Farmers in the IP Wrench - How Patents on Gene-Modified Crops Violate the Right to Food in Developing Countries

Peter Straub

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INTRODUCTION

Upon entering into force on January 1, 1995, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) brought the global protection of intellectual property rights to an unprecedented level. Very soon it became clear that its provisions and the implementation thereof were difficult to reconcile with numerous economic, social and cultural human rights. One example of such a conflict was the dispute between South Africa and American- and European-backed pharmaceutical industries over South Africa’s right to allow cheap parallel imports of patented AIDS medicine. Another example was the U.S.-Brazil dispute over compulsory licensing of AIDS medicine in Brazil. The attention of legal scholars consequently focused on the incompatibility of TRIPS provisions with the right to the highest attainable standard of health care pursuant to Articles 12(1) and (2)(c) of the CESCR.

A major goal of the United States during the TRIPS negotiations was to obtain intellectual property protection for its agricultural biotechnology industry.¹ In North America, and around the world, the economic effects of
strengthened intellectual property rights on genetically engineered (GE) crop plant varieties have raised concerns of farmers and non-government organizations. Unfortunately, they seldom argue within the framework of internationally recognized human rights. Instead, they make reference to rather fuzzy values, such as "food sovereignty."²

The term "food sovereignty" was coined in 1996 by Via Campesina, an international NGO concerned with farmers' rights.³ It is supposed to be "the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity."⁴ First of all, the content of this right is unclear, as today there are hardly any countries that are not, to a certain extent, dependent on food imports. The inherent structural weakness of this approach is, however, that "food sovereignty" does not represent a recognized human right. It is, rather, the product of what Michael Ignatieff calls "rights inflation," meaning the "tendency to define anything desirable as a right."⁵ There exists, however, considerable overlap between the claim for "food sovereignty" and the content of recognized human rights. Whenever "food sovereignty" is infringed, human rights such as the right to self-determination and the right to adequate food might be violated as well. Farmers and NGOs can strengthen their case against patents on crop plants by applying, whenever possible, a recognized human rights framework instead of self-proclaimed new rights.

This essay aims to apply a human rights framework to the problem and to demonstrate that an overly strong protection of intellectual property rights on food crops can violate the human right to adequate food. The conflict is primarily between the farmers' right to adequate food and the commercial interests and intellectual property rights of transnational corporations. States, as the primary addressees of human rights, are only indirectly involved. The CESCR places an obligation on member States to work towards the progressive realization of socio-economic rights,

⁴. Id.
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including the right to food. Because the patents and other intellectual property rights in question exist only subject to national legislation, States have to balance the different economic interests in their IP legislation and agricultural policies in a way that promotes the realization of the right to adequate food.

Part I of this article uses cases from North America to discuss the impact of GE crops on farming practices. It will then explore the likely effects on small farmers in developing countries. Part II discusses the right to adequate food and how it is affected by the findings in Part I. Part III examines the possibility of intellectual property as a human right. Such a right is often invoked to give legitimacy to demands for higher protection and enforcement standards for intellectual property. It is therefore important to determine if there is in fact a conflict between two opposing human rights. Part IV focuses on States' human rights obligations and their options for fulfilling such obligations.

PART I – Multinational Seed Companies vs. Farmers

I. The Impact of Genetic Engineering on Agriculture

In recent years genetically engineered, genetically modified, and transgenic crops have had a significant impact on farming in North America and the rest of the world. New breeds of crops, created for higher yield, herbicide tolerance, or insect-resistance, promise higher productivity for farmers. In the United States, most planted crops are already genetically engineered.

Most of these GE crops are created and marketed by a small number of transnational corporations (TNCs) who have come to dominate seed markets by buying up seed companies and smaller competing biotechnology companies. Today the ten leading seed companies

8. The Center for Food Safety, Seizing Control: Monsanto’s Path to Domination of Biotech Crops and U.S. Agriculture, in MONSANTO V. U.S. FARMERS 8-9 (in 2004 85% of all soy acreage, 45% of all corn acreage, and 76% of all cotton acreage was genetically engineered).
dominate 30% of the world seed market. These TNCs protect their commercial interests by patenting the manipulated genetic strains and the processes for their creation. In fact, it can even be said that these TNCs had a major influence on the development of current domestic and international regimes for the protection of intellectual property.

2. Cases from the Developed World

In 1986, in the case *Ex parte Hibberd*, the U.S. Patent Office recognized for the first time the possibility of granting utility patents on plants. Under the current patent legislation in the United States and Canada, all plants and plant material—including seeds—containing modified genetic traits can be patented. These patents make it illegal to make, use or sell the seeds or other parts of the plants without having first acquired a license from the patent holder. The current legislation does not differentiate between intentional and unintentional acts of infringement. Therefore, not only farmers who plant GE seeds, but even those who are completely unaware that some of the plants on their fields contain manipulated DNA, become subject to legal liability. Due to the nature of the subject matter, the possibilities for this to happen are manifold.

Farmers who plant GE crop seeds on their fields only once take the risk that remaining seeds might "volunteer," i.e., sprout, during the next season. During harvest time the seeds of GE crops are also blown onto the fields of neighboring farmers, where they might "volunteer." Finally, as most of the crops in question reproduce sexually, i.e., through pollen, modified DNA is transferred to other plants by cross-pollination. This represents the biggest problem, as pollen can stay airborne for hours and be carried by the wind for distances of several kilometers. This so-called

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10. Sell, supra note 9, at 204.
12. Drahos, supra note 1, at 260-46 (describes how the TRIPS Agreement came into being as a result of lobbying efforts of American biotechnology corporations).
14. The Center for Food Safety, supra note 8, at 11.
16. The Center for Food Safety, supra note 14, at 39. INSTITUTE OF SCIENCE IN SOCIETY & THIRD WORLD NETWORKS, THE CASE FOR A GM-FREE SUSTAINABLE WORLD 10 (Mae Wan
"genetic drift" is considered unavoidable and cannot be stopped by physical barriers. Farmers might therefore unwittingly find their fields or their seed stock contaminated with modified DNA.

In fact, the contamination of seed material has become so pervasive that experts consider it almost impossible to find commercial crop seeds in North America that are guaranteed to be uncontaminated by manipulated DNA. In one study it has been found that 50% of the tested corn and soybean varieties, and 83% of the tested canola varieties were contaminated with genetically modified DNA.

In the United States and Canada, Monsanto, the leading company in agricultural bioengineering, has recently started a campaign of investigations and legal actions against farmers on whose fields plants with modified DNA have been found, but who have not signed a licensing agreement with Monsanto.

For example, in the case of *Monsanto Canada v. Schmeiser*, the Supreme Court of Canada ruled that a farmer had infringed a patent under the Canadian *Patent Act* even though he had admittedly never bought or used GE seed from Monsanto. Canola plants containing a patented gene for herbicide resistance were found on the defendant’s fields. These plants were indistinguishable from other non-GE canola unless sprayed with one of Monsanto’s herbicides. It remained unclear how the GE seeds had arrived on the defendant’s fields, as the defendant only saved and developed his own seeds. The defendant claimed they must have been blown onto his fields thereby contaminating his own crops.

As a result of legal costs and court injunctions that permanently forbid farmers to sell Monsanto’s products, many farmers in the United States have been driven out of business by Monsanto’s lawsuits.
3. The Impact on Developing Countries

In developing countries, small-hold subsistence farmers play a significant role in domestic food production. The major agricultural biotechnology companies are now aiming for these countries’ seed markets. They claim that GE crops could play a major role in combating hunger and malnutrition by raising the productivity of small farmers and developing crops that address the special needs of malnourished people, such as vitamin-rich grains, known as “golden rice.” This claim is heavily contested by experts who say that the cause of hunger is in most cases not the overall lack of food, but the lack of accessibility. In the case of the 2005 famine in Niger, for example, the famine resulted from a spike in food prices on the regional markets combined with a collapse of purchasing power of Niger’s pastoralists due to a drop in livestock prices. In fact, 80% of the people suffering from hunger live in food exporting countries. One prime example is India, which has 320 million hungry people despite the fact that over 60 million tons of food grains were available in silos in 2001. In addition, the low productivity of these farmers cannot be attributed to the lack of a “miracle crop,” but to the overall macro-economic situation and lack of market access, which prevent higher productivity.

Small farmers usually have no financial means and consequently do not buy seeds but instead rely on the cultivation of wild varieties and the saving and swapping of seeds. Once they start cultivating GE crops
however, the license agreements they will have to sign under new IP regimes would put them under an obligation to buy new seeds every season.

At the same time, in order to protect their patents, transnational corporations exert political influence to open up developing countries for their GE products and guarantee a level of intellectual property protection similar to the level of protection they enjoy in the United States and other developed countries.

It can be expected that in developing countries, where the wild ancestors of crop plants can still be found, manipulated DNA from GE varieties will contaminate other crop varieties, especially "landraces." The term “landraces” is used to describe plants that are selected by traditional farmers from wild populations. Due to illiteracy and the lack of information, small farmers in developing countries will be unable to take precautions against the contamination of these other varieties. In 2001 it was discovered that landraces of maize in Mexico had already been contaminated by transgenic DNA from GE maize varieties from the United States even though a national moratorium against GE crops had been in place since 1998.

The governments of developing countries find themselves under pressure from the United States and other developed countries to join international (TRIPS) and bilateral (TRIPS plus) agreements on the protection of intellectual property. These agreements would obligate them to modify their domestic IP laws and to protect foreign intellectual property according to Western standards. As a result, traditional small-hold farmers in developing countries might soon find themselves in a situation similar to that currently faced by farmers in North America.

PART II – The Right to Food

When farmers in developing countries have to give up growing food crops this does not only affect their own subsistence but also the local availability of food in general. The human right most affected by the new developments in agrotechnology and intellectual property legislation is,
therefore, the right to adequate food.

1. The Content of the Right to Adequate Food

The right to adequate food was first recognized as a human right in Article 26(1) of the 1948 Universal Declaration of Human Rights (UDHR) and is most comprehensively dealt with in Article 11 of the 1966 CESC. "Adequate" means that the right goes beyond a mere claim to a minimum intake of calories. Rather the food has to be culturally acceptable, appropriate to physiological needs according to age, gender, and occupation, and free from adverse substances.

To fulfill the right, adequate food must be both available and accessible to everybody in sufficient quality and quantity. Availability requires that food is either produced locally on farmable land or is transported from the site of production to the places of demand. As worldwide food production is already high enough to feed every inhabitant of the earth, the true problem is not insufficient production but unequal distribution. Therefore, measures to make existing food available to the hungry have priority over those aimed at increasing food production.

Where food is available, it must also be economically and physically accessible for those who are in need. Economic accessibility requires that a suitable diet be affordable for everyone. Food pricing, appropriate minimum wages and state subsidies are all factors involved to allow for a life of dignity. Physical accessibility requires that the physically disadvantaged, such as the elderly, the disabled, children, and people in disaster-prone areas have access to adequate food, too.

Measures to implement the access to food must focus on sustainability. The supply and access to food should be guaranteed even in crisis situations, both for the present as well as for future generations. This is best achieved by measures that help people return to self-reliance rather than continuing to rely on imports.
than depend on outside aid.

Sustainability has different aspects. Environmental sustainability, for example, requires a judicious use of natural resources to guarantee the stability of food supply for the future. Economic and social sustainability are meant to guarantee food supply in times of recession or other economic crises through effective markets and public policies. Opponents of agricultural gene-engineering have argued that GE crops threaten the sustainability of food access in various ways. One main criticism is that such crops undermine farmers' self-reliance by making them dependent on the TNCs that market GE crops.

2. The Right to Self-Determination

The problems associated with patents on gene-modified crop plants do not only affect the right to adequate food as embodied in Article 11.2 CESCR but also the right to self-determination (Articles 1.2 International Covenant on Civil and Political Rights [ICCPR] and 1.2 CESCR). Article 1.2, which is common to both Covenants, provides that "[i]n no case may a people be deprived of its own means of subsistence." Under the circumstances described above, this sub-norm obviously might be affected when transnational biotechnology and seed corporations use legal and economic means to either bring farmers into total economic dependency or to drive them out of business.

The right to self-determination is, however, formulated as a people's right and cannot be invoked by individuals. It would only be violated in a situation where a country's resources for food production are either exploited in the exclusive interest of, or transferred without compensation to, foreign corporations or a small part of the population. This might not be a problem in developed countries like the United States or Canada, where food production resources are still used to ensure the food supply for the general population. It will, however, definitely be an issue in developing countries where the control over resources for food production is reassigned from local farmers to foreign—mostly U.S.-based—corporations or their local subsidiaries. When these resources no longer contribute to the local food supply but are instead exploited for the more

43. Eide, supra note 39, at 90.
44. Id.
profitable production of cash crops, there is a clear violation of the right defined in Articles 1.2 ICCPR and 1.2 CESCR.

In such a case, a developing State may have the right to unilaterally rescind its obligations under international economic treaties that lead to such violations, without having to pay compensation to affected foreigners. Due to the existing international political and economic dependencies, however, rescinding obligations will only be a theoretical option for most developing states.

3. Why Do GE Crops Undermine Food Security?

While the TNCs involved in the development and marketing of GE crops claim that their products might contribute to eradicating hunger in the world, it is obvious that they are not motivated by pure philanthropy but by their desire to generate profits. These profits can only be generated through enlarging their market shares and selling their seeds to more and more farmers. The problem the TNCs are facing, however, is that seeds are, by their very nature, a self-replicating product. Under normal circumstances, a farmer would have to buy seed only once. After that first purchase he could simply save some seed from his first harvest, as farmers have done for millennia. In order to guarantee a steady inflow of revenue, the TNCs would have to find ways to make farmers break with the practice of seed-saving and instead buy new seed every season.

Attempts to safeguard their interests through means of gene-engineering failed. The so-called “terminator” gene that caused plants grown from GE seed to express only sterile seeds had to be withdrawn from the market due to political and public resistance. The industry thus had to fall back on legal measures.

Farmers who want to buy GE seeds are required to sign license agreements with the TNCs. Under these agreements, it is expressly forbidden to save seeds from the harvest in order to sow or swap them with other farmers. As the patented genetic traits tend to spread out onto other plant varieties, additional legal measures are taken to prevent these traits

47. See Novak, supra note 45, at 24–25.

from falling into the public domain. Lawsuits are brought against farmers who continue to use their seed material after the plants have acquired a patented gene through contamination.

Small and peasant farmers in developing countries are not ideal customers of GE crops. Whereas large farms in developing countries cultivate "cash crops" that are meant for export, small farmers typically grow only staple food crops that are meant for their own consumption. Very little of their harvest is sold on local markets in exchange for cash. The money earned is mostly used for household needs. These small farmers therefore operate with very little or no financial resources and cannot afford to buy seeds from seed companies. Instead, they save seed from their harvest, swap it with other farmers, or cultivate landraces.

These small-hold farmers are very important for sustainable access to food in these countries as they are usually the primary producers of staple food. Their production contributes to the local availability of food and helps shield the population from price spikes on regional and world markets. In many developing countries, the small-hold farming sector is, for a majority of the population, also the only possibility of earning a livelihood. Small-hold farmers are usually self-reliant in their food production, and play important roles in the local food supply. Through the cultivation of landraces and seed exchange with other farmers, they create new varieties that are especially adjusted to the climatic conditions of the particular region. The cultivation of such indigenous varieties is a further safeguard for food security. The use of GE seed would compromise all of these important functions.

The cultivation of patented GE crops is, in many aspects, the antithesis of sustainable and self-reliant food production. Farmers who cultivate GE crops become dependent on seed companies for their constant need to purchase seed. In order to afford this, small farmers have to radically change their farming practices. Instead of growing staple food for private and local consumption, they have to cultivate "cash crops" that can be sold

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49. Byakola, supra note 24, at 8.


51. Sell, supra note 50.

for export in order to generate the money necessary to buy more seed. This practice limits local food supplies. During the so-called “Green Revolution” in the 1970s, the introduction of improved crops and their mono-cropped production had resulted in a shortage of other traditional staple food in several developing countries. A change from the cultivation of local food crop varieties to the production of “cash crops” also typically leads to an impoverishment of the farmers’ own diet as they cannot afford to buy the same amount and variety of staple food and relish crops that they previously used to grow for themselves.

Farming of GE crops makes the stability of food supply highly susceptible to natural disasters, price fluctuations, and other outside influences. Subsistence farmers have no savings or other financial resources to fall back on in the event of a bad harvest. Very often they do not even own the land they farm. If a farmer loses his income due to a bad harvest, a drop in prices on the world market, or some other cause, he cannot afford to buy new seed for the next season. As he is not allowed to save seeds, he may have to give up farming.

As noted above, farmers who do not grow GE crops themselves are still affected when their neighbors grow such crops. In developing countries, farmers are highly dependent on saving seeds or on cultivating wild varieties. When transgenic contamination of seed stock and wild varieties occurs, as has already happened, it might become impossible for farmers to find seed that they can still use without infringing intellectual property rights. Small and peasant farmers in developing countries are in even less of a position to pay license fees or legal expenses in defense of their rights than their counterparts in developed countries. As a result, they could be forced to abandon farming which would further limit the local

53. Stephen Brush argues that the example of the “Green Revolution” can serve as a model to project the social impact of the introduction of GE crops:
    In both cases, the technology at hand is generated by scientists rather than farmers, by “high technology” and capital intensive institutions, and with international transfers of genetic resources. The results of both are touted as offering benefits for poor and developing countries. Perhaps the most critical difference is that the Green Revolution crops were produced by public agencies and without intellectual property, while many GMO crops are produced by private companies using intellectual property.

Brush, supra note 32, at 146.

54. Two examples are Brazil and India. See Messer, supra note 9. Another is Zambia. See Bernadette Lubozhya, Genetically Engineered Crops Threaten Food Security in Zambia, in Voices from the South – The Third World Debunks Myths on Genetically Engineered Crops 17 (Ellen Hickey & Anuradha Mittal eds., 2003).

55. Lubozhya, supra note 54.

56. Food First, supra note 28, at 7.
availability of food.

4. Parallels to Pharmaceutical IPRs

A parallel can be drawn between the potential effects patents on GE crop plants may have on the right to food and the effects intellectual property rights (IPRs) on pharmaceutical products have already had on the right to health. IPRs, such as patents, convey a form of monopoly that is used by transnational corporations to carve up the global market and keep prices for products high.

One prime example given by Peter Drahos is India in the 1950s, before it had developed its own pharmaceutical industry. At that time, India was dependent on the import of pharmaceuticals; and while it had one of the poorest populations in the world, it had the highest drug prices. Similarly, the prices for AIDS medication were higher in South Africa, where they were much-needed, than in European countries, as pharmaceutical companies preferred to sell their products to the small, rich upper-class, rather than to the large number of poor people most affected by the epidemic. This changed only after South Africa introduced controversial legislation that allowed compulsory licensing of AIDS drugs.

In addition, transnational pharmaceutical corporations divert their research efforts from important pharmaceuticals such as new antibiotics or medication against tropical diseases, to the development of drugs against "lifestyle afflictions" such as obesity-caused diabetes or old-age erectile dysfunction. Again, the pharmaceutical industry’s focus rests solely on upper-class markets in developed countries.

Similar developments will take place in the wake of crop-plant IPRs. The patent monopolies will allow seed companies to keep seed prices high, ensuring high profit margins. This will cause food prices to rise, making food economically unavailable to the poor. High food prices and economic unavailability are, in fact, already among the main causes of hunger in the world. In India and Bangladesh, a large part of the population suffers from hunger, while at the same time large amounts of grain are rotting away in storage every year, because the poor cannot afford to buy the grain.

58. Sell, supra note 50, at 200.
situation presents a clear violation of their right to adequate food.\textsuperscript{60}

Apart from certain publicity stunts, such as the “golden rice” that was supposed to combat Vitamin A deficiencies among malnourished children,\textsuperscript{61} seed corporations concentrate their research on high-profit cash crops for exportation,\textsuperscript{62} such as cotton, or crops that are fed to livestock.\textsuperscript{63} These crops do not contribute to the local food supply but rather draw away land and other resources that would otherwise be available for local food production.

It is, therefore, reasonable to expect that patented GE crops will make food less available to poor people in the same way that drug patents have already kept much-needed medications away from them.

**PART III – A Conflicting Human Right to IP?**

The issue at hand is only one example of how expansive claims to intellectual property rights conflict with the economic interests, and ultimately with the socio-economic rights, of other groups and individuals. Transnational corporations, the main proponents of expansive IP enforcement,\textsuperscript{64} already have the economic power on their side. But to add moral weight to their arguments, they seek recourse to a human right to IPRs that could cancel out conflicting socio-economic rights.

1. **The Argument for a Human Right to IP**

If the owners of patents on GE crops themselves had recourse to a human right to IP, States would equally be under an obligation to promote and protect it. Some scholars argue that the right to intellectual property has the status of a human right, even though it is hardly ever recognized as

\textsuperscript{60} See CESCR, supra note 6, art. 11. See also UN COMMISSION ON SOCIAL, ECONOMIC AND CULTURAL RIGHTS, supra note 37, ¶ 14 (economic and physical accessibility).


\textsuperscript{62} Sell, supra note 50, at 200.

\textsuperscript{63} According to Liane Schalatek, 90% of all GE crops harvested in 1998 were soybeans and maize, which were “primarily used to feed livestock, not people.” Liane Schalatek, The WTO, Genetically Modified Crops, and the Issues of Food Safety and Food Security - An Introduction, in WORLD TRADE, FOOD AND AGRICULTURE – A LOOK AT THE WORLD TRADE ORGANIZATION, GENETICALLY MODIFIED ORGANISMS AND THE ISSUE OF FOOD SECURITY 3 (Liane Schalatek ed., 2001), available at <www.boell.org/docs/WTO-Food-GMO.pdf>.

\textsuperscript{64} Peter Drahos traces the current IP agenda of the WTO and developed countries back to the efforts of a small number of transnational corporations. PETER DHAHOS & JOHN BRAITHWAITE, INFORMATION FEUDALISM – WHO OWNS THE KNOWLEDGE ECONOMY? (2002).
Article 27(2) of the Universal Declaration of Human Rights (UDHR) speaks of the "right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author." This right is repeated in Article 15(1) CESCR. This could be understood as a right to the protection and enforcement of intellectual property rights.

2. No Human Right to Patents

Critics of the current international intellectual property regime argue, however, that while there is a human right to own works of innovation or authorship, this does not imply that all intellectual property rights automatically have the status of a human right. It also does not mean that there is a duty for States to protect patents in their present form. The moral and material interests of an author under Article 15(1) CESCR do not necessarily coincide with the scope and extent of intellectual property rights conferred under national legislation and international treaties. Human rights are, by their very nature, unalienable, whereas most intellectual property rights are temporary and can be transferred to someone else, with the exception of the moral right to be identified as the author of a work. But some intellectual property rights, like patents, seem especially incompatible with the basic concepts of human rights. For this reason intellectual property should not be viewed as one single right, but each specific right should be inspected individually.

In the United States, GE crops are usually protected under utility patents. Utility patents, unlike other forms of intellectual property rights, allow for the protection of plant parts and of modified genetic traits across different plant varieties. Until the U.S. Congress deleted the farmers’


68. Id.

privilege from the Plant Variety Protection Act in 1994, making it expressly illegal to save seeds, utility patent law used to have the additional advantage over laws covering plant varieties that it did not recognize a farmer's right to save seed. However, patent rights are, as mentioned before, especially poor candidates for human rights status.

First of all, the exclusiveness of a patent contradicts the universal nature of human rights. Proponents of a human right to intellectual property argue that its justification lies in the recognition of the value of the human person through the protection of the product of his or her creative endeavors.

A patent gives its owner the right to exclude everybody else from making, using, or selling the patented invention. This right is given exclusively either, as in the United States, to the individual who was first in making the invention, or, as in the United Kingdom and other European countries, to the first person to file the application for the patent. The patent also applies to similar inventions that accomplish a similar result. This is called the "doctrine of equivalents." For example, a patent for a genetically modified genetic strain that provides for resistance against a certain herbicide might apply to all plants that are resistant to this herbicide, regardless of the genetic modification method used to achieve this result.

Thus, even if a second individual achieves a similar result out of his own labor and inventiveness, the existing patent bars him from profiting


73. LIONEL BENTLEY & BRAD SHERMAN, INTELLECTUAL PROPERTY LAW 346 (2001).


75. COOK, supra note 66, at 140.

76. Stefan Flothmann and Juergen Knirsch cite the example of the patent on a new variety of maize granted to DuPont. The patent was formulated so broadly that it covered "all maize varieties that exceed a certain level of oil and fatty acids." However, there were already maize varieties in existence prior to the granting of the patent that fulfilled these criteria. Stefan Flothmann & Juergen Knirsch, People over Profit: WTO and GMOs in the Context of Food Security, Food Safety and Sovereignty, in WORLD TRADE, FOOD AND AGRICULTURE – A LOOK AT THE WORLD TRADE ORGANIZATION, GENETICALLY MODIFIED ORGANISMS AND THE ISSUE OF FOOD SECURITY, supra note 63, at 67.
from his work. A truly universal human right, on the other hand, would protect every production as the product of a human person's creative endeavor, regardless of its novelty. It does not so much recognize the inventor's claim to material profit, but the intrinsic worth of individual human effort.

However, it is exactly their exclusiveness and their broad protection that make patents more attractive to biotechnology companies than other less extensive forms of intellectual property protection, such as plant breeder's rights. Patents are not only used to protect the inventor's economic interests in the invention, instead, biotechnology companies try to weave impregnable webs of defensive patents on entire species, economic characteristics, reproductive behavior or basic techniques of biotechnology that are designed to bar competitors from the widest possible field of research. These defensive patents not only affect commercial competitors but might also bar a State from conducting public research for the benefit of its citizens, thus conflicting with the State's ability to fulfill its duties and obligations towards its citizens.

In addition, the exclusiveness of a patent right allows the owner to bar others from resources necessary for life and health. The recourse to a human right would therefore be used to limit another human right. It is this possibility of harm to other people that makes it especially hard to accept patents as a human right.

3. Limits of a Human Right to IP

Even if one were to accept the existence of a human right to patents under Article 27(2) UDHR and Article 15(1) ICESCR, the interdependence and indivisibility of human rights still demand that the right be interpreted in a way that does not conflict with other human rights and be consistent with the concept of human dignity. Balancing intellectual property rights with human rights interests such as the right to food, water or health does not necessarily favor the patent holder.

77. GREGORY ET AL., supra note 72, at 8.
78. Gana, supra note 74, at 323.
79. Sell, supra note 70, at 204.
80. DRAHOS & BRAITHWAITE, supra note 64, at 52-55.
81. Afori, supra note 69, at 523.
82. Gana, supra note 70, at 351.
84. See Afori, supra note 69, at 502.
Article 27(1) UDHR addresses everybody's right to participate in cultural life, enjoyment of the arts, and share in scientific advancement and its benefits. The Article is very broadly framed and does not give express provisions on how the rights of the author and the rights of everybody else have to be balanced. However, the right to enjoy the benefits of scientific progress expressed in paragraph (1) of Article 27 can be interpreted as placing a limit on the level of protection for IP rights. An intellectual property regime that hinders States from fulfilling their core obligations in regard to health, food and education conflicts with State parties' legally binding human rights obligations. This interpretation of Article 27 is reaffirmed in Resolution 2000/7 of the U.N. Sub-Commission on Human Rights, which expresses concern about the negative impact of intellectual property protection regimes on the realization of human rights.

PART IV – States between a Rock and a Hard Place

Under these circumstances, the obligation is on States to undertake legislative efforts in order to limit the negative effects of intellectual property rights on the right to adequate food. They are, however, limited by other conflicting international obligations, and often find themselves pressured into foregoing human rights concerns in favor of stronger IPR enforcement.

1. The Obligation to Respect, Protect and Fulfill the Right to Adequate Food

Under Article 2 CESCR, a State has the duty to undertake measures “to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized,” including its citizens’ right to food. The fact that the realization of the rights is only to be achieved “progressively” does not absolve State parties from taking immediate effective measures towards their realization. It imposes, on States, the obligation to respect, protect and fulfill. With respect to the

85. Weissbrodt & Schoff, supra note 48, at 3.
86. See Weissbrodt & Schoff, supra note 48, at 4.
88. Weissbrodt & Schoff, supra note 48, at 25.
89. UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL, COMMITTEE ON ECONOMIC, SOCIAL AND CULTURAL RIGHTS, supra note 67, ¶ 11.
90. UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL, COMMITTEE ON ECONOMIC, SOCIAL AND CULTURAL RIGHTS, SUBSTANTIVE ISSUES ARISING IN THE IMPLEMENTATION OF THE INTERNATIONAL COVENANT ON ECONOMIC, CULTURAL AND SOCIAL RIGHTS:
right to food, one of the obligations flowing from this undertaking is the obligation to protect existing entitlements and resource bases against more powerful economic interests. When small farmers in developing countries, who produce their own food, have to give up farming after losing their productive resources, they often have no other viable means of earning their livelihood.

States violate an economic right if they adopt legislation that is incompatible with the right or even reduces the extent to which the right is guaranteed. States also violate an economic right if they fail to regulate activities of individuals or groups in order to prevent them from violating the right. It can therefore be said that a State is in clear violation of the right to food when it enacts legislation that limits existing entitlements for the benefit of third parties, and allows third parties to take away resource bases. A State also violates the right if it fails to enact additional legislation in cases where the existing system of ownership and exchange interferes with the access to food and resources of food production.

Access to seed, land, and markets are, to farmers, the resource bases for the production of food. At least in developing countries the farmers’ right to save and swap seeds and sell their own harvest is the basis of food security and therefore is directly linked to the right to adequate food. With regard to the issue of gene-modified seeds, this Article may put States under an obligation to protect an existing right to save seed or a farmer’s right to use his own seed and sell his own harvest even after the occurrence of contamination with patented genetic strains.

2. Conflicting Obligations under the CESCR and TRIPS

On the other hand, a government might have the international obligation under TRIPS or under a bilateral investment treaty to amend its

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91. Eide, supra note 39, at 102-103.

92. Eide, supra note 39, at 37.


94. United Nations Economic and Social Council, Committee on Economic, Social and Cultural Rights, supra note 90, §§ II (14)(c) and (14)(e).

95. Id. § II (15)(d).

legislation in order to protect the intellectual property rights on gene-modified genetic plants. In the case of gene-modified seeds, the interests protected under the two treaties are directly opposed, creating diverging obligations.

Both the CESCR and TRIPS are international treaties, which are binding on member states. According to Article 26 of the Vienna Convention on the Law of Treaties, a State must fulfill its obligations under a treaty. The State cannot unilaterally refuse to honor its obligations under one treaty, just because they conflict with its obligations under a later one. If there is a conflict between the obligations of two treaties, the Vienna Convention demands for an interpretation that gives effect to both. 97 Even though there should be a primacy of human rights norms over economic policies and agreements, 98 governments might be compelled to fulfill the obligations under TRIPS, as TRIPS has strong enforcement mechanisms, whereas the CESCR does not.

The international monitoring mechanisms for socio-economic human rights are relatively weak, and their recommendations and decisions are not legally binding. 99 Due to the nature of the social and economic rights defined in the CESCR, many authors believe that these rights are not justiciable rights but just aspirational statements. 100 The TRIPS agreement, on the other hand, provides for an effective dispute settlement mechanism and allows for trade sanctions and other retaliatory measures against non-complying states. 101

3. Options for Developing Countries

Although TRIPS significantly diminishes a State’s sovereignty in regard to intellectual property policies, certain options remain. Under Article 27 TRIPS, States can exclude plants from patentability 102 as long as they provide an effective sui generis system for the protection of plant

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100. Martin Scheinin, Economic and Social Rights as Legal Rights, in ECONOMIC, SOCIAL AND CULTURAL RIGHTS: A TEXTBOOK 41-42 (Asbjorn Eide, Catarina Krause & Allan Rosas eds., 1995).
102. Id. at 186.
There are no provisions outlining the possible scope and extent of such a *sui generis* mechanism in the TRIPS agreement, as this was left to be dealt with in a separate document.

Given the problems that patents on plant varieties pose for farming and food security, developing countries would be well advised to make use of Article 27. Plant breeder’s rights under such a protection mechanism can differ from patents in their scope. The legislation of a *sui generis* regime can also provide that plant breeders’ rights shall not accumulate with other intellectual property rights, such as patents. The creation of such a protection mechanism can, therefore, be one way for governments to reconcile their international obligations under TRIPS with their human rights obligations.

One possible *sui generis* mechanism is the “Union Internationale pour la Protection des Obtentions Vegetales” (Union for the Protection of New Varieties of Plants, or UPOV) Convention that provides uniform provisions on the extent of plant breeder’s rights. Member countries of the WTO may follow these provisions. They are, however, not obliged to do so.

UPOV was last revised in 1991, and in its latest form reflects the American standard of protection of IPR on plants insofar as it limits researchers’ exemptions and the farmers’ right to save seeds, and completely disallows the exchange or sale of seed. As the 1991 UPOV Convention offers few advantages for developing countries, very few have become members.

### 4. Developing Countries under Pressure

Although the protection of plant breeders’ rights through the UPOV Convention clearly goes beyond the requirements of TRIPS, the United States is trying to market UPOV as the only permissible *sui generis* mechanism under Article 27(3) TRIPS. The United States’ efforts to include UPOV provisions in bilateral Free Trade Agreements can be seen

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105. *Id.*
106. *Id.* at 69.
107. *Id.* at 231.
as the creation of "TRIPS plus," which aims at increasing the standard of protection for IPR even further. The negotiations are taking place with the threat of using trade enforcement tools under the U.S. Trade Act as a backdrop.\textsuperscript{110}

Despite the fact that the TRIPS agreement grants an automatic transitional period for developing countries to amend their IP laws, developing countries find themselves under pressure by developed countries to immediately enact domestic IP laws that are up to TRIPS standards or surpass them.\textsuperscript{111} When these countries succumb to the pressure, it will be at the expense of food security and consequently, their citizens' right to food.

A bilateral IP agreement between Ecuador and the United States, which provided for protection of plant varieties through patents or a system comparable to UPOV, failed to be ratified only after massive protests. An Ecuadorian NGO had discovered that an American citizen had already obtained a patent on an indigenous plant that was used as an ingredient in a sacred Amazonian hallucinogenic drink.\textsuperscript{112}

5. The Case of India

The development of IPR legislation in India serves as another example of how a developing country can be pressured into accepting IP protection standards that conflict with its citizens' right to food.

The original 1970 Patent Act did not recognize patents on life forms or methods of agriculture.\textsuperscript{113} When India, after initial resistance, agreed to TRIPS,\textsuperscript{114} it undertook an international obligation to amend some of its IP laws.

However, India is especially vulnerable to the negative impact that strong IP regulations on GE crops might have, as the majority of its population is dependent on small farms for its subsistence.\textsuperscript{115} In addition, 80% of all seed used in India is still saved by farmers.\textsuperscript{116} It was against this background that the public debate on the draft legislation took place. India

\textsuperscript{110} Drahos, supra note 1, at 265.
\textsuperscript{111} CORREA, supra note 101, at 109.
\textsuperscript{112} Sell, supra note 79, at 205.
\textsuperscript{113} Shiva, supra note 52.
\textsuperscript{114} India was initially opposed to the TRIPS Agreement. Its resistance was only broken through unilateral U.S. trade sanctions. See WATAL, supra note 108, at 24.
\textsuperscript{115} S.K. Verma, Plant Genetic Resources, Biological Inventions and Intellectual Property Rights: The Case of India, in INTELLECTUAL PROPERTY AND BIOLOGICAL RESOURCES 146 (Burton Ong ed., 2004).
\textsuperscript{116} Shiva, supra note 52.

These laws made use of the legislative freedom that remained to India under TRIPS. The first Patent (Amendment) Act made use of the option in Article 27.3(b) of the TRIPS agreement to exclude plants from patentability. Instead, the Plant Variety Protection and Farmers’ Rights Act provided a mechanism for the protection of plant varieties, which aimed at balancing breeders’ and farmers’ rights and protecting farmers’ self-reliance.118 While this Act was primarily based on the UPOV Convention, it included several provisions that reflected the specific situation in India.119 It recognized the traditional rights of farmers to save and swap seed, and to share or sell their harvest.120 The Plant Variety Act further provided that the registration of a variety can be denied to protect human life and health.

While this legislation aimed at limiting the excesses of IP protection of GE crops and safeguarding the food security of India’s peasant farmers, India faced pressure from the World Trade Organization and the United States to further amend its IP laws. The United States had already brought a complaint against India under the WTO dispute settlement system in 1996, and India was held to be in violation of some of its TRIPS obligations,121 by inter alia not allowing patents on agricultural chemical products.122

Under the second amendment to the Patent Act, processes for the treatments of plants became subjects for patents. The amendment also added a provision that expressly allows the production or propagation of GE plants to be considered an invention.123 Thus, it opened the door for the recognition of utility patents on GE plants. Finally, in 2004 a third amendment and a new Seed Act have been enacted. The amendment, which was passed by the Indian parliament on March 23, 2005, allows for the parallel protection of GE crops through both utility patents and plant breeders’ rights.124 This goes beyond India’s obligations under the TRIPS

117. Verma, supra note 115, at 147.
120. Id. at 149.
121. CORREA, supra note 101, at 109.
122. WATAL, supra note 108, at 74.
123. Shiva, supra note 113.
124. Gola, supra note 118.
Agreement. The stated objective of the Seed Act, on the other hand, is to replace saved seeds with seeds from the private seed industry.\textsuperscript{125} To achieve this aim, the swapping ("bartering") of seeds between farmers is made a criminal act that can be punished with a fine of up to 25,000 Rs. Together, these two laws create legal IP protection for gene-modified plants comparable to that of the United States.\textsuperscript{126}

PART V – Duties of Third States

As developing countries find themselves under political and economic pressure from highly developed countries to amend their intellectual property legislation in order to accommodate the interests of transnational corporations, a question arises—specifically, what obligations the right to food places on third States.

Article 11 CESCR deals mostly with the duties of the home State. The obligations on third States are rather weak, as the Article speaks only of "international cooperation based on free consent." During the \textit{travaux préparatoires}, developed states opposed a stronger wording that might have given developing states a direct claim for foreign aid.\textsuperscript{127} Nevertheless, the rights in Article 11 CESCR cannot be interpreted to free third States from all duties. When read in conjunction with Article 5.1 CESCR, it is clear that the right to food imposes a minimum obligation on other States to refrain from any action aimed at the destruction of the right.

As previously noted, the greatest threat posed by overly strong intellectual property rights on GE crops is the deprivation of farmers, through legal channels, of their means of production. This has already occurred in the United States and Canada. This might also affect the right to economic self-determination as covered in Articles 1.2 ICCPR and 1.2 CESCR. This right, the only one covered in both covenants, states "[i]n no case may a people be deprived of its own means of subsistence."\textsuperscript{128} This could include a direct prohibition of measures and policies that exploit food-production resources exclusively for the interest of foreign corporations while parts of the population starve or are malnourished.

The right to self-determination has the additional advantage that is

\begin{itemize}
\item \textsuperscript{125} Shiva, \textit{supra} note 113.
\item \textsuperscript{126} \textit{Id.} Shiva asks, with reference, to the Canadian \textit{Monsanto Canada Inc. v Schmeiser} cases (\textit{supra} note 21), whether Indian farmers will be blamed for theft, too, "when Monsanto’s GM cotton contaminates their crops."
\item \textsuperscript{127} \textit{CRAVEN, supra} note 96, at 148–49 and 296–97. \textit{See also} \textit{P. ALSTON & K. TOMAŠEVSKI, THE RIGHT TO FOOD} 40-41 (1984).
\item \textsuperscript{128} \textit{P. ALSTON & K. TOMAŠEVSKI, THE RIGHT TO FOOD} 23 (1984).
\end{itemize}
also included in the ICCPR. When we speak about the most-developed countries in this context, we are mostly speaking about the United States of America. While the European Union, Canada, and Japan also support the movement for stronger international intellectual property protection, the United States is the most arduous supporter of genetically engineered agricultural products, is the home of the largest number of transnational corporations, and is the most willing to use political and economic coercion against developing countries.\(^{129}\)

The United States, however, never acceded to the CESCR, and is therefore not bound by its provisions. It did however accede to the ICCPR. An obligation that is covered by the ICCPR would thus be more useful in terms of Realpolitik than one that is only covered by the CESCR.

The absolute minimum duty that both the right to adequate food and the right to self-determination impose on third States is the duty to avoid international policies and practices that deprive other States of their means of subsistence.\(^{130}\) This means that States have to avoid policies that force other States to adopt intellectual property regimes that result in farmers being either deprived of their means of production or forced into permanent economic dependence on foreign corporations. In light of this duty, provisions of international and bilateral treaties on intellectual property protection might violate the rights to self-determination and adequate food. At least, however, a policy to force other countries to adopt a certain interpretation of such provisions, which runs contrary to the rights to self-determination and adequate food, is a clear violation of this duty not to deprive.

In addition to avoid depriving policies themselves, States also have a duty to protect peoples in other States from being deprived of their means of subsistence through domestically-based entities such as transnational corporations.\(^{131}\) This includes policies and legislation to regulate their activities. Unfortunately, the current intellectual property policies of the most-developed countries in general, and the United States in particular, ignore these duties and the concerns of developing countries, as they only aim at furthering the interests of the pharmaceutical and biotechnological

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129. Peter Drahos describes how the United States used bilateral trade sanctions to break Brazilian and Indian resistance to TRIPS during the Uruguay round negotiations. **DRAHOS & BRAITHWAITE, supra** note 64, at 133–37 (2002). Even though TRIPS prohibits unilateral retaliation against non-compliant countries, the United States nevertheless continues to impose trade sanctions under Section 301 of the U.S. Trade Act. **WATAL, supra** note 108, at 58-59.

130. **ALSTON & TOMAŠEVSKI, supra** note 128, at 44.

131. *Id.* at 44-45.
PART VI – Conclusion

The ever extending scope of patents on gene-modified crop varieties and the aggressive legal measures employed for their protection by transnational seed corporations negatively impact farming practices all over the world. In developing countries, where food security is directly dependent on the productivity of small and peasant farmers, this will soon directly affect the human right to adequate food of the local population.

This impact on a human right puts governments under an obligation to enact intellectual property rights legislation that respects the human right and protects it against the financial interests of seed corporations. Although TRIPS and other international agreements place restrictions on the sovereignty of States in this regard, options still remain as to how States can reconcile their human rights obligations with their international obligations to protect intellectual property rights.

At the same time, developing states find themselves under external and internal pressure to enact stricter norms of IP protection. The external pressure comes mostly from the United States and other developed countries, which put political and economic pressure on the governments of developing countries. The internal pressure comes from local subsidiaries of transnational corporations which can mobilize substantive resources to lobby for stricter legislation.

Generally, the most effective way to ensure a State’s compliance with its human rights obligations is to adopt the tactic called "blame and shame." In the case of IP protection, however, proponents of strong IP enforcement mechanisms use exactly the same method. They claim a moral legitimacy for their demands, and label groups and individuals who infringe intellectual property as "thieves" and even "pirates." States that do not comply with their standards of IP protection become, in the views of the IP lobby, accomplices to acts of "theft" and "piracy."

Faced with two opposing obligations that are both claimed to have moral legitimacy, a State is more likely to choose the one that is backed by the more forceful enforcement mechanism. Because demands for a high standard of IP protection are supported by the threat of trade sanctions under the TRIPS Dispute Settlement Understanding and by—essentially


133. Peter Drahos talks about the strong moral implications that the term “pirate” has. DRAHOS & BRAITHWAITE, *supra* note 64, at 25-29.
illegal\textsuperscript{134}—unilateral trade sanctions through the United States, developing countries will succumb to these demands.

It has been suggested that civil society, and especially NGOs, should form a counterweight to the political influence and economic power of developed States and transnational corporations\textsuperscript{135}. Watal predicts the possibility of a revision of Article 27.3(b) of the TRIPS Agreement in favor of developing countries will depend on the political strength of environmental NGOs in developed countries\textsuperscript{136}. One way for NGOs to strengthen their influence is to give their demands a solid legal basis. They have to show that their position is supported by a recognized “hard” human right, and not only by “soft” and fuzzy values. Until this happens, the right to food of people in rural areas of developing countries remains at risk of being overrun by technological gene changes in agriculture and the accompanying new standards of IP protection.

\textsuperscript{134} The TRIPS Agreement outlaws unilateral trade sanctions against non-compliant countries. Disputes about minimum standards must instead be handled in multilateral procedures under the Dispute Settlement Understanding. This makes the unilateral trade sanctions under Section 301 U.S. Trade Act, which are still applied by the United States, illegal. \textit{See} CORREA, \textit{supra} note 101, at 8-9.

\textsuperscript{135} Peter Drahos advocates that anti-TRIPS NGOs should work their way into policy committees in order to affect positive changes in patent policy from inside the system. Drahos & Braithwaite, \textit{supra} note 57.

\textsuperscript{136} \textit{Watal}, \textit{supra} note 108, at 371.