

TRIPs and food security

Implications of the WTO's TRIPs Agreement for food security in the developing world

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Abstract This paper serves as a short introductory overview of the World Trade Organisation's Trade Related Aspects of Intellectual Property Rights Agreement and the extent to which it impinges on food security in the developing world. Looks at the motivation for the TRIPs Agreement, the transformation in agriculture wrought by the "gene revolution" and the consequent rush to patents. The potential impact of the Agreement, namely Article 27.3(b) on the developing world, is then assessed. Claims that a consolidation of the seed industry has led to certain firms enjoying monopoly privileges, which is at variance with the WTO's aspiration of greater liberalization of trade. However, the greatest danger to food security in developing countries may come from the implementation of the UPOV Convention, which has been used by powerful states as a means to ensure the compliance of developing countries with the provisions of the TRIPs Agreement.

The TRIPs Agreement

The TRIPs Agreement is one of the three pillars of the WTO – the others being trade in goods and services – and it was negotiated during the Uruguay Round of trade talks that took place from 1986 to 1994 under the auspices of the GATT (General Agreement on Tariffs and Trade). The TRIPs Agreement came into effect with the establishment of the WTO on 1 January 1995. The Agreement was framed with the intention of protecting intellectual property on a global scale by means such as patents, copyrights and plant breeders' rights. Intellectual property rights are defined by the WTO as the rights that are given to persons over the creations of the mind such as inventions, works of art and literature and designs. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time, usually 20 years. In order for a patent to be granted it must fulfil certain criteria. The object being patented must be novel, innovative and useful (Meek, 2000).

In the Uruguay Round, members of the GATT undertook to make their domestic legislation conform to the TRIPs accord and therefore allow all inventions, with a few exceptions, to be patentable. Placing intellectual property rights within the WTO means that those Members that fail to comply with their obligations under the TRIPs Agreement face the possibility of having trade sanctions imposed on them by the WTO's Dispute Settlement Understanding (DSU). Developing countries were accorded a five-year time lag on implementation, meaning that their legislation had until 1 January 2000 to become "TRIPs-compliant". Least developed countries were allowed until January 2006 before implementing the Agreement.

The TRIPs Agreement was formulated as a consequence of heightened concern voiced by innovators and inventors at the plagiarising of intellectual property and the limited safeguards granted to the holders of patents, licenses, copyright and

trademarks under international trade law (Grubb, 1999). Industrialised countries entered the Uruguay Round negotiations with the clear objective of universalising the standards of intellectual property rights protection (Correa, 2000). The US, in particular, assumed an aggressive position when the issue of intellectual property rights was discussed during the Uruguay Round. US companies, particularly pharmaceutical corporations, played a major part in determining the framework of TRIPs (Weissman, 1996). James Enyart, a senior Monsanto employee at the time of the Uruguay Round of negotiations stated about TRIPs that "industry identified a problem, crafted a solution and sold it to our governments" (Enyart, 1990, p. 54).

The US International Trade Commission estimated in 1988 that US-owned corporations were being defrauded of between \$40 and \$60 billion per year, thanks to what it termed "foreign intellectual piracy". In 1999 the Commission revised this estimate to between \$100 billion and \$300 billion (Dutfield, 2000). Countering such claims, the Canadian-based organisation ETC (Action Group on Erosion, Technology and Concentration) states that the value of germplasm from developing countries to the pharmaceutical industry in the early 1990s was at least US\$32 billion a year, and that genes from fields in developing countries of 15 major crops contribute over US\$50 billion per annum in annual sales in the US alone (ETC, 2002). The United Nations Development Program (UNDP) claimed in 2001 that a 2 per cent royalty charge levied by developing countries on genetic materials developed by local communities in the southern hemisphere that have been patented in the industrialised North would generate more than \$5 billion from medicinal plants alone (UNDP, 2001).

The gene revolution

Genetic modification of plants and animals through domestication and controlled breeding in order to produce a wide range of varieties and breeds suitable for differing climatic conditions had been taking place with little or no debate for "roughly 10,000 years" (Paarlberg, 2000, p. 25). However, the advent in the early 1970s of genetic engineering – where genes can be isolated from an organism, manipulated in a laboratory and inserted stably into another organism – created unprecedented controversy and opportunity in the field. The landmark case that changed the course of patenting history and set the precedent for the patenting of life forms was filed in 1971 by the General Electric Company and Ananda Chakrabarty. The case was concluded in 1980 when the US Supreme Court ruled that a genetically modified oil-eating microorganism could be patented (Joseph, 1999, p. 47). The Chakrabarty case established the principle that the relevant distinction was not between living and inanimate things but whether living products could be seen as man-made inventions (CIDSE, 1999, p. 16). In 1985 the US Patent and Trademark Office (USPTO) set the precedent for the patenting of genetically modified seeds, plants and plant tissue by granting patents on the tissue culture, seed and whole part of a corn line selected from tissue culture to the molecular genetics scientist Kenneth Hibberd. The case, known as *Ex Parte Hibberd*, established the right of plant breeders to patent their plant materials under the US Patent Act (Shiva, 2001).

The rapid development of biotechnology, particularly in the countries of the OECD, and its application in agriculture, acted as an incentive for the creation of a global system of patent protection (Tansey, 1999). The unlocking of DNA sequences has created unparalleled opportunities for advances in medical research, industry and

agriculture. If these advances, particularly the power to read and change gene sequences, are used wisely, they could "bring great benefits to humanity. . . but they also pose threats" (Oxfam, 2002, p. 219). Some commentators who have cast a sceptical eye over the "gene revolution" have asserted that powerful transnational corporations "wish to own the genetic material they have obtained where the function or application of this genetic material amounts to new knowledge" (Biggs, 1998, p. 133).

Pressure applied by multinational corporations to increase patent protection has grown with the development of biotechnology. During the Uruguay Round of trade talks plant breeding companies wanted a watertight intellectual property protection regime because many of them found that certain varieties of their plants were being replanted or sold in countries with very weak or non-existent patent regimes. The globe's biological and genetic materials provide the bulk of the resources used in both the biotechnology and plant breeding industries. However, these same materials are also the basis on which the up to 1.4 billion people are dependent for their livelihoods

and food security. The anthropologist Stephen Brush writes that "plant genetic resources provide the foundation of all food production, the key to feeding unprecedented numbers of people in times of climate and other environmental change" (Brush, 1994, p. 35).

Developing countries retain 90 per cent of the world's biodiversity and are the source of genetic resources that are of enormous benefit to industry and agriculture (Dutfield, 2000). The United Nations Food and Agricultural Organisation (FAO) stated in September 1998 that "any region in the world is dependent on genetic material which originated in other regions for over 50 per cent of its basic food production, and, for several regions of the world, such dependency is close to 100 per cent" (Quoted in Tansey, 1999, p. 15).

Estimates of the value of plant genetic resources worldwide vary substantially. For instance, two NGOs, which between them represented the interests of the seed industry in over 60 countries, namely the International Seed Trade Federation (FIS) and the International Association of Plant Breeders (ASSINSEL)[1], have calculated the value of the global seed market at \$30 billion a year (Dutfield, 2000). On the other hand, the genetic resource consultant Dr Daniel Putterman puts the figure at \$13 million (Dutfield, 2000). Dutfield emphasises that no matter which figure is more representative of the true value of plant genetic resources, what cannot be calculated is the importance of such biodiversity for the millions of subsistence farmers around the world who depend on them for their survival (Dutfield, 2000).

Objections

It has been stated that the use of patents on plant genetic resources in the developing world could jeopardise food security because with three-quarters of the world's population that live below the poverty line involved in agriculture, "anything that increases the costs of agricultural seed or other inputs could be damaging" (Oxfam, 2002, p. 220). Equally detrimental to poorer farmers could be restrictions on their rights to retain the seeds on which the following year's harvest is dependent. Traditionally, farmers save their seeds after each harvest and replant them the following year. Many farmers, particularly those in developing countries, trade and exchange seeds locally with other farmers. For breeders, this means that they have difficulty recouping the investments made in improved varieties through repeat sales. Many plant varieties

have originated in the seeds that farmers have selected and sown for thousands of years. Such practices of on-farm experimentation and conservation "form the basis of food security and livelihoods for communities throughout the developing world" (UNDP, 2001, p. 216). Even in industrialised countries, it is quite common for farmers to re-use seed from a previous harvest, although for many crops "legal purchase is now the rule" (CIPR, 2002, p. 58). Legal mechanisms, such as the obligation of countries to protect new plant varieties in Article 27.3(b) of the TRIPs Agreement, could increase costs to farmers by obliging them to purchase seeds each year.

One commentator asserts that "the big transnational corporations which have developed the new biotechnologies are also likely to have a very influential effect on global consumption and production in the area of agribusiness" (Biggs, 1998, p. 131). In the USA, genetic engineering is being developed to cut costs in the food industry through the substitution of natural products by similar genetically engineered or wholly synthetic ones. The US trade strategy saw the amount of sugar imports from the Caribbean decline by over \$400 million between 1981 and 1984 and those from the Philippines fall by over \$600 million between 1980 and 1987, "as a result of the development of genetically engineered sweeteners from maize grown in the North" (Biggs, 1998). If attempts to genetically engineer cocoa, palm oil and vanilla succeed then farmers in Ghana, Cameroon, Ivory Coast and Zanzibar could find their livelihoods under serious threat. Biggs further cautions that some transnational corporations could soon become universal food producers as they are moving towards selecting relevant genetic material which can be used on very basic materials to turn them into food. The total substitution of one crop for another could be a distinct possibility and farmers in the developing world are likely to be severely hit by these substitution processes (Biggs, 1998).

While proponents of biotechnology such as the Biotechnology Industry Organisation see agricultural biotechnology as a tool to help solve problems of hunger and excessive pesticide use, critics of the technology have stated that plant biotechnology is "not needed, will be bad for consumers' health, will impoverish small farmers . . . and will increase pesticide use and reduce biodiversity" (Pray et al., 2001, p. 3). Oxfam stated that although the share of transgenic crops grown in the developing world has increased from 14 per cent in 1997 to almost 25 per cent in 2000, coverage is almost exclusively confined to "a small number of relatively prosperous, export-oriented countries – and a small number of commercial crops" (Oxfam, 2002, p. 223). While the dominant transgenic crops grown in the developing world continue to be herbicide-resistant soybeans and maize, those staple foods such as sorghum, cassava and other root crops are rarely grown. Very few of the newly engineered seeds on the market or in production "are designed to meet the needs of the rural poor or to enhance the productivity of smallholder families" (Oxfam, 2002).

According to the Indian activist, Davindar Sharma, the patenting of crops derived by genetic modification is deemed fundamental to the existence of the biotechnology industry. He writes that: "patents provide monopoly domination not only through technological supremacy but also by extending control over the biological wealth and the traditional knowledge of the gene-rich developing countries" (Sharma, 1999, p. 10). As patents that are issued in Europe and America grant effective control over the potential economic value of genetic resources derived from any country, "they create

an incentive for firms to acquire genetic materials from any source for the development of profitable new drugs, seeds or other products" (Oxfam, 2002, p. 220).

Paarlberg writes that "the GM crop revolution will have life-changing – and even life-saving-implications in developing countries" (Paarlberg, 2000, p. 30). He maintains the agriculture in the tropics is lagging, in part due to poor soil, extremes of moisture, heat, and drought; as well as "a plenitude of pests and diseases that attack animals and crops" (Paarlberg, 2000). Some of the GM technologies that were developed for growth in temperate climates, such as Bt maize and cotton, could quite readily be adapted for planting in the tropics by transferring the desirable GM traits into indigenously grown crops through conventional plant breeding. However, Paarlberg thinks that this is unlikely to happen in areas where farmers are poor as the incentive for private corporations to invest in such regions is extremely limited. He states that corporations "may seek to block local adaptations if poor countries are not willing to protect corporate intellectual property rights" (Paarlberg, 2000, p. 34).

Paarlberg also asserts that intellectual property rights protection for GM crops in developing countries tends to be too weak rather than too strong and that while the TRIPs Agreement requires all WTO members to provide IPR protection for plant varieties, many developing countries "will try to satisfy TRIPs without giving up traditional privileges of farmers to replicate and replant protected seeds on their farms" (Paarlberg, 2000, p. 34). Proponents of intellectual property rights (IPRs) on plant varieties state that protection will stimulate innovation because investment in research and development will be rewarded. Any negative impact of IPRs would be countered by the benefits that would be derived from new and improved varieties (UPOV, 1996).

Prior to the TRIPs Agreement most countries in the developing world had especially weak patent laws in the areas of food and drugs, "because they are so fundamental to any society's needs" (Biggs, 1998, p. 133). It was for these reasons that industrialised countries did not permit patents to be granted on food, chemicals, plants or animals until the 1960s. Some countries, such as Switzerland from 1850 to 1907, Austria, France, Britain before 1852 and The Netherlands between 1869 and 1912, abolished all their patent laws on the grounds that they amounted to little more than monopolistic practices and acted as deterrents to indigenous innovations (Khor, 2002).

Impact of Article 27.3(b) on the developing world

Article 27.3(b) of the TRIPs Agreement requires WTO Members to protect plant varieties, either through a sui generis (of its own kind) regime such as plant breeders' rights (PBRs) or through patents or a combination of both. The TRIPs Agreement will initiate a global system of patent protection for microorganisms and microbiological processes. Heretofore, many developing countries eschewed patent protection, particularly for life forms. Implementation of the TRIPs Agreement, therefore, has had and will continue to have, far-reaching implications for the developing world in the sphere of biodiversity (Dean, 2001). Under TRIPs, the owner of a patented product can prevent a third party from "making, using, offering for sale or importing it without their consent" (CIDSE, 1999, p. 6). Article 27.3(b) has been under review since 1999, but the contrasting positions taken on it by developed and poorer countries led one commentator to assert that "TRIPs has already sparked a clear North/South divide" (Action Aid, 1999, p. 2).

With regard to the patenting of a process used to produce a plant, provision for which is made in Article 27.3(b) of TRIPs, an owner of that patent is entitled to exclusive rights over the plants obtained using that process[2]. Farmers, for example, may not be allowed to use any seeds emanating from a plant derived using a patented process. One of the peculiar facets of the TRIPs Agreement is that the burden of proof in a dispute over patented processes is shifted to the defendant who must prove that a product has not been produced by the patented process. This is an aspect of the Agreement that is "in contrast with normal legal practice" (CIDSE, 1999, p. 13).

The TRIPs Agreement makes no provision to recognise the "intellectual contribution made by communities over time" (May, 2000, p. 104) to the conservation and creation of biodiversity. While provision is made in the Agreement for certain farmers' privileges, such as the self-seeding and natural reproduction of seeds, "these are not rights that allow resale or alienation of such products where they run parallel to products that are protected as intellectual property" (May, 2000, p. 104). The Indian seed market is one where the imposition of intellectual property rights on varieties would significantly change the nature of the market given that 70 per cent of seed supply in India comes from farmers' sale of their reproduced seed (May, 2000).

The WTO states that: "for something to be patentable it has to be an invention . . . the scope of the patent right only extends to the invention and not to any underlying genetic material" (WTO, 2000, p. 34). TRIPs has provoked debate regarding the definition of what constitutes an "invention" in certain cases. Some commentators have argued that certain life forms which have been patented are not inventions but rather are discoveries in nature (Khor, 2002; Sharma, 1999; Shiva, 2001). Martin Khor, the Director of Third World Network, states that although the patenting of life forms is a relatively new phenomenon, its incidence has grown rapidly in recent years, particularly since the introduction of the TRIPs Agreement (Khor, 2002).

In August 1999, Kenya, speaking on behalf of the Africa Group, proposed that the review process for Article 27.3(b) of TRIPs should stipulate that plants, animals along with all other living organisms and their parts cannot be patented. The Africa Group insisted that those natural processes which produce plants, animals and other living organisms should not be liable to patenting and that Article 27.3(b) of TRIPs violated a basic tenet of patent law, namely that substances and processes in nature are not "inventions" per se but "discoveries in nature". Kenya argued that microorganisms being natural living things and microbiological process being natural processes are not inventions but life forms (CIDSE, 1999, p. 26).

The organisation Genetic Resources Action International (GRAIN) has argued that TRIPs is the first international treaty to make the privatisation of biodiversity compulsory – and to do so as a principle of international trade (GRAIN, 2001a) Christopher May writes that under the TRIPs Agreement when bio-prospecting companies "discover" new natural compounds or plant varieties, these "newly discovered" bio-resources can be appropriated and removed from the public realm by patenting. This phenomenon, which has been dubbed "biopiracy", involves claiming ownership of biodiversity, much of which emanates in the developing world. This appropriation is likely to be geographic as well as economic given that the biotechnology industry is centralised in developed states (May, 2000). The ire of several developing countries at the "privatisation of biodiversity" was exemplified by

the Southern African Development Community (SADC) workshop on TRIPs in March 1999 whose summation stated:

The problem with TRIPs is that the only inventions it recognises are those that meet the criteria of novelty, inventiveness, and industrial applicability or usefulness ... This system of rights denies property rights to local and indigenous knowledge, practice and innovations. TRIPs only recognises as worthy of protection inventions that conform to the northern definition ... Rights are recognised only when they generate profits and are capable of industrial applications ... Local people end up being exploited and made even poorer by developed countries because their knowledge is accessed freely, then "treated" in laboratories in the north, and ownership rights claimed through patents. Royalties are then paid to new owners by those who make use of their patented products (Quoted in Joseph, 1999, pp. 50-1).

While Article 27.3(b) of TRIPs allows WTO member states to exempt plants and animals from patenting, it nevertheless obliges signatories to provide for the protection of new plant varieties. Plant varieties refer to plants that have been improved by breeding techniques in order to make them distinct, stable and uniform. A variety is considered distinct if it is distinguishable in one or more important characteristics from any other plant variety; uniform if it is "sufficiently uniform in its relevant characteristics with variation as limited as necessary to permit accurate description and assessment of distinctness and to ensure stability"; and stable if "the relevant characteristics remain unchanged after repeated propagation" (Tansey, 1999, p. 10). The Africa Group has stated that the difficulty with these criteria of distinctness, stability and uniformity is that they are seen to favour the production and use of genetically uniform crops (Correa, 2000).

One of the principal objections to Article 27.3(b) of the TRIPs Agreement is that the patenting of genetic resources, particularly those used in GMOs, will lead to the replacement of local and traditional varieties of crops by high-tech seeds and the spread of mono cropping in agriculture. The latter is a phenomenon that prevailed after high-yielding varieties (HYVs) of crops were introduced during the Green Revolution of the 1960s and 1970s (Shiva, 1993). Despite the greatly increased yields, especially in rice and wheat, that were synonymous with the Green Revolution, dependency on HYVs and the inputs that accompanied them became so great in some countries that by the early 1990s, a mere five of the supposed "super varieties" of staple crops accounted for 90 per cent of the rice-growing areas of both peninsular Malaysia and Pakistan, nearly half the rice lands of Thailand and Burma, and approximately a quarter of the rice area of China and Indonesia (GRAIN, 2001b). As a consequence of such dependency, Asia lost much of its crop diversity.

In the Indian state of Andhra Pradesh, for example, implementation of the principles of the Green Revolution led to a loss of up to 95 per cent of traditional rice varieties without their collection or documentation (GRAIN, 2001b). At the end of the twentieth century, 75 per cent of India's rice production came from a mere ten varieties, whereas India was once home to 30,000 varieties of rice (Joseph, 1999). Likewise in China, at the time of the Communist Revolution in 1949, there were 10,000 different varieties of wheat in use; by the 1970s only 1,000 of those varieties were still planted. In the USA, approximately 97 per cent of the food plant varieties that were available to farmers in the 1940s are today no longer in use (Joseph, 1999).

Mono cropping

The most obvious danger of mono cropping is that the practice can be catastrophic if the crop is afflicted by disease or other defect (Brown, 2002). Historical precedent illustrates the dangers of a narrowing genetic base. The wheat stem rust epidemic of 1953 and 1954 when 75 per cent of the wheat harvest was destroyed in the USA, the southern USA corn blight of 1970, the 1975 loss of half a million acres of rice in Indonesia to damage caused by the rice hopper insect, as well as the Irish potato famine of the 1840s, have been invoked to highlight the potentially calamitous consequences of reliance on a single crop. Preserving genetic diversity, proponents assert, is necessary to assure continued genetic improvements in food crops.

The consolidation of the seed industry has led to five so-called "Gene Giants", namely DuPont, Pharmacia, Syngenta, Dow and Aventis, laying claim to a global market share of 60 per cent of the pesticide industry, 25 per cent of the world's seed market and almost 100 per cent of genetically modified crops (GMOs) (Meek, 2000, p. 11). The top ten seed companies' control approximately one-third of the worldwide trade in that industry (Action Aid, 1999). A survey by the London Evening Standard in 1999 showed that a mere 13 companies control 81 per cent of 1,600 patents for genetically modified crops and the technologies that are associated with them (London Evening Standard, 1999). Various patents have already been taken out on numerous varieties of five major food crops, namely rice, maize, wheat, soya and sorghum. Almost three-quarters of these patents are owned by five large corporations (CIPR, 2002).

Despite claims made within the biotech industry that varying groups of farmers growing diverse crops have accepted and implemented the concept of agricultural biotechnology, the reality is that the introduction of genetically engineered crops has, according to Michael D.K. Owen of the Department of Agronomy in Iowa State University, been characterized by uniformity in agriculture, industrial agriculture and corporate concentration (Owen, 2001). This uniformity can best be exemplified by the fact that in 2000 only four crops – soybean, maize, cotton and canola – accounted for virtually all the genetically engineered crops that were sown that year. Of crops grown that year, 98 per cent were limited to three countries: the USA, Argentina and Canada while three-quarters of the area dedicated to genetically modified crops in 2000 was for a single trait: herbicide tolerance, while only one company, Pharmacia (a merger of the agribusiness wing of Monsanto, Pharmacia and Upjohn) accounted for 94 per cent of the total area sown with genetically engineered seeds (Paarlberg, 2000).

Nevertheless, the seed industry has claimed that plant variety protection granted through plant breeders' rights (PBRs) has helped to increase private plant breeding R&D for certain crops, namely wheat and soybean (CIPR, 2002). However, there was no evidence of a corresponding boon to R&D in the public sector. Some critics of PBRs have argued that the public sector is being squeezed out of applied research by private organisations that are intent on creating a "basic research agenda for the benefit of corporations" (Tansey, 1999, p. 10).

An example of the enormous discrepancies in public and private funding of biotech-related research is that the Consultative Group on International Agricultural Research (CGIAR) which holds in trust one of the world's largest ex-situ collections of plant genetic resources spent \$25 million on such research in 1998 compared to the \$1.26 billion invested by Monsanto alone (CIPR, 2002). For Oxfam, one of the

consequences of this distorted pattern of R&D spending is that commercial interests and markets will continue to dominate innovation and the identification of future food priorities. Almost inevitably, hardly any of the newly engineered seeds which appear on the market "are designed to meet the food needs of the rural poor or to enhance the productivity of smallholder farmers" (Oxfam, 2002, p. 223).

The UK Commission on Intellectual Property Rights (CIPR) in its 2002 report on intellectual property rights and development policy made a plea for more public sector research to aid poorer farmers, stating that if the Green Revolution which was developed and applied with public sector funding failed, for the most part, to reach poor farmers living in agro-ecologically diverse rain-fed environments, it is apparent that biotechnology-related research led by the private sector will be even less likely to do so (CIPR, 2002).

The TRIPs Agreement has led to a huge increase in the number of patents taken out by agri-biotech corporations. Contrary to the WTO's aspiration for greater liberalization of trade, there is an inherent danger in the TRIPs Agreement that it could lead to corporations being granted monopoly privileges over life forms. This greater diffusion of patenting rights "has contributed to a concentration of power in the seed industries of a number of developing countries . . . while the combination of stronger patent laws and reduced competition has driven up prices" (Oxfam, 2002, p. 224). Monsanto and DuPont now control three-quarters of the Brazilian corn market between them, thanks primarily to stricter patenting laws over plant genetic resources.

The CIPR stated that the acquisition by the five major agro-biotechnological corporations of 67 per cent of the Bt (*Bacillus thuringiensis*) patents by 1999 reduces competition because innovative start-up firms find considerable barriers to entry in the market. In Brazil, for example, the Commission pointed out that after the introduction of plant variety protection in 1997, Monsanto took its share of the local maize seed market from 0 per cent that same year to 60 per cent by 1999 by acquiring three locally-based firms (Wilkinson and Castelli, 2000).

The UPOV Convention

The review of Article 27.3(b) of TRIPs is currently ongoing, yet many WTO members from the developing world have already agreed to protect new varieties of plants by signing the UPOV Convention (l'Union Internationale pour la Protection des Obtentions Vegetales – International Convention for the Protection of New Varieties of Plants). The UPOV Convention (UPOV) has been touted as a solution to the obligations that developing countries face with regard to plant variety protection under Article 27.3(b) of the TRIPs Agreement particularly with regard to implementing a sui generis regime for plant variety protection. UPOV provides a framework for intellectual property rights of plant varieties, and is as such "an off-the-shelf solution to developing such legislation" (CIPR, 2002, p. 62). These rights are most often referred to as plant variety rights or the European system of PBRs (Dutfield, 2000, p. 27). The purpose of UPOV is "to ensure that the member states of the Union acknowledge the achievements of breeders of new plant varieties, by making available to them exclusive property rights, on the basis of a set of uniform and clearly defined principles" (CIPR, 2002, p. 62).

UPOV was the first internationally recognised agreement on plant variety protection. The Convention was first signed in Paris in 1961 and eventually entered into force in 1968. UPOV has been amended on several occasions, as in 1978 when the

Convention allowed farmers to retain seeds and use protected seeds to develop their own strains (Oxfam, 2002). UPOV 1991, on the other hand, requires members to grant 20-year exclusive year rights to plants, with the rights of farmers to retain and use protected seeds left to the discretion of national governments. UPOV 1991 was essentially developed for institutionalised, commercialised breeding in the developed world where farmers have to pay royalties on the use of seeds.

Critics have argued that the criteria for "protection", which states that varieties must be distinct, uniform and stable, will lead to genetic erosion. These criteria, according to the FAO, will lead to the replacement of varieties of seeds that are genetically diverse and adapted for local conditions with genetically uniform modern varieties (cited in Joseph, 1999). Tansey writes that the UPOV system "promotes commercially bred varieties geared for industrial agricultural systems in which farmers have to pay royalties on such seed and the seed sector becomes an investment opportunity for chemical and biotech concerns" (Tansey, 1999, p. 10). As PBRs are only given for varieties that are genetically uniform they automatically limit what kind of seeds can be marketed and who can market them. As a consequence, critics argue, UPOV discourages genetically diverse and locally adapted seeds from both the market and the field.

According to the International Cooperation for Development and Solidarity (CIDSE) the implementation of UPOV 1991 has seen the capacity of farmers to save seeds of protected varieties being restricted, subject to national discretion. Concomitant with this outcome, the rights of breeders have been strengthened vis-à-vis "essentially derived" varieties of plants in response to developments in biotechnology (CIDSE, 1999). As the UPOV-related provisions in Article 27.3(b) of the TRIPs Agreement permit the patenting of biotechnological resources, governments in developed countries are imposing UPOV 1991 on countries of the South as a means of enforcing the latter's obligations under TRIPs. While the TRIPs Agreement is concerned with minimum standards of protection, those minimum standards, according to one group, "are clearly not strong enough for industrialised countries and the transnational corporations whose nerve centres they hold" (GRAIN, 2001b).

Bilateral, regional and sub-regional trade agreement are the means employed by developed countries to oblige developing countries to establish more stringent requirements for intellectual property rights on plant genetic resources. For example, under the North American Free Trade Agreement (NAFTA), Mexico is obliged to enforce UPOV 1991. When the EU negotiated its own Free Trade Agreement (FTA) with Mexico, NAFTA was used as a reference point. Under Article 12 of the FTA both sides are committed to upholding the "highest standards" of intellectual-property protection, which entails compliance with the provisions of UPOV 1991 (Oxfam, 2002).

Bilateral investment treaties stipulate that investments which flow into the South are accorded the same level of protection that they would receive in their country of provenance. "Investments" in such treaties include intellectual property rights, even potential intellectual property rights in some cases (GRAIN, 2001b). The three bi-lateral investment treaties negotiated by the USA with Vietnam, Jordan and Nicaragua respectively in 2000-2001 "all include a requirement of compliance with UPOV 1991, in Jordan's case within one year" (Oxfam, 2002, p. 221). The US-Jordan bilateral investment treaty is now being used as a template for other treaties, including the

treaty between the US and Chile. It can only be assumed that Chile will be “encouraged” to sign up to UPOV 1991.

The negotiations of bilateral treaties are usually confidential, with the contents of the texts not revealed until the treaties are agreed on. Consultation with either parliaments or public opinion on the details of a bilateral trade agreement are negligible, although the European Parliament has a mechanism in place to ensure that the details of bilateral trade agreements are at least discussed. In some countries, contempt for parliamentary procedure has seen UPOV 1991 adapted. In 1998, the Nicaraguan trade minister sent a plant variety protection bill to parliament under an “urgency motion”, i.e. a plea to adopt the bill within 15 days. The contents of the bill corresponded to the provisions in UPOV 1991. The trade minister informed parliament that Nicaragua was obliged to pass the bill and join UPOV under the TRIPs Agreement (GRAIN, 2001b). The bill was duly passed but it later transpired that Nicaragua had given the US a commitment to join UPOV in the secrecy of bilateral trade negotiations (GRAIN, 2001b).

Under the Vietnam-US bilateral trade agreement of October 2001, both parties agreed that in order to provide adequate and effective protection and enforcement of intellectual property rights, they “shall, at a minimum, give effect to the substantive economic provisions of the 1991 UPOV Convention”[3]. The EU-Bangladesh trade agreement obliges the latter to “make every effort” to accede to UPOV 1991 by 2006.

This is despite the earlier drafting of a sui generis bill on plant varieties for compliance with TRIPs that was compiled with the assistance of government officials, the scientific community, NGOs and indigenous movements over several years. Their proposed bill will effectively be redundant once Bangladesh accedes to UPOV 1991.

The incidence of UPOV 1991 being grafted onto bilateral, regional and sub regional agreements as a means of fulfilling a developing country’s obligations under Article 27.3(b) of the TRIPs Agreement will almost inevitably increase. The first developing countries, apart from South Africa, to join UPOV were Argentina and Uruguay in 1994 when UPOV had a total of 26 members. Since then another 24 developing countries have joined the Union, many of whose membership formed part of a bilateral trade agreement (CIPR, 2002). UPOV 1991 allows countries to permit farmers to reuse their own crop for seed purposes. However, it does not allow for farmers to engage in the informal sale or exchange of seeds.

Therefore, while UPOV 1991 is fastidious in the protection given to the commercial breeding sector, it virtually ignores the rights of farmers who not only use seeds but also are “key players in the conservation and improvement of plant varieties” (Correa, 2000, p. 167). The implications for food security in many developing countries of this omission of farmers’ rights could be grave.

Conclusions

In conclusion, it can be stated that the use of patents on plants (including plant varieties) under Article 27.3(b) of the TRIPs Agreement will continue to be strongly resisted by many countries in the developing world. This is because patenting could discourage agricultural conservation and the saving of seeds for replanting by farmers as the latter would be reluctant to use plants or seeds that require the payment of a royalty. With a global patenting system in place, it is likely that traditional varieties of plant and crops will be usurped by genetically modified organisms. This in turn will

doubtlessly lead to an oligopolistic market in agriculture dominated by a small number of firms. As a result prices of seeds and other inputs will almost invariably rise due to lack of competition in the sector. As the author Joseph Stiglitz wrote in his acclaimed work *Globalisation and its Discontents*, nobody denies the importance of intellectual property rights. However, the underlying problem with the intellectual property regime established under the Uruguay Round was that it "overwhelmingly reflected the interests and perspectives of the producers" (Stiglitz, 2002, p. 8). With Article 27.3(b) of the TRIPs Agreement currently under review, a more equitable agreement that reflects the contributions of farmers and indigenous communities to the conservation and propagation of diversity in agriculture is required. Not only in the interests of farmers in developing countries but also to safeguard public research in the industrialised world.

Notes

1. In May 2002 ASSINSEL and FIS were merged to create a single organisation, the International Seed Federation (ISF)
2. Article 27.3(b) of TRIPs states that: Members may also exclude from patentability: Plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members will 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 will be reviewed four years after the date of entry into force of the WTO Agreement (Quoted in Tansey, 1999, p. 6).
3. Taken from text of the Agreement between the US of America and the Socialist Republic of Vietnam on trade relations of October, 2001, available at: www.vietventures.com/us_vietnam_agreement_text.htm

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Further reading

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