



International Environmental
Law Research Centre

Plant Variety Protection and Farmers' Rights

Towards a Broader Understanding

published in
24 Delhi Law Review 2002 (2003), p. 41

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<http://www.ielrc.org/content/a0304.pdf>*

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I. Introduction

The protection of plant varieties by means of intellectual property rights has been a subject of increasing importance in the aftermath of the adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs).¹ Plant variety protection in TRIPs is premised on the need to provide incentives to private sector actors to engage in plant breeding. The ultimate rationale for plant variety protection is the enhancement of food security through the provision of new improved varieties and improved availability of seeds through private sector channels.

The introduction of plant variety protection in India has significant implications since seed has traditionally been supplied overwhelmingly by farmers themselves and by the public sector, with the private sector playing a marginal role until recently in most crops. From a legal perspective, the protection of plant varieties remains an issue which is far from settled even though the Protection of Plant Varieties and Farmers' Rights Act was adopted in 2001 in compliance with TRIPs obligations. This is due to a number of reasons: Firstly, plant variety protection is an issue which goes beyond giving incentives to the private sector. In fact, while the TRIPs agreement is the direct trigger for the introduction of plant variety protection, it is not the only relevant treaty. The Biodiversity Convention and the International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA Treaty) are also of major importance.² (42) Secondly, while plant variety protection is directly related to innovation in the field of agriculture, it must also be understood in the broader context which includes conservation of biological resources. Thirdly, plant variety protection is opposed to the idea that agricultural management should be based on the sharing of knowledge and resources. This may be criticised from a conceptual and practical point of view. However, in the context of the widespread ratification of TRIPs and the increasingly tenuous nature of farmers' hold over their resources and knowledge, it is necessary to go beyond criticism and understand the additional requirements of the current international legal system with respect to the needs of farmers and more broadly of food security for all individuals.

This article first looks at some of the reasons for the introduction of plant variety protection and examines in particular the links with food security and the reasons for introducing plant variety protection measures. The second section surveys the property rights forms that have been proposed at the international level to provide plant variety protection and examines the existing legal regime in India with regard to plant variety protection. The third section argues that India needs to do more than it has done until now to implement a plant variety protection regime which truly fosters food security, provides traditional knowledge holders with secure property rights and rethinks farmers' rights in a broader context which takes into account the imperatives of food security and agro-biodiversity conservation alongside the already implemented focus on commercialisation.

II. Plant Variety Protection and Food security

Plant variety protection is intrinsically linked to food security. In fact, it can only be justified if it enhances food security. This section briefly explores the notion of food security before turning to the specific issue of plant variety protection.

Food Security

Food security can be understood at different levels, from the household to the international level.³ It is commonly held that at present there (43) are sufficient food supplies at the international level,⁴ and in the Indian context at the national level as well.⁵ However, studies indicate that with increases in population, and diminishing land availability, international and national food security will be a major concern in coming years.⁶ To achieve food security at the national level states require sufficient resources to either produce or import enough food to feed the whole population and an efficient distribution system to ensure everyone access. Ensuring food security at the household level implies that people must either have sufficient income to purchase food or the capacity to feed themselves directly by cultivating their own food.

Food security is directly linked to agro-biodiversity which is essential to promote resilience in farming. Reduction in diversity (through practices such as monoculture) increases vulnerability to natural forces, to pest/weed attack and other plant diseases.⁷ Therefore, agro-biodiversity is of primary importance for small-holder and/or subsistence farmers as it ensures both income-generation and household food security. Agro-biodiversity also provides ecosystem services on farms, such as pollination, fertility and nutrient enhancement, and insect and diseases management and water retention and thus makes for more productive farming, decreasing the number of external inputs required.⁸ Additionally, agro-biodiversity provides the raw material (or the genetic pool) for all crop-related biotechnology research and development. Diversity also has nutritional and social importance, where different varieties may contain different nutrients and health benefits or may be of differing cultural worth.

Small-holder and traditional farmers have customarily practiced farm-(44)ing techniques which conserve and enhance agro-biodiversity. In order to maximise productivity and minimise risk they have made certain selections whereby they have preserved old varieties, invented new varieties and adapted existing varieties to suit their local environment, thereby enriching agro-biodiversity.⁹ As a result, the promotion of such farming is relevant, not just for household food security, but also for guaranteeing food security at national and international levels as well. It is essential, therefore, that farmers retain control over plant varieties so that they may continue to innovate, improve and adapt varieties to suit changing needs and conditions.¹⁰ Additionally, since food security and access to food is also linked to adequate income, promotion of small-holder and labour-intensive farming is essential in developing countries like India, where a large percentage of people earn their livelihood from agricultural labour.

National policy plays a vital role in countering food insecurity. The principles emanating from the human right to food form an important basis for such a policy.¹¹ One of the State's obligations with respect to the human right to adequate food is that it must proactively engage in activities to strengthen people's access to and utilization of resources and means to ensure their livelihood and food security.¹² This includes measures such as land reform, ensuring physical and economic access to credit, natural resources, new technologies, rural infrastructure, irrigation, and provision of explicit farmers rights through legislation. Rigorous monitoring and planning by the State is required to ensure that cash crops do not replace food crops at the cost of food security.¹³ The State must also regulate private sector activities to ensure that they do not impinge on the resources of people who do not have access to sufficient food (which includes ensuring that private sector firms do not intrude on farmers (45) rights) and that their activities sufficiently promote agro-biodiversity.¹⁴ The State must also ensure that there is sufficient R&D in the area of under-utilised crops of high nutritional value.¹⁵

Law and Policy Rationale for Plant Variety Protection

At the outset, it must be mentioned that plant variety protection can have a narrow and broad meaning. The narrow view only considers plant variety protection from the point of view of commercial breeders and the needs of the biotechnology industry. The broader view acknowledges that there are different actors in plant variety management who deserve protection and who perform different functions, ranging from innovation (new seeds) to agro-biodiversity management.

India has had a number of reasons for introducing a plant variety protection regime. The most immediate trigger for the Plant Variety Act 2001 are the obligations undertaken in the WTO context, specifically under Article 27.3.b of the TRIPs Agreement. Article 27.3.b of TRIPs imposes on all countries the introduction of some form of intellectual property protection for plant varieties. However, it does not impose the introduction of patents and therefore leaves member states free to devise their own legal framework in this regard (*sui generis* option). While WTO membership imposed a specific deadline on India for the introduction of plant variety protection, other factors are also at play. India has, for instance, been subjected several times to the appropriation of local knowledge through patents in foreign countries (also referred to as biopiracy) in the past few years. While the introduction of intellectual property rights in the field of genetic engineering may not provide a direct counter to biopiracy, it raises the profile of traditional knowledge as an issue worthy of debate and protection. Beyond issues specifically linked to biopiracy, the development of an intellectual property rights regime related to plant varieties is generally reflective of broader trends towards the appropriation through private property rights of resources and knowledge previously deemed to be freely available to all individuals and nations. The trend towards privatisation of resources, knowledge and means of production has been tremendous in the past couple of decades. It finds expression in the field of agriculture with the progressive development of an international legal framework which favours private ownership of genetically (46) modified seeds over public access and sharing of knowledge. This has, for instance, been reflected at the national level with the increase in incentives given to the private sector seed industry.¹⁶

Plant variety protection can be justified by necessity, or in other words by WTO membership. Other substantive reasons also help justifying plant variety protection both from the perspective of commercial breeders, farmers and agro-biodiversity conservation. As far as commercial breeders are concerned, the rationale for the introduction of plant variety protection is that it will promote food security because genetic engineering offers humankind its only chance to significantly increase yields in coming decades in view of the shortage of arable land to produce more food for an expanding population. Interestingly, the enhancement of food security is also an argument which can be used to justify farmers' rights on farmers' varieties since protection of the latter's interests will also promote the long-term food security of the majority of the population in India. The other reasons for introducing plant variety protection include the role that farmers play in sustainably using biodiversity and specifically in developing, conserving and enhancing agricultural biodiversity.

Within this general framework, several possibilities are open to the government. It can choose to protect only commercial breeders with the introduction of patents and be fully in compliance with its TRIPs obligations. It may choose to introduce plant breeders' rights and thereby provide rights which include some exceptions in favour of other breeders and farmers. It may further choose to grant rights only to breeders but introduce a benefit-sharing scheme which, for instance, takes into account its obligations under the Biodiversity Convention. Finally, it can go beyond the preceding options and protect all relevant actors in the field of agricultural management, from farmers to local communities and panchayats to commercial breeders and state governments, an approach which takes into account not only TRIPs obligations but also all other relevant international treaties.

III. Legal Framework for Plant Variety Protection and Management

The legal framework for plant variety protection includes the different treaties that India has ratified in this field and the different legislative instruments adopted to implement international commitments.

(47) International Legal Framework

India has taken different kinds of commitments in the field of plant variety protection and management. These include a series of obligations concerning the conservation and sustainable use of biological resources as well as commitments concerning the protection of traditional knowledge and farmers' rights and a series of obligations in the field of intellectual property rights regarding the commercial use of plant varieties.

Firstly, India has ratified the Biodiversity Convention which provides the basic framework for the conservation and the use of biological resources. It affirms India's sovereignty over its biological resources but qualifies India's control with the introduction of the notion of 'common concern' which implies that the protection of biodiversity in India is of interest not only to this country but also to the international community at large. The Biodiversity Convention is noteworthy for recognising the need to conserve while also acknowledging the legitimacy of using biological resources which provide, for instance, every individual's basic food needs. The Convention also provides that governments must preserve traditional knowledge and foster its application.¹⁷ While this provision does not mandate the recognition of the rights of traditional knowledge holders, it provides at least the lineaments of a policy framework in this regard. The Convention also regulates access to biological resources and the sharing of benefits arising from their use. It attempts to provide a framework which respects donor countries' sovereign rights over their biological and genetic resources while facilitating access by users. Access must therefore be provided on 'mutually agreed terms' and is subject to the 'prior informed consent' of the country of origin.¹⁸ Further, the Convention provides that donor countries of micro-organisms, plants or animals used commercially have the right to obtain a fair share of the benefits derived from use. Finally, the Convention constitutes one of the few treaties which offer a specific statement on the relationship between the management of biological resources and intellectual property rights. Article 16 clearly indicates that intellectual property rights are not to undermine the working of the Convention.

Secondly, India has also ratified the PGRFA Treaty. This treaty adopts to a large extent the philosophy of the Biodiversity Convention and provides for the three interrelated goals of conservation, sustainable use (48) and benefit sharing.¹⁹ The overall aims of the Treaty are the promotion of sustainable agriculture and food security. The Treaty is significant for radically altering the legal status of plant genetic resources in international law. While the previous instrument – the 1983 International Undertaking²⁰ – promoted the sharing of plant genetic resources, the new Treaty affirms states' sovereign rights over their PGRFA and condones the introduction of intellectual property rights. One of the main contributions of the PGRFA Treaty to the international legal framework is its focus on the situation of farmers, their contribution to the conservation of agro-biodiversity, the rights they have over their physical assets – for instance, seeds – and to a much lesser extent the question of traditional knowledge. More specifically, the PGRFA Treaty gives recognition to farmers' contribution to conserving and enhancing plant genetic resources for food and agriculture. It further gives broad guidelines to states concerning the scope of the rights to be protected under this heading but overall devolves the responsibility for realizing farmers' rights to member states. This includes the protection of traditional knowledge, farmers' entitlement to a part of benefit-sharing arrangements and the right to participate in decision-making regarding the management of plant genetic resources. However, the treaty is silent with regard to farmers' rights over their landraces. In fact, the 'recognition' of farmers' contribution to plant genetic resource conservation and enhancement does not include any property rights. In this context, the only rights that are recognized are the residual rights to save, use, exchange and sell farm-saved seeds. The overall significance of the PGRFA Treaty lies in the fact that it is the first treaty providing a legal framework which not only recognizes the need for conservation and sustainable use of plant genetic resources for food and agriculture but also delineates a regime for access and benefit sharing, and in this process provides direct and indirect links to intellectual property right instruments.

Thirdly, India was a founding member of the WTO and in this capacity must implement the TRIPs Agreement. TRIPs generally provides minimum levels of intellectual property rights protection in all member states. This has brought about a substantial burden of adjustment in the patents field because the Patents Act, 1970 differed in significant respects from what was required under TRIPs. Among the many changes that India has had to bring in, the introduction of plant variety protection called for by article 27.3.b of TRIPs has given rise to significant debate because of the (49) choice it offers between adopting patents or a *sui generis* system. This choice has often been interpreted as implying that all countries either have to introduce patents or plant breeders' rights (PBRs). PBRs are intellectual property rights closely related to patents which were first defined in the UPOV Convention.²¹ These rights grant commercial breeders exclusive rights over their inventions but include more exceptions than patents, and in particular can include exceptions in favour of other breeders' research and in favour of farmers. While PBRs constitute one alternative to patents, the *sui generis* option is not limited to PBRs and can be construed in a number of different ways, thereby allowing countries to devise a plant variety protection regime which fits their specific needs and situation while taking their other obligations into account. The inclusion of the *sui generis* option is therefore of great significance within TRIPs because it allows member states to explore alternatives to patents beyond what Articles 7 and 8 allow.²²

Overall, the international legal framework in the field of plant variety protection and management is characterised by its lack of cohesion. While on the one hand, the Biodiversity Convention and the PGRFA Treaty attempt to provide answers to the relationship between intellectual property rights and environmental management, the TRIPs Agreement addresses intellectual property rights issues without taking into account concerns regarding environmental conservation or the management of traditional knowledge. Given that there is no international institution to ensure that different negotiations produce compatible treaties, the cohesion of different international obligations with each other must be mostly judged at the level of their implementation.²³ This is why close scrutiny of implementation legislations is imperative to ensure that all international obligations are given similar importance, with the exception of fundamental rights which by constitutional mandate ought to be given more prominence than the rest.

(50) Domestic Legal Framework

Significant progress has been made in recent years towards setting up a legal regime for the management of plant genetic resources. The main legislative instrument is the Protection of Plant Varieties and Farmers' Rights Act 2001 which constitutes the government's response to its obligations under Article 27.3.b of the TRIPs Agreement. The Act focuses on the establishment of plant breeders' rights and farmers' rights. The regime for plant breeders' rights largely follows the model provided by UPOV and the criteria for registration are the same as those found in UPOV, namely novelty, distinctness, uniformity and stability. The Act incorporates elements from the 1978 version of UPOV and includes some elements from the more stringent 1991 version, such as the possibility to register essentially derived varieties.

The second main aim of the Act is the introduction of farmers' rights. At this level, substantial changes were proposed by the Joint Parliamentary Committee to which the Bill was referred after its introduction in Parliament.²⁴ While the original version of the Bill introduced in Parliament only contained a short provision on farmers' rights, the Committee decided to add a whole new chapter on farmers' rights. As adopted, the Act seeks to put farmers' rights on a par with breeders' rights. It provides, for instance, that farmers can, like commercial breeders, apply to have a variety registered.²⁵ Generally speaking, the Act envisages that farmers should be treated like commercial breeders and should receive the same kind of protection for the varieties they develop.

The Act also provides two avenues for benefit sharing.²⁶ The first scheme allows individuals or organizations to submit claims concerning the contribution they have made to the development of a protected variety. The final decision is taken by the Authority established under the Act which determines the amount taking into account the importance of the contribution in the overall development of the variety and its commercial potential. The second benefit-sharing avenue allows an individual or organization to file a claim on behalf of a village or local community. The claim relates to the contribution that the village or community has made to the evolution of a variety.

(51) The Biodiversity Act 2002 addresses some questions which are relevant for biodiversity management in general and plant variety management specifically. The main focus of the Act is on the question of access to resources.²⁷ Its response to current challenges is to assert the country's sovereign rights over natural resources. It therefore proposes to put stringent limits on access to biological resources or related knowledge for all foreigners. The Act's insistence on sovereign rights reflects current attempts by various countries to assert control over the resources or knowledge they control. While the Act focuses on preserving India's interests vis-à-vis other states in rather strong terms, its main impact within the country will be to concentrate power in the hands of the government. Indeed, Indian citizens and legal persons must give prior intimation of their intention to obtain biological resources to the state biodiversity boards.²⁸ The Act is even more stringent in terms of intellectual property rights since it requires that all inventors obtain the consent of the National Biodiversity Authority before applying for such rights.²⁹ The impact of this clause is, however, likely to be limited since patent applications are covered by a separate clause.³⁰ Further, the Authority has no extra-territorial authority.

Overall, the Biodiversity Act implicitly takes the position that India cannot do more than regulate access by foreigners to its knowledge base. It does, however, attempt to discipline the intellectual property rights system in some respects. As noted, it requires inventors who want to apply for intellectual property rights to seek the Authority's permission. It also authorizes the Authority to allocate a monopoly right to more than one actor. Further the Authority is also entitled to oppose the grant of intellectual property rights outside India.³¹ The Act also seeks to address the question of the rights of holders of local knowledge by setting up a system of benefit sharing. The benefit sharing scheme is innovative insofar as it provides that the Authority can decide to grant joint ownership of a monopoly intellectual right to both the inventor and the Authority or the actual contributors if they can be identified.³² However, the sharing of (52) intellectual property rights is only one of the avenues that the Authority can choose by way of discharging of its obligation to determine benefit sharing. It is also in the Authority's power to allocate rights solely to itself or a contributor such as a farmer contributor. Other forms of benefit sharing include technology transfers, benefit claimers becoming associated with research and development or the location of production, research and development units in areas where this will facilitate better living standards to the benefit claimers.

Finally, plant variety protection is also influenced by the patent legislation. While the Patents Act as adopted in 1970 dealt with patents in general and was not specifically related to biological resources, it addressed a number of issues that are of relevance in the context of PGR management. It rejected, for instance, the patentability of all methods of agriculture and was generally much more restrictive than similar laws in western countries. TRIPs has imposed significant alterations to this Act. The Patents (Amendment) Act 2002 has generally modified the Act to allow compliance with TRIPs.³³ The Amendment Act brings the duration of the rights to a uniform 20-year period and also substantially modifies the sections concerning the working of the patents by, for instance, doing away with licences of rights. The provision which seeks to oblige patentees to manufacture their inventions in India was also struck out because of the TRIPs requirement that imports should not be treated differently from products locally produced.³⁴ With regard to environmental protection, the Amendment Act includes some of the TRIPs exceptions related to environment and health. It also addresses the question of biopiracy by imposing the disclosure of the source and geographical origin of biological material used in a patented invention. Further, non-disclosure of the geographical origin or the anticipation of the invention in local or indigenous knowledge constitutes grounds for opposing or revoking a patent.

IV. Plant Variety Protection for Food Security

As noted above, there are a number of different actors involved in plant variety management, all with the ultimate aim of enhancing food security. Existing conditions indicate that while a significant segment of the overall population has easy access to sufficient food, there remain crores of people whose basic food needs are not met. In an economy where employment remains mostly in the agricultural sector, it is therefore of primary importance to make sure that the legal regime which is being (53) set up favours access to food for the majority of poor people and fosters farmers' control over their land, crops and knowledge. This section argues that the current legal regime does not go far enough towards empowering farmers. Further, on the basis of the new

PGRFA Treaty it argues that a broader conception of farmers' rights should be adopted with a view to foster farmers' hold over their knowledge and with a view to comprehensively implement all international obligations in this field.

Assessment of the current legal regime

The legal framework put in place until now can be looked at from two completely different angles. On the one hand, the Indian Plant Variety Act is among the most progressive plant variety protection legislations adopted by a developing country in furtherance of its TRIPs obligations. The apparent will to provide equal rights to commercial breeders and farmers is farsighted insofar as it indicates a clear understanding that the forces shaping globalisation require the assignment of property rights to all concerned actors in the different fields where appropriation is taking place. In particular, it is noteworthy for providing a clear acknowledgment that farmers' rights can be conceived as intellectual property rights, in exactly the same way as other products of human creativity. On the other hand, it appears quite likely that the chapter on farmers' rights will not be implemented. Firstly, farmers' rights were introduced as an afterthought to the first draft which contained only rudimentary farmers' rights. The Act provides only one set of criteria for registration – which are the criteria taken from the UPOV Convention for the protection of commercial breeders' varieties – and as a result, it will be extremely difficult for farmers to register their varieties even though they are entitled to it. Secondly, the decision of the Government to formally join UPOV will at least put pressure on the Plant Variety Authority to favour commercial breeders over farmers and at worst may lead to the Authority either formally or informally not implementing the provisions of the Act concerning farmers' rights. As a result, though this Act theoretically recognises farmers' rights, a lot remains to be done for farmers' rights to become a reality in the form of intellectual property rights. The protection of traditional knowledge is also taken up in the Biodiversity Act which focuses on the appropriation of Indian traditional knowledge by foreigners but does not empower holders of traditional knowledge with rights to stop unwanted appropriation within the country. Another shortcoming of the Plant Variety Act is that, though TRIPs compliant insofar as it provides for a *sui generis* option within the narrow confines of Article 27.3.b of TRIPs, it only deals with plant variety management from the point of view (54) of their commercialisation and fails to take into account the fact that commercial activities cannot be separated, either legally or in practice, from the conservation of agricultural biodiversity, the rights of farmers and that of the state.

Apart from the specific problem concerning farmers' rights, the current legal framework is fraught with inconsistencies which are linked to the different origins of the Acts. Each of the three legislative instruments examined above have been individual responses to specific international obligations which have been addressed by different ministries and departments according to the main focus of the concerned treaty. The result is a legal framework which lacks a sense of unity and purpose and instead comprises a collection of defensive responses to international commitments, rather than a cohesive strategy to address internal problems. Consequently, there are, for instance, a number of overlaps between the benefit-sharing regimes proposed in the Biodiversity Act and the Plant Variety Act while the Patents Act does not even acknowledge the issue of benefit-sharing despite the fact that benefit-sharing is on the whole a direct consequence of the introduction of intellectual property rights in the agricultural field.

The need for a broader conception of farmers' rights

The preceding section indicates that there are some general and some specific problems in the adopted legal regime for plant variety management and protection. A number of these problems are of a technical nature and relate, for instance, to the lack of coordination between the different acts. One more substantive issue is the question of farmers' rights or the rights of farmers over their traditional knowledge. The need to find a more comprehensive answer to this issue has been made more pressing with the ratification by India of the new PGRFA Treaty. This importance of this treaty is linked to the fact that it directly links biodiversity conservation, biodiversity use and farmers' rights and to the fact that it constitutes a direct response to the introduction of intellectual property rights in agriculture through patents and plant breeders' rights.

The existence of different treaties separately addressing plant variety management and protection makes their joint implementation an onerous task for member states. This process must, however, be undertaken because this is exactly what international law requires, and because this constitutes one important avenue to foster food security at all levels within the country. As a result of international obligations in this field and with a view to foster food security, a comprehensive plant variety protection **(55)** regime should include the following elements: the protection of commercially relevant knowledge; the conservation and management of biological resources and plant genetic resources; the protection through property rights of traditional knowledge; and the recognition that plant variety management and protection is intrinsically linked to the fundamental human right to food. In other words, a legal regime concerning plant varieties should not stop at what is commercially useful today but should incorporate, for instance, human rights considerations linked to food security.

Given that the emphasis at the international level has generally been on defining and strengthening the rights of exclusively commercially minded actors through patents and plant breeders' rights, the definition of a broader regime need not add much to existing and well-developed rights. It should rather focus on farmers' rights and the mainstreaming of biodiversity management and traditional knowledge protection. Starting with international legal obligations, the necessity to redraft farmers' rights to make them effective has been made more pressing following the ratification of the PGRFA Treaty. While the TRIPs agreement makes no mention of the necessity to protect farmers' rights, the PGRFA Treaty – while not defining farmers' rights at the international level – specifically puts the onus on member states to make farmers' rights a reality.³⁵ A few of the substantive elements that make up farmers' rights are indicated in the Treaty. These include, the protection of traditional knowledge, equitable benefit sharing, and the right to participate in decisions concerning the management of plant genetic resources. In other words, the Treaty steers countries towards recognising the need for giving farmers control over their knowledge for reasons of justice as well as to foster sustainable use and conservation of plant genetic resources. However, it leaves member states free to decide on the most appropriate framework for the same. There are a number of other elements in the PGRFA Treaty which point the direction for further work in this area, both in domestic and international law. The access and benefit-sharing regime instituted under the PGRFA Treaty is, for instance, much more developed and comprehensive than the one under the Biodiversity Convention. The PGRFA Treaty also indirectly highlights that it is difficult to distinguish biological resources, genetic resources and related knowledge. Indeed, the definition of genetic resources under the Treaty includes reproductive and vegetative propagating material that contains functional units of heredity.³⁶ More **(56)** broadly, the Treaty links plant genetic resource conservation, intellectual property rights, sustainable agriculture and food security.

Some indications of the possible shape of a comprehensive farmers' rights regime at the domestic level can be given. Firstly, farmers' rights should be conceived as a positive mechanism giving traditional knowledge holders property rights and therefore full control over their knowledge. This involves allowing farmers to commercialise their own knowledge. In this sense, farmers' rights are based on the recognition that all economic actors should have commercial rights over their knowledge, and not only one specific category of inventors. A further justification for the introduction of farmers' rights is the role that property rights play in fostering the sustainable use and the conservation of resources due to the intrinsic link between the knowledge and the resource and the requirement of ownership of both to foster their conservation. In this sense, farmers' rights are perfectly suited to play a multiple role in granting full property rights to farmers which allow commercialisation if desired, in contributing to agro-biodiversity conservation, and simultaneously fostering food security at the local level. Overall, farmers' rights should be conceived from the point of view of farmers and in accordance with their view of sustainability and commercial use. If this is not achieved, there is a significant danger that farmers' rights will be used only as a way to force poor farmers to maintain agro-biodiversity for the global good of humankind with minimal personal rewards.³⁷

Secondly, in the context of the multiple goals of farmers' rights, other actors involved in agro-biodiversity management should also have duties towards the promotion of food security, agro-biodiversity conservation and sustainable use. While farmers directly benefit from agro-biodiversity conservation, the global community also benefits in direct and indirect ways. This calls for the sharing of conservation obligations on an equitable basis between all actors benefiting from the exploitation of agro-biodiversity. This burden should not only be

spread amongst farmers and local firms marketing seeds, foodstuffs and other crops but also at the international level, given that outside firms, individuals and eventually the international community benefit from these conservation activities.

Thirdly, the question of the introduction of farmers' rights includes important issues concerning the holders of the rights. Intellectual property (57) rights such as patents are often conceived as purely individual rights even though in practice, they can easily be shared among several individuals or entities. Intellectual property rights can less easily lend themselves to shared management in the case of an unidentifiable number of rights holders. Farmers' rights present specific problems in this field. In some instances, specific individuals may make individual contributions to the development of a new or improved plant variety. In this situation, the model provided by individual rights can be applied in the case of farmers' rights. This case is, however, likely to be at most infrequent given that novelty is very often the product of direct or indirect collaboration between different individuals and/or communities. As a result, farmers' rights are likely to be of a communal nature. The usual intellectual property rights model is not well suited to the recognition of common property rights over knowledge because it generally seeks to individualise contributions to the development of science and technology. As a result, it will be necessary to develop new tools to take into account the special nature of knowledge pertaining to plant genetic resources. Even in cases where contributions by specific individuals can be identified, it may not be equitable to assign rights to specific individuals because the subject matter of farmers' rights is closely linked to food security which is of direct interest to each and every individual in the local community and beyond. One way to solve the problem of allocation in countries like India which have institutions of local democratic governance is to determine that panchayats or their equivalent elsewhere should be the centre/entity for locating the ownership of farmers' rights. With appropriate safeguards to ensure that panchayats do not replicate economic inequalities between members of a local community, they can constitute an appropriate institutional framework for ensuring that everyone benefits from any existing entitlements. The rationale for not following the usual individual allocation model is that knowledge pertaining to plant genetic resources is directly related to the fulfilment of basic food needs for all individuals, landowners, farmers, manual labour and non-farming individuals in a given community. Farmers' rights seek to give control to individual and local communities over their knowledge and resources. This does not imply that the rights conferred must be to the exclusion of any other similar right elsewhere. In terms of the possible commercialisation of the product, this indicates that instead of a monopoly right, all rights holders are entitled to separately manufacture and commercialise their own products without infringing anyone's right.

Fourthly, the question arises of the uses to which farmers' rights can be put. From a broad perspective, these can be summarised under 'defensive' and 'positive' functions. The former will be there to help farmers fight the appropriation of their resources and knowledge with legal tools. Today, the whole of 'traditional knowledge' is deemed to be in the public domain because it cannot be assigned through patents or plant breeders' rights. Farmers' rights constitute a first step towards re-establishing a fair playing field in which all actors have claims over their knowledge. Farmers' rights will also constitute the basis for claims of benefit-sharing as recognised at the national and international levels. The positive function of farmers' rights is the most innovative and important in the long run. In a world where all resources and knowledge are being assigned, it is imperative for reasons of equity and food security that farmers and farming communities acquire control sanctioned by the law as this constitutes one of the few ways in which incentives for agro-biodiversity conservation and innovation at the local level can be maintained. The commercial use of the protected knowledge may serve as an added bonus which traditional knowledge holders may or may not use.

V. Conclusion

The introduction of diverse forms of intellectual property rights in the agricultural field is on the whole completely novel in India and mainly linked to the necessity to comply with India's existing international obligations and to the general trend towards the privatisation of knowledge in recent decades. This new system is in complete contradiction with the previous system of agricultural management which privileged the sharing of resources and knowledge concerning plant varieties by all actors from local farmers to those at the international level. In this context, while individual property rights over state-of-the-art inventions are being strengthened in large part in response to WTO related obligations, the development of strong and effective farmers' rights is of increasing importance. This should allow them to defend their interests against fraudulent appropriation and to allow them to benefit from their own knowledge in a legal and commercial sense if they so wish. Farmers' rights should, however, not be conceived strictly along the lines of existing intellectual property rights such as patents and plant breeders' rights. In fact, while the commercialisation of food crops may be important to all actors engaged in agricultural management, it is by far not the only relevant consideration. Much broader issues such as the conservation and sustainable use of agro-biodiversity and food security for each and every individual are as important and probably much more central than commercial considerations in a field which directly concerns the fulfilment of basic food needs. In this sense, the introduction of farmers' rights fulfils a number of **(59)** significant functions both from a socio-economic and socio-ecological point of view:

- Farmers' rights contribute to making the legal system fairer by providing property rights to all relevant actors in plant variety management;
- Farmers' rights contribute to the recognition of the contribution of farmers to food security, to conservation and sustainable agro-biodiversity management and to innovation in agricultural management; and finally
- Farmers' rights will make an enormous contribution to food security by fostering control, not only over resources and land but also over knowledge for the dozens of crores of people who are directly engaged in small-scale agricultural management.

Conversely, the development of farmers' rights provides an opportunity to re-examine patents and plant breeders' rights. This should contribute to make these more 'traditional' intellectual property rights more relevant to the field of agriculture by, for instance, imposing new conditions on rights holders concerning both traditional knowledge and biodiversity conservation.

Endnotes

- ¹ Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakech, 15 Apr. 1994, 33 INTERNATIONAL LEGAL MATERIALS 1197 (1994) [hereafter TRIPs Agreement].
- ² See respectively Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, 31 INTERNATIONAL LEGAL MATERIALS 818 (1992) [hereafter Biodiversity Convention] and International Treaty on Plant Genetic Resources for Food and Agriculture, Rome, 3 Nov. 2001 [hereafter PGRFA Treaty].
- ³ According to Paragraph 1 of the Plan of Action of the World Food Summit, Rome, 13-17 Nov. 1996, food security exists ‘when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’.
- ⁴ See, e.g., Carl F. Jordan, *Genetic Engineering, the Farm Crisis and World Hunger* 52 BIOSCIENCE 523, 526 (2002) and Jose Falck-Zepeda *et al.*, BIOTECHNOLOGY AND SUSTAINABLE LIVELIHOODS – FINDINGS AND RECOMMENDATIONS OF AN INTERNATIONAL CONSULTATION (ISNAR, Briefing Paper No. 54, September 2002).
- ⁵ See, e.g., INDIAN ECONOMIC SURVEY 2001-2002 (2002).
- ⁶ See, e.g., FAO, THE STATE OF FOOD INSECURITY IN THE WORLD 2002 (2002).
- ⁷ See for instance, M.S. Swaminathan, *Ethics and Equity in the Use and Collection of Plant Genetic Resources: Some Issues and Approaches* in International Plant Genetic Resources Institute, ETHICS AND EQUITY IN CONSERVATION AND USE OF GENETIC RESOURCES FOR SUSTAINABLE FOOD SECURITY 7 (1997).
- ⁸ Lori Ann Thrupp, *Linking Agricultural biodiversity and Food Security: the Valuable Role of Agrobiodiversity for Sustainable Agriculture* 76 INTERNATIONAL AFFAIRS 265, 268 (2000).
- ⁹ See J. Esquinas-Alcazar, ‘The Realisation of Farmer’s Rights’, in M.S. Swaminathan (ed.), AGRO-BIODIVERSITY AND FARMERS’ RIGHTS 2 (1996).
- ¹⁰ See, e.g., Objectives 3.1 and 3.4(d) of the Plan of Action *supra* n. 3.
- ¹¹ The human right to adequate food has found expression in various international documents. See, e.g., Art. 11 of the International Covenant on Economic, Social and Cultural Rights, New York, 16 Dec. 1966, reprinted in 6 INTERNATIONAL LEGAL MATERIALS 360 (1967).
- ¹² Paragraph 15, Committee on Economic, Social and Cultural Rights, General Comment No. 12 – The Right to Adequate Food (Art. 11), UN Doc. E/C.12/1999/5 (1999). [hereafter General Comment on Article 11]
- ¹³ Often as consequence of fall in commodity prices brought about by wide spread industrialised farming and agricultural subsidies in the north, small farmers in developing countries are forced to abandon cultivation of food crops and switch to cash crops, in order to eke out a reasonable living. See, e.g., Marcel Mazoyer & Laurence Roudart, ‘L’asphyxie des économies paysannes du Sud’, 523 *Monde diplomatique* 19 (Oct. 1997).
- ¹⁴ In fact failure by the State to regulate individuals or groups so as to prevent them from violating the right to food amounts to a violation of its obligations. (See Paragraph 19 of the General Comment on Article 11, *supra* n. 12).
- ¹⁵ Objective 3.4, Plan of Action, *supra* n. 3.
- ¹⁶ New Seed Policy, 1988.
- ¹⁷ Art. 8.j of the Biodiversity Convention, *supra* n. 2.
- ¹⁸ Art. 15 of the Biodiversity Convention, *supra* n. 2.
- ¹⁹ Art. 1 of the PGRFA Treaty, *supra* n. 2.

- ²⁰ International Undertaking on Plant Genetic Resources, Res. 8/83, Report of the Conference of FAO, 22nd Sess., Rome, 5-23 Nov. 1983, Doc. C83/REP.
- ²¹ International Convention for the Protection of New Varieties of Plants, Paris, 2 Dec. 1961, as Revised at Geneva on 10 Nov. 1972, 23 Oct. 1978 and 19 Mar. 1991 (UPOV Doc. 221(E), 1996) [hereafter UPOV Convention].
- ²² Arts. 7 and 8 provide the broader framework within which the TRIPS Agreement must be understood and implemented and may constitute the legal basis for exceptions in favour of developing countries.
- ²³ The Convention on the Law of Treaties, Vienna, 23 May 1969, 8 INTERNATIONAL LEGAL MATERIALS 679 (1969) provides the basic framework for interpreting treaties, and includes provisions concerning the interpretation of different treaties addressing similar issues. It provides, for instance, that states must implement all their international obligations in good faith.
- ²⁴ See Joint Committee on the Protection of Plant Varieties and Farmers' Rights Bill, 1999, REPORT OF THE JOINT COMMITTEE (August 2000).
- ²⁵ Section 16.1.d of the PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS ACT 2001 [hereafter PLANT VARIETY ACT].
- ²⁶ See Ss. 26 and 41 of the PLANT VARIETY ACT, *supra* n. 25.
- ²⁷ The only substantive chapter of the BIOLOGICAL DIVERSITY ACT 2002 – Chapter II – is entitled Regulation of Access to Biological Diversity.
- ²⁸ S. 7 of the BIOLOGICAL DIVERSITY ACT.
- ²⁹ S. 6 of the BIOLOGICAL DIVERSITY ACT.
- ³⁰ Permission of the National Biodiversity Authority must be obtained before the sealing of the patent but can be obtained after the acceptance of the patent by the patent authority. *See* Section 6.1 of the BIOLOGICAL DIVERSITY ACT.
- ³¹ S. 18.4 of the BIOLOGICAL DIVERSITY ACT.
- ³² S. 21.2.a of the BIOLOGICAL DIVERSITY ACT.
- ³³ *See* PATENTS (AMENDMENT) ACT 2002.
- ³⁴ Article 27 of the TRIPS Agreement, *supra* n. 1.
- ³⁵ Art. 9.2 of the PGRFA Treaty, *supra* n. 2.
- ³⁶ Art. 2 of the PGRFA Treaty, *supra* n. 2.
- ³⁷ *Cf.* FAO Commission on Plant Genetic Resources, Revision of the International Undertaking. Analysis of Some Technical, Economic and Legal Aspects for Consideration in Stage II: Access to Plant Genetic Resources, and Farmers' Rights, Doc. CPGR-6/95/8 Supp.

