.²⁰ However, for a registration of a farmer's variety the above requirement does not apply.²¹ The application shall be accompanied by a deposit of seeds of a variety to conduct tests with regard to its evolution and also to test its conformity with the standards underlined under the Act.²² If the application is accepted it shall be advertised²³ to invite oppositions if any. Any interested person can file his opposition within three months from the date of the advertisement. Opposition may be on the following grounds, that:

- (1) The person opposing the application is entitled to the breeders right as against the applicant; or
- (2) The variety is not registrable under the Act; or
- (3) The grant of certificate of registration may not be in the public interest; or
- (4) The variety may have adverse effect on the environment.

On filing of opposition the registrar shall serve a copy of the notice of opposition on the applicant who shall within two months from the date of the receipt of such copy send a counter statement to the registrar, otherwise it shall be deemed that the applicant has abandoned his application.²⁴ Counter statement by the applicant shall be served on the opponent. Further, the registrar shall give an opportunity of being heard to both the parties before making any decision. While presenting their case parties may submit evidence in support of their claim. The registrar may decide the case on the facts after considering the grounds of opposition and evidence submitted therein by the parties. If the application is in conformity with the requirements under the Act and when no opposition is made or when opposition is made but the same is rejected, the registrar shall register the variety claimed in the application. On registration, the applicant shall be issued a certificate with the seal of the registry. The certificate shall be valid for nine years in the case of trees and vines and six years in the case of other crops. The certificate may be reviewed and renewed on payment of prescribed fee. However, the maximum period of protection after renewal shall not exceed eighteen years in the case of trees and vines in other cases fifteen years.²⁵ On registration of a variety the breeder enjoys rights to produce, sell, market, distribute, import or export the variety. Breeder can assign or licence his rights to any one provided the same is registered with the registrar. The terms and conditions of assignment or licence shall also be registered with the registrar. On the same lines breeder may authorize an agent to deal with his registered variety subject to conditions if any, provided the same is registered with the registrar.²⁶

9. Compulsory Licensing of a Registered Plant Variety

If reasonable requirements of the public²⁷ for seeds and other propagating material have not been satisfied it does constitute a valid ground to apply for compulsory licence.²⁸

However, application for compulsory licence shall not be made until the expiry of a period of three years from the date of issue of the certificate of registration of a variety. Compulsory licence shall be issued to undertake production, distribution and sale of the seeds or other propagating material of such registered variety. The authority shall issue an appropriate order only after hearing both the parties i.e. the applicant for compulsory licence and the

breeder of a registered variety to work on which application for compulsory licence is made. The grant of compulsory licence shall be in the public interest. The authority may subject the compulsory licence to any conditions that it deems necessary.²⁹

10. Benefit Sharing and Community Rights

Once certificate is issued it shall be published by the authority. The purpose behind publishing a certificate is to invite claims of benefit sharing if any to the respective registered plant variety. Any citizen of India or group of citizen of India or a firm governmental or non-governmental organization formed and established in India may submit a claim of benefit sharing. If such a claim is made a copy the same shall be served on the breeder of the respective plant variety to invite his oppositions to benefit sharing.³⁰ The authority shall give an opportunity of being heard to both the parties before making any decision. The authority after considering factors such as; the commercial utility of the variety, demand of the variety, the extant and nature of the use of genetic material of the person claiming benefit sharing in the development of the variety shall determine the amount of benefit sharing. The breeder of such variety shall deposit³¹ the determined amount of benefit sharing to a variety in the National Gene Fund constituted under the Act. The respective breeder is also required to deposit a quantity of seeds or propagating material of his registered variety.³² Further, the annual fee payable to the authority by way of royalty, compensation payable to “any local community, any national and international organisation and other sources for their contribution in the evolution of the registered variety”, by the breeder shall also be deposited with the National Gene Fund. Any village or local community in India may file any claim attributable to the contribution of the people of that village or local community in the evolution of any variety registered under the Act. If the authority is satisfied that such village or local community has significantly contributed in the evolution of a plant variety registered, it may grant such sum of compensation to be paid to such village or local community.³³

11. Changing Innovations in Crop Improvement Along Agricultural History

Wild Sp. / Bulk Selection → Land Race

Land Race → Pure lines or Populations

Land Race × Land Race → Hybridization and Selection - Cross derivatives

Pure Line × Pure Line → Commercial Hybrid

Derived variety + Genetic Engineering → Commercial Hybrid

Much of the farmer conserved PGRFA (Treaty on Plant Genetic Resources for Food and Agriculture), land races or traditional farmers' varieties are low yielding; in recent times, conservation of these PGR by cultivation involves high opportunity cost (in lieu of modern high yielding varieties), causing income loss and reduced house-hold food security in small farm agricultural systems. Cultivation of low yielding land races also implicates the national production needs of many developing countries, which have compelling need to increase production in every unit of land, cultivation of land races under marginal and pro-nature farming contributes to environmental service.

12. Basic aspects of Farmers' Rights under FAO Seed Treaty

Farmers rights possess certain aspects which would serve not only the farmers interests but also at the same the interest of the community at large which have been identified and promoted under the international treaties and norms. The following are the basic aspects of farmers Rights:

- A national responsibility
- A right to counterbalance the PBR on seed right:
- individual or community rights
- a wider concept to recognise farmers' roles
- To promote on-farm conservation, sustainable utilisation and supply of PGR
- Benefits sharing for use of PGR

13. Conclusion

Protection offered to plant varieties is a leap forward in recognising the efforts of farmers and breeders in the agriculture field. The Protection of plant varieties and Farmers Rights Act is a significant advancement in recognising the efforts of farmers or farmers groups or the endeavors of tribal or village communities. The system of benefit sharing and community rights guaranteed under the system is worth appreciating. Compared to patent system, which offers protection for a period of twenty years, the plant variety protection system offers protection only for six years. (Nine years in the case of trees and vines) The system of protection of plant varieties is really a manifestation of the desires of farmers who deserve their efforts to be recognised. The system is quite adequately equipped to secure the farmer community of their rights. The efficiency of the system depends on its proper implementation. Hence, proper implementation and enforcement of the system shall be guaranteed in order to best serve its purposes. Then only the objective behind the system flourishes towards the prosperity of the farmer's community.

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- 1 Food and Agriculture Organization, 2003.
 - 2 Correa, Carlos M. "Patents Rights", (eds.) Carlos M. Correa and Abdulquawi A. Yusuf, Intellectual Property and International Trade – The TRIPs Agreement, Kluwer Law International, London, UK 1998
 - 3 See, Section 2(r) of the Protection Of Plant Varieties And Farmers Rights Act, 2001
 - 4 See, Section 21(Za) for definition of the term "variety".
 - 5 See, Section 2(j) of the Act. Section 5 of The Seeds Act, 1966 also speak about an extant variety.
 - 6 See, Section 2(l) of the Act, "Farmers Variety".
 - 7 See, Section 2(i) "Essentially derived variety".
 - 8 See, Section 8 General functions of authority
 - 9 Authority is vested with powers of Civil Court such as power to receive evidence, administering oaths, enforcing the attendance of witness, compelling the discovery and production of documents and issuing commissions for the examination of witness.
 - 10 See, Section 12 Registry and offices thereof.
 - 11 See, Section 13 National Register of Plant Varieties
 - 12 See, Section 15, Registrable varieties
 - 13 See, Section 16 Persons who may make application
 - 14 See, Section 29 Exclusion of certain varieties
 - 15 See, Section 29 Exclusion of certain varieties
 - 16 See, Ibid
 - 17 See, Section 15 Registrable varieties
 - 18 See, Section 3 of The Emblem and Names (Protection from improper use) Act, 1950
 - 19 See, Section 40 Certain information to be given in application for registration.
 - 20 Variety which involves terminator technology is excluded from registration, See: Sec: 29 Exclusion of certain varieties.
 - 21 See, Section 18 Form of application, See also Section 39 Farmers right.
 - 22 See, Section 19 Tests to be conducted.
 - 23 See, Section 21 Advertisement of application
 - 24 See: Ibid
 - 25 See: Sec: 24 Issue of certificate of registration
 - 26 See, Section 28 Registration to confer right
 - 27 See, Section 48 when requirements of public deemed to have not satisfied.
 - 28 See, Section 47 Power of authority to make order for compulsory licence in certain circumstances.
 - 29 See, Section 51 Authority to settle terms and conditions of licence
 - 30 See, Section 26 Determination of benefit sharing by authority
 - 31 Ibid
 - 32 See, Section 27 Breeder to deposit seeds or propagating material
 - 33 See, Section 41 Rights of communities.