

Implications of TRIPs on livelihoods of the poor farmers in developing countries

Introduction

There are a number of concerns in respect to the potential impacts of the patenting of food and farming crops on agricultural livelihoods and the ability of poor people to feed themselves in developing countries.

In this paper I will try to raise some of the concerns around patent protection of genetic resources for food and agriculture. The paper looks at some of the potential impacts of the Trade Related Intellectual Property Rights (TRIPs) Agreement of the World Trade Organisation (WTO). In particular I would focus on the impact of Intellectual Property Rights (IPR) regime on small farmers and food security in developing countries. The paper also explores the link between IPRs and investment, competition, innovation. The final section makes some specific recommendations on IPRs within the TRIPs context.

TRIPs : One size does not fit all

The TRIPs agreement was primarily drafted keeping in mind the corporate interests of the developed countries in mind. The ability to benefit from IPRs is very much a function of the level of development of the economy, and is more advantageous to owners of technology vis-à-vis users.

Intellectual property rights on plant genetic resources are not appropriate for farmers in developing countries to protect diverse, heterogeneous biological materials. Patents on plants discriminate against traditional and communal methods of breeding, recognising only individual breeding as innovation.

Discussions are underway at the WTO's TRIPs Council on Article 27.3 (b), which deals with biotech patents and plant variety protection. The developing countries and in particular the African Group have put forward a proposal to clarify 'that plants and animals as well as microorganisms and all other living organisms and their parts cannot be patented, and that natural processes that produce plants, animals and other living organisms should also not be patentable.'

The Africa group has tabled another paper at the September 2000 TRIPs council meeting requesting that the review of Article 27.3 (b) examine the link between IPRs and development, it raises questions about sui generis system of plant variety protection, focuses on ethical and other issues arising out of the patentability of life. The paper also raises the issue around conservation of biodiversity, equitable benefit sharing, traditional knowledge and farmers rights. India and Kenya in separate submissions highlighted the interpretation that the dispute settlement panel is talking in favour of producers of technology to the detriment of users. They also highlighted the fact that the WTO objectives of increasing welfare and the TRIPs objectives of balancing private and public interests and promoting technology transfer and development have failed. India earlier tabled a paper on indigenous knowledge both in the TRIPs Council and in the Committee on Trade and Environment. The issues we are discussing in this Public Conference today and very much alive and would gain immensely by our support.

Conflict with food rights: Exclusion of patents for food and farming crops

ActionAid like many of you believes that poor people have a right to food. Patenting of food and farming crops affects the control over and access to the resources that secure the right to food. The critical rights include:

Rights to save and exchange seeds and breed from them.

Rights to have indigenous and community knowledge protected and acknowledged.

Rights to land.

Rights to real choice in the market, not monopolies.

Rights to be protected from risks.

Rights to public research directed towards the need of the poorest farmers

rights to knowledge about alternatives and an enabling environment for those alternatives.

Rights to participate in decisions and influence policies that affect them.

We believe that patents on genetic resources for food and agriculture – particularly staple foods, should not be allowed under TRIPs legislation. In our analysis and that of others, they can undermine the right to food recognised in Article 25 of the Universal Declaration on Human Rights, and reaffirmed in the International Covenant on Economic, Social and Cultural Rights (Article 11) and the Convention on the Rights of the Child (Articles 24, 27). It is important to note that the United Nations Commission on Human Rights, designated a Special Rapporteur to study the human right of access to food earlier this year. The latest Human Development Report 2000 of the UNDP, Human Rights and Human Development points out the contradiction between human rights and TRIPs. Further the UN Sub-Commission for the Protection and Promotion of Human Rights passed a resolution stating that TRIPs Agreement could infringe on poor peoples right, specially their access to seeds and pharmaceuticals.

Not only can the patenting of food and farming crops lead directly and indirectly to a denial of the right to food, but in granting decades long monopolies on 'inventions' relating to food and farming crops – particularly staples, we are sacrificing the free and public exchange of technologies that may benefit poor people.

There are those who argue that as with the human genome, the knowledge held in all genetic material of whatever origin is foremost a public good whose application to the furtherance of humanity should be held in the public domain. ActionAid believes that knowledge and technologies which can be appropriately applied for eradicating poverty and protecting basic human rights should be held publicly and should be freely available, just as was the material from which it was derived. Additionally, because of the dependence of the many millions of poor people on staple crops, neither the crops nor developments of these crops should be subject to private monopoly. We do believe that this is a serious issue of 'public policy or morality'.

IPRs and livelihood security

Traditionally, national legislation in developing countries has excluded plants and animals, including their varieties, from IPR protection. There are many reasons for this.

Agriculture is the backbone in most developing countries. Access to the means of production and seed in particular is vital for largely agrarian economies. The majority of people in developing countries depend on agricultural production to sustain their livelihood and food security. Agriculture also has deep cultural, social and religious significance.

The sophisticated knowledge of poor farmers working in high risk, marginal environments in relation to soils, seeds, weather patterns, pests, diseases and markets means that generally they are best placed to make prudent decisions regarding agricultural production. World wide, 1.4 billion farmers depend on farm saved seed as their primary seed source. They save a portion of their produce as seed for planting in the next season. They have over centuries exchanged freely within communities and have provided the basis for selective breeding to encourage positive traits. The varieties produced and conserved by subsistence farmers are designed to cope with local pest problems and weather conditions to provide at least a minimum harvest even in the most difficult times.

These varieties and the knowledge has been developed over centuries jointly by the community as a whole and is not subject to individual ownership. Farmers right to seed is being threatened by the TRIPs Agreement. IPR protection of plants and seeds transfers the control over, and access to, the resources that secure the right to food from poor farmers and communities to private hands. It is feared that TRIPs will impact on the ability of farmers to obtain new varieties to adapt to local conditions and demands.

Farmers voices

- A farmers jury on GM crops in its verdict stated that 'any new innovations in agriculture should ensure the farmers right to save, breed from and exchange all his/her seed.' This right is intrinsically linked to livelihood security of poor farmers.
- Verdict from farmers in a Seed Tribunal from India held on 24th and 25th September 2000, highlighted the despair surrounding the livelihoods of farmers in India and the growing vulnerability of farmers the world over. The tribunal stated that "Patent and IPR's regime as system of monopoly control will further aggravate the severe crisis the farmers are facing. The Trade Related Intellectual Property Rights (TRIPS) regime of the WTO will therefore create conditions for a deepening of the economic crisis of the farming community in India. The farmers highlighted the "traditional rights of the farmers to freely conserve, develop, use, share, exchange their seeds are fundamental rights which cannot be alienated by any IPR law. We must develop our indigenous "sui generis" system to protect farmers seed sovereignty."

Many argue that farmers have the choice of using local or proprietary seed. We support their right to choose but believe that without education and awareness programmes to balance the incentive packages and marketing propaganda of the agrochemical companies, choices may be poorly informed.

The promotion of viable, ecologically sound livelihoods by placing the control of the resources for agricultural production in the hands of the producers, through the protection of farmers' rights as owners, breeders and conservators of seed and plant genetic resources is crucial to attaining their livelihood and food security.

IPRs and biodiversity

Traditional variety of seeds not only ensures the livelihood security of poor farmers by hedging their bet against uncertainties of agriculture, but also has a vital role in ensuring that biodiversity is maintained.

Genetic diversity in agriculture enables poor farmers to select varieties of plants and animal breeds that are best adapted to changing environmental, economic and social pressures. Over centuries a huge range of seed varieties has been developed at local level, many of which are unique to a small area and produce local food crops that are not extensively traded. Furthermore, in the poorest and most marginal locations, traditional diets

often contain a finely balanced mixture of domestically produced crops and plants and fruits found in the wild as well as cultivated by them. Agricultural biodiversity is crucial for livelihood and nutritional security of the poor. A wider genetic base is the pedestal on plant breeding and farming is based. Maintenance of plant genetic diversity is a shared heritage and responsibility of all humankind. Historically, we have used about 5,000-plant species world wide to meet food and other needs, which in itself is a fraction of the worlds flora and fauna. Today, only about 150 plant species are important in meeting the food (calories) needs of humans' worldwide. Hence, greater dependence on fewer plant species, 20 to 30 in global context gradually, has resulted in the loss of native genetic resources which are otherwise essential as building blocks of genetic diversity.

The technological bind of improved varieties with support from intellectual property protection leads to the elimination of the resource upon which they are based. The narrowness of the genetic base is responsible for greater risk of crop failure as occurred in the wheat stem rust of 1954 or the southern corn blight of 1970 in the US. The Irish potato famine in the 1840s is a classic example of genetic vulnerability. (R.S. Paroda and R.K. Arora)

Intellectual property rights provides incentives for a particular kind of agriculture which is detrimental to biodiversity protection and livelihood security of poor farmers. Jaffe and van Wijk in their study of 5 developing countries plant breeders' rights law make the following observations: 'In most developing countries, the use of certified seed of modern varieties is either recommended by extension services, linked to credit facilities, or is obliged by the processing industry. The marketing of seed of traditional varieties may also be reduced by mandatory registration of varieties.'

In the UK farmers' varieties of seeds sold in brown bags are illegal as they are not on the National seeds list. Its ironic that farmers natural right to save, exchange and sell seeds becomes a legal privilege to be granted to them by the governments if they so choose to in their national laws, under the TRIPs agreement and sui generis laws of the UPOV 1991 kind.

The argument that farmers can use improved and proprietary varieties of seed and its only a question of their choice, overlooks the genetic richness of the seeds being used by subsistence farmers. For many companies seed is seed – one variety fits all. Yet the genebanks of international agricultural research centres have built up over the past 25 years large stocks of local farmer varieties collected from all over the world. Plant breeders have used these collections, which represent the natural biological diversity of crops, as the raw material for fashioning new crop varieties. In fact an FAO official states that "Every major commercial crop grown in developed countries today originated in what are now termed developing countries, restoration of seed would be one small way to repay what is by any measure a very large debt."

(www.fao.org/WAICENT/FAOINFO/AGRICULT/magazine/9810/spot2.htm)

IPRs and biopiracy

Another strong argument for considering the exclusion of patenting of genetic resources for food and agriculture is what some call bio-piracy, 'licensed theft', or privatisation of common, cultural or indigenous knowledge relating to the economic and other benefits of plants.

Bio-piracy is a term used to express the expropriation and licensing of genetic resources which are common property (freely available) in developing countries, without any recognition or recompense to the countries or communities who have traditionally used and developed them.

UNDP's Human Development Report 2000 refers to TRIPs as entailing the "silent theft of centuries of knowledge from some of the world's poorest communities in developing countries". (p. 6)

These patents are increasingly being subject to successful legal challenge. The following boxes give examples.

Biopiracy Case Study 1: Turmeric

In March 1995, two expatriate Indians at the University of Mississippi Medical Centre, were granted a US patent (US 5,401,504) for turmeric to be used to heal wounds. The Indian Council for Scientific and Industrial Research (CSIR) filed a case with the US Patent Office challenging the patent on the grounds of 'prior art'. CSIR said turmeric has been used for thousands of years for healing wounds and rashes and therefore its use as a medicine was not a new invention. The claim had to be backed by written documentation claiming traditional wisdom. The CSIR went so far as to present an ancient Sanskrit text and a paper published in 1953 in the Journal of the Indian Medical Association. The US Patent Office upheld the objection and cancelled the patent. It also cancelled several other patent applications pending for turmeric.

Biopiracy Case Study 2: Neem

Natural extracts from the seed of the neem tree that is found across Asia, especially India are the subject of patents by US Company WR Grace. The products, to control insects and fungi at the same time, developed under a cooperative research and development agreement between ARS and WR Grace and Company of Columbia have been registered for commercial use by the US Environment Protection Agency for pest and disease control. (patents US 5,298,251; US 5,356,628; US 5,372,817; US 5,405,612; US 5,409,708)

(www.ars.usda.gov/)

WR Grace and United State Department of Agriculture filed a European Patent application with the European Patent Office (EPO) on the basis of a US priority application of December 26, 1989, covering a method for

controlling fungi on plants by the aid of a hydrophobic extracted neem oil. The EPO granted a European patent for this application on September 14, 1994. A legal challenge on this patent was filed in June 1995 on basis of not fulfilling two criteria's of patentability: novelty and inventiveness. On 10 May, 2000, the EPO upheld the objection on the basis that the technique was well known to local farmers in India, lacked any inventive step and that such indigenous knowledge could therefore not be patented.

Overall, there are 90 patents granted on process and products from the neem tree worldwide and 40 patent applications received at the EPO. Dried neem leaves have been used for centuries in India to protect clothes and grains against fungus and the 'find' is not new. Patents encourage such misappropriation of indigenous knowledge.

Biopiracy Case Study 3: Basmati

In 1997, the Texas-based RiceTec Inc. was granted US patent 5,663,484 on Basmati rice lines and grains. This patent allows RiceTec to sell a 'new' variety of Basmati, which it claims to have developed under the name of Basmati, in the US and abroad. The Basmati variety, on which RiceTec has claimed a patent has been derived from Indian Basmati crossed with semi-dwarf varieties, including indica varieties. Thus the patent is for a variety that is essentially derived from a farmers' variety. It is simply cross-breeding, and therefore it should not be treated as novel. The patent falsely claims a derivation as an invention. The Indian government challenged the case and has recently managed to get Rice Tec to withdraw claims related to the rice grains which are not novel and are well within accepted standards for a basmati grown in traditional regions. Rice Tec has withdrawn 4 of the claims in its patent application. (Economic Times of India, 26/9/2000) Though this still leaves the rest of the patent intact with exclusive rights for Rice Tec to grow Texmati in the Americas. It is crucial to also remember that it is very expensive to challenge cases of biopiracy on a case-by-case basis. American lawyers had demanded a deposit of £300,000 from Pakistan to fight the case.

We would argue that the threat to internationally agreed food rights, the increasing number of successful challenges to patents on developing country food and farming crops, and the arguments on public policy and morality leads to a need for exclusion of genetic resources for food and agriculture from patentability.

Furthermore, there needs to be a process to comprehensively review all existing patents and patents pending in the light of recent legal findings (it is simply not feasible for civil society to legally challenge – for example, the 90 patents granted on process and products from the neem tree worldwide or the over 70 patents on Vitamin A Rice). Patenting and commercialisation of agriculture

As discussed, patenting food and farming crops promotes a form of genetically modified (GM) and commercially controlled agriculture that can threaten the rights to food in a number of ways:

GM agriculture could intensify the trend towards large-scale single-crop farming and concentration of land holdings – poor farmers depend upon a great variety of crops as a safety net, and need security over marginal lands. Patents promote the consolidation of global seed and agri-chemical businesses, concentrating power over seeds and seed choices in a very few hands. Poor farmers are already vulnerable players in the marketplace – to be operating in an inefficient market biased against them, increases vulnerability. Seed patenting – the guarantee of monopoly profits threatens the practice of farmer saved seeds and is transferring the community knowledge and biological resources of the south into private industrialised hands. Patents are being granted on plants or plant products that have been developed using biological resources which are the result of generations of cross-breeding – that is the intellectual property – of farmers in developing countries. Creating private property rights over the intellectual rights of many previous generations of farmers (which they have shared as common property for the common good) raises serious questions in respect to 'prior art', and can also viewed as a form of intellectual property theft - so called 'bio-piracy'. Aggressive marketing and easy credit, promising high yields and big profits entices farmers onto a high tech treadmill. Farmers are not made aware of the risks.

IPRs and consolidation

Three quarters of patent filings received by WIPO in 1999 were from five countries, US, Germany, Japan, UK and France. This figure becomes even more skewed with 97 per cent of all patents are held by nationals of OECD countries. What is more alarming is that 90 per cent of all patents in the world are held by global corporations. Patents are kept within a family, they are not as in theory to share knowledge, encourage innovation. This fact is well supported by the figure of 70 per cent of all patent royalty payments being made between subsidiaries of parent enterprises. (RAFI, 2000)

The private sector companies are on a roll, acquiring local firms or forming strategic partnerships with them.

Agrevo last year acquired the Delhi-based Proagro group of companies at nine times its turnover while Monsanto acquired a 26 percent stake in Maharashtra Hybrid Seed Company valuing it at five times turnover, according to newspaper reports. (Anshuman Daga, Reuters. 22/5/2000)

ActionAid along with Bern Declaration, Gene Watch and Swedish Society for Nature Conservation released a report on 11th October highlighting the merger of AstraZeneca and Novartis into Syngenta to form the largest GM company in the world. The multinational will be ranked number one in the world for agrochemicals (herbicides, fungicides and insecticides), number two for seed treatments and will be the third largest seed supplier – with combined sales of \$7.34 billion.

There is the argument that farmers are free to continue saving their seeds and have a choice of not purchasing proprietary seeds. Companies point out that farmers will buy seeds only if they want to and if they see a benefit in growing them. However, in the context of large multinational corporations buying up local seed companies, the question of choice becomes really limited. For example 60 per cent of the corn market in Brazil is controlled by Monsanto.

Top five plant biotech patent holders

Company	Patents	%Total
Syngenta	205	9
DuPont/Pioneer	184	8
Monsanto	173	8
Aventis	55	2
Dow Agrosciences	45	2

Five biotech companies, or the so-called Gene Giants control 30 per cent of all plant biotech patents. Though, in reality this figure might be as high as 50 per cent or more as it does not reflect exclusive licensing arrangements made with these corporations of the patents held by institutes.

Certain classes of bio-technologies, such as 'Terminator Technologies' or technologies deliberately designed to tie farmers into a dependence on specific packages of inputs (Genetic Use Restriction Technology(GURT)) should not be encouraged through patents, since they are issues of public policy and morality (let alone raising issues in respect to monopoly practice analogous to Microsoft's packaging of Internet Explorer).

The report on Syngenta uncovered patents that would tie the farmer into a dependent relationship where every year they would need to return to the agrochemical supplier to 'activate' seed. What was quite alarming to note was that Syngenta own's over 50 per cent of the patents on GURTs.

'Novartis was not achieving the sales it wanted because farmers insisted on saving seed. This, the report states, 'is the clearest indication of the corporation's desire to circumvent the age-old practice of saving seed. While this is becoming rarer in the developed world, at least 1.4 million people rely on farm-saved seed worldwide.'

(ActionAid, Berne Declaration et. al, October 2000)

Public sector Vs. private sector: question of incentives to agriculture

The importance of public sector research for food security and increased productivity of crops of interest to poor farmers cannot be over-emphasised. The public sector with all its ills has invested heavily in research on food crops in developing countries. While public funding for agriculture is declining, private investment into agriculture is booming. 80 per cent of public sector research is oriented to the farmer, whereas only 12 per cent of private sector research is for farm-level technologies. Extension of the intellectual property system to agriculture has been an important factor in the shift to the private sector.

Over 90 per cent of the seed requirements are met by farmer saved seed in India. Only 7-10 per cent of the seed requirements is met by the organised sector (public and private seed companies). This is changing, a study carried out by ActionAid India on the seed sector, shows how favourable legislation and policy changes are encouraging the private sector seed industry. The scope for expansion for the private sector seed companies in India is tremendous given their low penetration historically. The study highlights marketing strategies of companies: 'A few of them issue advertisements in newspapers to promote their seed, some others interact with farmers and still others issue free of cost sample seed packets to farmers to grow on an experimental basis. There are still others like ITC Zeneca who identify a few farmers who have had a good crop the previous year and ask them to use their seed along side with local varieties. Cargill invites farmers to see the good crop in other Cargill farmer-customers fields.'

Plant Variety protection, 'the availability of Plant Variety Certificates, plant patents, and the extension of utility patents to cover new varieties as well as plant tissues and genes has contributed to industrial interest in the area.' This has led to several plant breeders having difficulties with obtaining "protected genetic stocks" from companies and has harmed plant breeding in the public sector states Steven C. Price, from the University of Wisconsin, Madison. In a survey conducted by Price, out of the 86 respondents representing 25 US universities and 41 crops, forty-eight percent of public plant breeders (out of 86) indicated that they had experienced difficulty in obtaining genetic stocks from private companies; 45% indicated that this had interfered with their research; 28% felt that it had interfered with their ability to release new varieties, and a shocking 23% reported that it had interfered with the training of graduate students.

This according to him, this raises serious questions about the role of public breeding, danger of having future varietal releases done predominantly by industry, especially in light of the industry consolidations, with a concomitant potential decrease in genetic variability. In the end Price states, the public may be hurt by decreased genetic diversity resulting in fewer varietal choices.

Challenging the links between patents and innovation and competitiveness

The argument that Intellectual Property Rights (IPR) protection is required for innovation is not well placed. The economic benefits and costs of IPRs are not clear-cut.

IPRs and competition

Patents can have anti-competitive effects by securing and strengthening the position of market leaders and limiting the entry of new competitors. The World Bank admits that "tighter IPRs can disadvantage developing countries in two ways: by increasing the knowledge gap and by shifting bargaining power towards the producers of knowledge, most of who reside in the industrial countries". For example, partly as a result of the extension of plant variety protection and the willingness of US courts to extend utility patents to organisms, the number of independent seed companies worldwide has declined markedly over the last two decades.

An OECD report, *Patents and Innovation* (p. 29, 1997) states 'Blocking technology' has become the strategic function of patents. The *Economist* of April 8th 2000 (pg. 99) writing about the madness in the method states, "The rush of new patents has given rise to two sets of complaints. The first is that a lot of "bad" patents are being issued. The second is that the pendulum has swung too far: after decades when patents did not afford investors and companies enough protection, they now offer too much." It further states, "Critics object to these patents on two main grounds. They are too broad, and will keep competitors out of large potential areas of business; or, if the patent-holder licenses the technologies, they will put up prices to consumers." Another important question to raise is "are too many monopolies being granted for too long?"

The Harvard Business Review of January-February 2000 writing on *Discovering New Value in Intellectual Property*, states "whether a company is trying to block a competitor's product development plan, gain entry into a hotly contested new market, find the most attractive acquisition opportunity, or reduce the risks involved in a high-stakes merger, patents can be potent weapons-and quite possibly the greatest source of competitive intelligence on earth." More often than not, companies, take out patents to block other competitors to enter the field. Patents are described as 'trump cards' to negotiate licences. This is quite common in the biotech world where the recent spate of mergers and acquisitions are partly triggered by the patent portfolio of the company.

IPRs and innovation

The economic and democratic costs of IPR as an incentive to innovate – from higher priced goods to reduced access to information – are extremely high and developing countries can least afford to rely primarily on this one tool. Much innovation occurs in spite of the patent system. 'Intellectual property policies are not the only, nor necessarily the most important, government policy affecting innovation. The ratio of patents to real research and development expenditures in the United States and elsewhere has been declining.'

'The liberal economic argument for adopting IPRs because they supply the prime incentive to invent is premised on the assumption that private companies are responsible for all technology generation. This is not true, as state intervention plays an enormous role in developing technological capability.' (Grain/Gaia) Moreover, in developing countries it is the small farmers who innovate and their incentive largely is their zeal to survive and ensure their livelihood security.

Moreover, proprietary technology generation is concentrated in ten countries accounting for 84% of global R&D spending per annum with industrial countries accounting for 97 percent of all patents worldwide. A 1985 UNCTAD study covering 100 corporations failed to find a uniform cross-sectoral link between IPRs and innovation. Studies have shown that competition for market share was the biggest influence on R&D investments by firms. (Kamien and Schwartz, and Firestone quoted in Grain and Gaia)

IPRs and investment

Correa (2000) points out that 'whatever the current importance of IPRs as determinants of FDI flows may be, once the Agreement becomes fully applicable, other factors (availability of skills, R&D infrastructure, macroeconomic policies, etc.) will have an overriding influence as determinants of such flows and activities. In other words, compliance with TRIPS Agreement will not ensure by itself greater attractiveness of a particular country vis-à-vis other countries competing for the same investment.'

In fact IPRs end up being a resource constraint in many cases. UNCTAD (1996) highlights that 'a serious constraint on patent policy-making in developing countries is likely to be the high cost of maintaining administrative capabilities to implement the new standards on a case-by-case basis and of training skilled personnel.' A study by UNDP puts a figure of US\$300 million in unpaid royalties for farmers' crop seeds and over US\$ 5 billion in unpaid royalties for medicinal plants if a 2 percent royalty was charged on biological diversity from the South.

IPRs and price

A recent World Bank study does concede that 'with an increased reliance on the patent system for protecting agricultural products, monopolistic pricing may very well become a serious cause of concern in the future'. In fact the report also points out that a recent study on Argentina, Chile, and, Uruguay found that the introduction of plant breeders' rights protection improved the ability of private breeders to control local seed markets and prevent

unauthorised trade in protected plant varieties. In consequence, seed prices appeared to have risen, although it was not reported by how much. (World Bank, 2000)

Case study of PBRs in the UK

Our research in a related field, plant breeders rights, reflects a lot of the thinking above and suggests that creation of monopolies is not necessarily linked to inventive activity, so the trade off society makes in granting 20 year monopolies, between free exchange of ideas and future gains from invention, may be a false one. A recent study commissioned by ActionAid, 'Intellectual Property Rights and Agriculture: An Analysis of the Economic Impact of Plant Breeders' Rights' highlights the following:

Plant breeders rights Vs patents

The EU and UK chose to protect their plant varieties through plant breeders rights instead of patents primarily as a result of opposition from lobby groups representing patent lawyers, who were afraid that including plant varieties within patent law might weaken the patent system. It was thought plant breeding might not be able to meet the crucial requirements for the grant of a patent – novelty, invention and industrial applicability. The problems of novelty (Vs prior art/biopiracy), invention (Vs discovery), utility (industrial applicability) exist even today.

Investment

On the link between IPRs and investment, the study points out that older firms that pre-existed Plant Breeder Rights legislation have been most active. Moreover, private investment appears to concentrate on select crops, suggesting that the profitability of the crop is more crucial in bringing forth private investment.

New plant varieties

The study notes lack of a clear link between increased number of new plant varieties and PBRs. More significantly, the new varieties should be demonstratively better in quality rather than a mere increase in number of similar varieties or some ornamental changes. The study points out that companies are constantly replacing their portfolio of varieties as it is in the breeders' interest to reduce the life-span of older varieties and continuously release new ones. Consequently, there are a number of periods when the market experiences a net withdrawal of varieties. This evidence undermines claims concerning PBRs positive impact on inventive activity.

Consolidation

The study failed to provide evidence of greater competition or increased number of firms active in plant breeding as a result of Plant Breeders Rights (PBRs). In fact, there is compelling evidence of seed industry consolidation, which is well supported by reports of widespread mergers and acquisitions within the industry. Statistical evidence on the distribution of PBRs grants confirms the suspicion of a highly concentrated market. Five per cent of the applicants controlled between 68-89 per cent of the wheat PBR grants issued between 1965 and 1995 in the UK. The study concludes that the main beneficiaries of the PBRs system have been the older breeding firms that have been subsequently consolidated within multinational companies. An ActionAid study from Brazil establishes further evidence of consolidation of the seed sector as a result of Plant Variety Protection (PVP). Similar studies on potential impact of TRIPS and PVP have been carried out by ActionAid in Nepal, Ethiopia and Uganda. The high level of concentration in the distribution of grants is reflected in market shares. One reflection of market power is the behaviour of seed prices. The study highlights that in the UK, seed prices (aggregated for all species) increased by 34 per cent between 1985-93 – an increase second only to the increase in price of plant protection chemicals. The increase in royalty rates (a result of PBRs) has been higher than the increase in seed prices. This study focuses on Plant Breeders' Rights as patents are a new phenomenon and data on their impact would be limited. Also, since patents are a step forward from PBRs we felt it would be useful to review the role of PBRs in the UK to help us pre-empt some of the implications they might have for developing countries.

Recommendations

The following are some recommendations for the review of the TRIPs agreement:

Clarifies that the WTO rules including the TRIPs agreement must be consistent with human rights law, in particular the UN Covenant on Economic, Social and Cultural Rights, and acknowledges the points made by the UN Sub-Commission on the Promotion and Protection of Human Rights on 17 August 2000

In relation to the review of Article 27.3b, support developing countries', and in particular the African Group's proposal, to (a) clarify 'that plants and animals as well as microorganisms and all other living organisms and their parts cannot be patented, and that natural processes that produce plants, animals and other living organisms should also not be patentable'; (b) maintain flexibility for countries designing sui-generis systems; and (c) support the inclusion of disclosure of the source of genetic material within TRIPs as proposed by India. Clarifies that the WTO TRIPs Agreement must be consistent with (a) provisions in the CBD to conserve natural resources, ensure prior informed consent and benefit sharing; and (b) the International Undertaking of the FAO on Plant Genetic Resources and Farmers Rights

Instead of instituting a global patenting regime, encourages the international community to develop alternative methods of recognising and protecting the traditional knowledge, innovations, practices and technologies of indigenous people and farming communities.

Supports developing country calls to refrain from invoking a dispute settlement procedure with regard to the implementation of article 27.3b during the period of the review of the provisions of this article and the review of the Agreement itself under article 71.1.

Works to ensure that the review of Article 71.1 retains the option to amend the TRIPs to exclude genetic resource for food and agriculture from patentability and in order to ensure a better balance between the interests of inventors and the greater public good.

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