INTELLECTUAL PROPERTY RIGHTS and THE WTO: UNDERMINING BIODIVERSITY AND INDIGENOUS KNOWLEDGE SYSTEMS


by

Gurdial Singh Nijar
Third World Network
Penang, Malaysia

ART I: OWNERSHIP OVER LIFE FORMS: The Backdrop

Introduction

The planet – upon which humanity’s existence depends – is delicately balanced. The global matrix of air, water, soil and the sun’s energy holds together the mix of its inhabitants – all life forms from the minutest microorganisms to humans - in varied ecosystems. All are self regulating – yet interconnected and working in concert, a complex web of relationships to create and maintain conditions conducive to life.

These relationships are well understood by indigenous peoples. They maintained a symbiotic liaison with their habitat. Their survival depended on this. Indigenous peoples and traditional communities lived off nature even as they helped sustain it. The life of communities was enhanced, spiritually, culturally and economically, even as communities enhanced earth’s biological diversity.

This holistic knowledge system has been threatened by the modern science of reductionism. Things are pulled apart, reduced to their smallest constitutive component and analysed under controlled conditions. Each part’s actions are then determined and from this a construct made of the functioning of the whole. Reductionism distorts understanding of the working of the real world. And leads to its destruction.

Knowledge and practice relating to forestry and agriculture illustrates this best. The forest and the field are in ecological continuum in local knowledge systems. Activities in the forest contribute to the food needs of the local community, while agriculture itself is modelled on the ecology of the tropical forest. Forest dwellers gather food directly from the forest while many communities practise agriculture outside the forest but depend on the fertility of the forest for the fertility of agricultural land. Indigenous silvicultural practices are based on sustainable and renewable maximisation of all the diverse forms and functions of forests and trees. This knowledge passed through generations assures the survival of the forest, its component parts, its sustainability and the people and cultures dependent upon it and the ecosystem as a whole.

Defining the value of the forests in terms of its source as commercially exploitable timber reduces the value of diversity of life in the forest to the value of a few commercially viable species. And to the value of their dead product. The reductionism of ‘forestry science’ is destructive not only of the integrity of the forests but also of rest cultures which tap the forests in its diversity for their food, medicine, fibre and shelter.

Reductionism, while it undoubtedly allowed us to extend power over the globe and nature is only one part of the picture. And a distorted one. Taking a life form out of its surroundings and labelling it as a pest makes us lose sight of the patterns of nature and the symbiosis within ecosystems and the purpose of every part. We lose sight of the patterns the mosquito was part of – its relationships to the fish and the birds it fed, the microorganisms it interacted with, the ecosystem in which it played out its life cycle.
uch scientific reductionism labels valuable genetic resources as ‘weeds’ ‘wild’ ‘undomesticated’ ‘jungle’. Thus it ignores, for example, the knowledge of indigenous peoples: of the Hanunoo in the Philippines and their 500 plant categories; of the Lua tribe in Thailand of cropping systems based on 160 crops; and the life-staining food system based on the forest for the Kayan, Kenyah, Punan, Bisayah and Penans of Sarawak. The Kenyah eat 23 varieties of fungi, the Ibans, 43.

My recent friend from the Columbian Amazon – nicknamed ‘the birdman’ could identify the sub species of any bird by its singing, as well, the purpose of its song. If it was for food, he could identify the type of worms living in the soil in the vicinity and the kind of plants the soil supported. An amazing understanding of the interaction of verse life forms and their ecosystem!

The recently concluded study by an independent science group on measures to restore the salmon to the Columbia River Basin in the US stated that the salmon needed ‘a complex, interconnected array of wetlands, in-stream flows, gravel beds and so on that are created, manipulated and managed by natural forces.’ That, said a member of the Yakima band, is a very fancy way of saying ‘They need a natural river’ – which was what the Indian tribes proposed.

The interrelatedness of all life forms on an earth that is alive like an organism is central to the beliefs of indigenous peoples. The Tukano tribe of the Columbian Amazon, for example, believe that there is finite energy efficient to support the existence of all life forms. It must be shared between humans, plants and animals. Any disproportionate appropriation threatens the existence of all. So the hunt for animals is preceded by the Shaman obtaining the permission of the Master of the Animals as to the type and number of animals that may be killed so at no excess energy is removed from the animals. Anyone who hunts in excess of the permitted quota is invariably killed by the same animal shortly thereafter. The excess energy taken is returned to the earth, and the delicate equilibrium thus restored.

Is this sort of knowledge and creativity of indigenous peoples in the nurturing and use of the diversity of life on earth that has fed, clothed and healed the world. And it continues to do so. For example: three-quarters of plants at provide active ingredients for prescription drugs came to the attention of researchers because of their use in traditional medicine. Among the 120 active compounds currently isolated from the higher plants and widely used in modern medicine today, 75% show a positive correlation between their modern therapeutic use and the traditional use of the plant from which they were derived. Indeed, an estimated 40% of the world’s economy is based on biological products and processes.

A critical concern is the reliance of the world’s poor on biological products for their livelihood needs – food, medicine, fuel, fibre, clothing, shelter, energy, transportation and lots more. Approximately 1.4 billion primarily farmers – almost all located in the Third World, depend upon farm-saved seeds and local planting breeding/selection as their main seed source. The seed represent the cumulative genius of the farmer as it has been passed on, improved upon, made resilient to the ravages of drought, pestilence and so on.

**Threats to Biodiversity**

The complex systems are being ravaged by humans at an unprecedentedly alarming rate. Tropical forests are being felled at a rate of 1% annually, or 29 hectares per minute. This is an area the size of Ecuador and Peru combined, for the period 1980 – 1990. 25,000 species are being eliminated from tropical rain forests; 34,000 species of plants (12.5%) of the world’s flora are facing extinction. At least one of every eight known plant species is threatened. For every plant that goes extinct, 30 other species go with it. There is destruction of a large
number of micro-organisms. The rate of extermination is too fast for evolution to refurnish the planet with life forms as complex as those destroyed.

Domestic animal breeds are disappearing at an annual rate of 5%, or 6 breeds per month. Almost one-third of all livestock breeds is endangered or critical, according to the FAO.

Waters, whose banks are support the richest areas of biodiversity are being destroyed by dams and river versions. World wide water shortages are imminent as the rivers supply of water to lands is irreparably altered. industrial and other such activity is destroying the biological productivity of habitats and wetlands and estuaries - series of biodiversity shing grounds are over harvested or destroyed in other ways. 980 fish species have become threatened.

**The Threats to Alternative Knowledge systems**

The use and nurturing of biodiversity is inextricably linked to the social, cultural and economic practices and traditional lifestyle of indigenous peoples and other communities. It constitutes the alternative knowledge system which communities survive. It is this system that protects and develops biodiversity. The world’s biodiversity cannot be conserved and enhanced unless this knowledge system is protected, enhanced and allowed to flourish.

It today these knowledge systems are under threat by privatisation and globalisation. Ownership over the components of biodiversity and the knowledge of indigenous peoples is claimed through patents and other similar mechanisms. And the usurpation of bio-knowledge is being sanctioned and promoted by coercive international trade related instruments.

**Third World - no ownership over life forms**

Third World societies - indigenous peoples and other farming communities - had no concept of ownership rights over life forms. In particular, no laws existed to grant exclusive ownership rights to traditional plant breeders for creating new plant varieties and crops. Indigenous peoples and farming communities worked on their fields, developing and innovating new crop varieties to respond to their climatic, soil and water conditions and food needs. They innovated in a spirit of free exchange. Such innovations have fed the world - providing us the crops their resilient and nutritional diversity.

The genesis of the emergence of this ownership right over life forms for commercial benefits was the enactment the early 1960s of an international convention – the Union for the Protection of New Plant Varieties (UPOV). This Convention sanctioned the then existing practice whereby the biodiversity of the South, farmers’ germplasm, was tapped freely for source material, ‘improvements’ made by breeding modifications of the plant variety’s characteristics and qualities, and then ownership rights claimed. The innovative contribution and knowledge of local communities to the evolution of seeds and genetic resources were ignored. This inequity awned a debate in the FAO in the 1970s.

Third World countries complained that the biodiversity in their countries was treated as the ‘common heritage of mankind’, taken for free and then returned to them as a commodity at a price. In response the FAO at its 22nd sion in 1983, adopted an International Undertaking on Plant Genetic resources – which recognised free access to basic source materials as well as to improved and elite varieties. Several industrialised countries rejected this undertaking arguing that improved varieties did not form part of the common heritage of mankind. In the March 87 meeting of the FAO,s Commission on Plant genetic Resources the South vigorously asserted that farmers’s rights were founded on the basis of their efforts in domesticating their important agricultural crops and having
served, developed and safeguarded the tremendous biodiversity that breeders and the seed industry use as their source material. The innovation by farmers was thus integral in the breeding of their varieties. These debates finally led to the international recognition of both Plant Breeders’ and Farmers’ Rights in 1989. The rights negotiated by the Commission on Plant genetic Resources were adopted unanimously by the FAO Conference. Farmers’ Rights were defined as the ‘rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those in the centres of origin/diversity’: FAO Conference Resolution 5/89, 1989. This is a clear recognition of the innovative role farmers and rural communities play in the conservation and development of genetic resources and their right to benefit from it.

However the right was not vested in the individual farmer. It accrued to the governments to receive assistance in the maintenance of genetic resources. It was an obligation of the North to help the South, tied into the context of aid and dependency.

An international gene fund, to be administered by FAO for the conservation and utilisation of plant genetic sources was set up to concretise these Rights. But this remained an empty gesture. The countries of the North and its corporations refused to make any contributions to the fund.

The debate in relation to the ownership of life forms did not end there. This was because of

(a) the extension of patent rights over genetic materials, and,
(b) the growing importance of biotechnology.

The position that obtained with regard to the differing and inequitable treatment between the creativity of Third World communities and that of Northern corporations in relation to plant varieties was replicated by pharmaceutical companies. They enjoyed free access to genetic materials especially from the tropical rainforests in the South; and made massive profits from products derived therefrom.

The viability of the International Undertaking itself came into question because of developments in international negotiations. These were:

(a) the revision of UPOV
(b) The Agreement on Trade Related aspects of Intellectual property Rights (TRIPS)
(c) the Convention on Biological Diversity (CBD).

The first two substantially widened the gap between the source materials and improved or modified varieties in terms of ownership and value.

**POV revisions strengthen corporate ownership and control over plant plant varieties**

Few industrialised countries set up an agreement amongst themselves - the Union for the Protection of New varieties of Plants (UPOV) in 1961. States that became members were required to grant to, and recognise, commercial breeders’ ownership rights over varieties of plants taken largely from farmers’ fields and which they expressed ‘novel, distinct, uniform and stable characteristics’.

UPOV was revised in 1972, 1978 and 1991. The revisions have progressively strengthened the rights of commercial breeders. The 1991 revision allows for patents to be given in addition to plant breeder’s rights.
BRs) for plant varieties. Ten years after joining, protection must be given to all plant genera and species unlike "POV 78 which required protection for a limited number of varieties only.

POV '78 gave the breeder rights only in respect of commercial marketing, the offering for sale and the marketing of the reproductive or vegetative propagating material of the protected variety. UPOV '91 extends the scope to (1) the whole propagating material (and not just its reproductive or vegetative part), and, (2) to production, conditioning for the purpose of propagation, offering for sale, exporting, importing and stocking of any of these purposes. Further, the breeder's monopoly rights extend now to the farmer's harvest as well as to products from the harvest derived from the protected variety. UPOV '91 also extends the breeder's exclusive ownership rights to essentially derived varieties. This means that unless major changes are made to the genotype, a new variety will continue to belong to the owner of the protected variety. ". Any new variety derived from old by some minor modification cannot be protected under the revised Act. But what genetic distance needs to be established? And will this not invariably benefit corporate breeders using high technology mechanisms such as molecular marker profiles, pedigree distance data?

The 1991 revised UPOV has adversely affected the right of farmers so assiduously fought for in the FAO. The right of farmers to save seeds for their own use is severely restricted. This effectively ends farmers' traditional and customary practice of saving, exchanging seeds and sharing or selling, his farm produce within the customary and traditional market place. Farmers’ Rights are thus severely restricted with consequences on attaining genetic diversity and enhancing local breeding. This could ultimately adversely affect food security of Third World rural societies. At the same time the revised 1991 UPOV strengthens the control of seed companies over the rights of farmers and food production systems.

**RIPS in WTO**

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) implemented by the World Trade Organisation (WTO) by its Article 27(3)(b), allows for patents over life forms. Member countries MUST grant protection to plant varieties either by patents, a sui generis system or a combination of both. It also obliges member countries to allow for the patenting of microorganisms and ‘essentially non-biological processes’. Essentially TRIPS makes it obligatory for its members to enact intellectual property rights (IPRs) legislation which:

a) reproduces the IPRs regimes of industrialised countries, in particular the USA;
b) extends patenting to ‘modified’ life forms;
c) extends patent or other similar protection to plant varieties.

This means that the dominant paradigm of the industrialised West for IPRs is globalised. This paradigm reflects a shift of definitions of knowledge systems.

There is a shift from common or community rights to private rights. The TRIPs preamble clearly envisages recognition only of private rights. This excludes all kinds of knowledge, ideas and innovations in the intellectual commons of traditional societies for whom biodiversity is common property. For biotechnology corporations, biodiversity becomes private property through their investments.

Condly, IPR recognition is only accorded to products with an industrial application. This immediately excludes the informal community sector which produces and innovates outside the industrial mode of production. Creativity is only accorded formal recognition when it is for making profits and capital accumulation, not when it advances the social good.
The TRIPs provisions protect innovations that are trade related. But most innovations in the public domain are for domestic, local and public use, not for international trade. As transnational corporations primarily innovate to expand their share of global markets and international trade, TRIPs seeks to enforce rights of TNCs at the expense of the people and small producers of the Third World.

The underlying philosophy and hence the definitional constructs preclude recognition of innovations that are inter-generational, collective and for the social good – hallmarks of the way indigenous people create and innovate and of their knowledge system and ethos.

The exclusion of plants and animals from patentability, and, on the interpretation of patent laws of industrialised countries (the USA, European Union patent laws), not the modified plants or animals, again exacerbates the equity between genetic material developed in the North by biotechnologists and that done by farmers in their fields.

**The Convention on Biological Diversity (CBD)**

An opening to protect alternative knowledge systems and the creativity it spawns is provided by the Convention on Biological Diversity (CBD). The membership of the CBD and the WTO is constituted by almost the same countries, the US being a notable non-member of the CBD. The CBD vests sovereignty over natural resources and the right to grant access to genetic resources to national governments. The knowledge, innovations and practices of indigenous and local communities are considered key to the conservation, and sustainable use of biodiversity. Governments are required to respect, preserve and maintain these elements [Art 8(j)], to protect stromary use of bio-resources [Art 10(d)], to act according to national law to develop and use traditional and indigenous technologies [Art 18(4)], and to adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity [Art 11].

The cumulative effect of these provisions is to make it mandatory for governments to enact a law recognizing indigenous and local community knowledge systems. In any event, they are entitled to enact such a law to fulfill their obligations under the CBD.

Member countries of the CBD are bound to ensure that patents and other intellectual property rights (IPRs) are supportive of the objectives of the Convention and do not undermine them [Art 16(5)]. It is also the view of the WTO, in particular its Trade and Environment Committee, and the EC that the WTO and the CBD should be mutually supportive.

The upshot then is that international obligations and understanding allow for the enactment of laws protective of the creativity of indigenous peoples and local communities.

**The Ongoing Quest to protect Indigenous /Community/ Farmers’ Rights**

Key players from the North, particularly the USA and the European Commission, publicly declare that the creativity represented by the knowledge of indigenous peoples cannot be protected, and hence rewarded, under TRIPs. On this view, only the products and processes from the North, albeit based largely on the creativity of indigenous peoples, will be rewarded. Further, it is suggested that only a UPOV or UPOV-like law will fulfill the requirements of the sui generis option in respect to plant varieties in TRIPS.
Farmers’ Rights and the Revision of the International Undertaking: the debate continues

Farmers’ Rights are being debated vigorously in the on-going negotiation of the International Undertaking. As at April 1999 meeting of the Commission, the debate on Farmers’ Rights focused on the right of farmers to save ed from their harvest. The text adopted by the Contact Group in April 1999, in particular Article 15.3 of the undertaking, states that: ‘Nothing in this Article shall be interpreted to limit any rights that farmers have to save, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.’ It is sought amongst several developing countries that the explicit recognition of Farmers’ Rights by national law, would insulate any such law incorporating this right from challenge under the WTO. NGOs are concerned that this provides an opening for national patent laws to override Farmers’ Rights – thus denying farmers the right to save and exchange seed. Plant breeders and some governments on the other hand are concerned that the text does not expressly exclude plant varieties protected by patents or plant breeder’s rights.

This text will be debated at an extraordinary session of the Commission to be held no later than July of 2000. If approved by the Commission, the International Undertaking will be tabled before the FAO Council in 2000. Much more debate is expected and the final shape of Farmers’ Rights is difficult to predict.

Ongoing Debate at the WTO

The WTO, too, developing countries have initiated moves for the protection of indigenous knowledge in the context of the review of Article 27(3)(b). The Africa Group submitted proposals for the Ministerial Conference Seattle in 1999. One of the key proposals is that any sui generis law for plant variety protection may provide the protection of the innovations of indigenous and local communities in developing countries, consistent with the Convention on Biological Diversity and the International Undertaking. Peru, Bolivia, Colombia, Ecuador and Nicaragua issued a joint proposal in October 1999 calling on the WTO to study and make recommendations on the most appropriate means of recognising and protecting traditional knowledge as the object matter of IP. It also called upon the WTO to establish in the Seattle Ministerial meeting a multilateral legal framework that will grant effective protection to the expressions and manifestations of traditional knowledge.

The Ministerial meeting ended without any decision as to the review of the Article. But the concerns of the developing countries on this issue are expected to continue.

 Debate spurred on by increasing Biopiracy

The concerns have no doubt been spurred on by the increasing cases of biopiracy of the knowledge of indigenous peoples by corporations from countries of the North. Patents have been obtained in respect of the uses of the em tree which has been a pharmacopoeia for the peoples of India for almost 5,000 years. Patents are pending for ancient South American staple grain, quinoa; peasant-developed Indian chickpeas; and kava, a plant sacred to the New Zealand Maori. Patents have also been applied for a large number of Indian spices and condiments and vegetables (karela, brinjal, mustard, amla and jad amla) and recipes (pakora). A patent was so granted to a US citizen for a plant species native to the Amazon rainforest, and popularly known as ayahuasca. It is widely used in sacred indigenous ceremonies throughout the Amazon. In November 1999, the US Patent and Trademarks office cancelled the patent after a request for re-examination by, inter alia, the Coordinating Body of Indigenous Organisations of the Amazon Basin (COICA) and the Amazon Coalition. The cancellation brief stated the basis: “because the patent lacks novelty and distinctiveness, is found in an uncultivated state, and has a sacred element of many indigenous cultures of the Amazon and should not be subject to private appropriation.”
Australian crop development agencies also claimed breeders’ rights on two chickpea varieties. One was obtained from the International Centre for Research in Semi-Arid Tropics (ICRISAT). ICRISAT had developed a variety which originated from Iran. This Centre is one of the 16 International Agricultural Research Centres (IARCs) supported by the Consultative Group on International Agricultural Research (CGIAR). The CGIAR was established in 1971 and is an informal association of public and private donors that supports the IARCs. The vast majority of the germplasms held in these Centres was collected from the farming communities of the developing world. By a Trust Agreement between the CGIAR and FAO in October 1994 the collections are placed under the auspices of the FAO to be held in trust for the world community. All designated germplasm is to remain in the public domain. Recipients access the germplasms through Material Transfer Agreements (MTAs). But they are prohibited from applying for IPs on the germplasm or related information for material obtained after 1994. In violation of this prohibition the Australian agencies applied for proprietary rights. The other chick variety was obtained from farmers’ fields in Andhra Pradesh, India. In the PBR application the germplasm was identified simply by the accession number. No additional breeding work was done! The claims were dropped when the international community was alerted to the audaciousness of the applications.

The Rural Advancement Foundation International (RAFI) and the Heritage Seed Curators Australia released a report in September 1998, documenting 147 examples of plant intellectual property claims (PBRs and patents) which they thought to be dubious. In one-third of the cases, the plant varieties were collected in foreign countries and submitted for PBR without any evidence of breeding. There was no inventive step at all. The varieties were simply transported and ownership rights claimed! Six of the claims for PBRs were finally abandoned or withdrawn. To correct abuses, the Australian PBR office has revised its standards for assessing PBRs.

Genetic engineering: impetus for patenting life forms

Genetic engineering has provided the impetus for the patenting of life forms. Biological resources are modified by the insertion of a foreign gene and ownership rights claimed over the modified product. This has occurred in respect of cotton, corn, rice and soya. Genes, cells and sequences of genes are being also being patented thus and the claims made. These claims are in violation of elementary patent principles as there is no inventive activity involved. Discoveries are not patentable – and these cells are merely identified and labelled and some modification made. The genes themselves have been in existence for millions of years of evolution. They exist in nature. There is the additional serious problem that these wide exclusive monopoly claims are preventing the cess to information. For example, private companies are decoding the genome of the bacterium, staphylococcus, the most common infectious agent in hospitals that is resistant to every antibiotic. Public health, government and diversity researchers simply cannot obtain any information from companies as they see a patentable product in the offing. Research has thus been stultified and dangerously delayed as the resistance genes from this bacterium have the capacity to spread rapidly and a death has occurred from the disease.

Since 1996 virtually all seed companies have invested in plant genomics research (Pioneer Hi-Bred: $16 million; Monsanto and Millenium Pharmaceutical partnership: $218 million; Novartis: $600 million). The rewards anticipated are the patent ownership rights over these crop genes. Herbal medicines with an estimated market value of $12.6 billion are being targeted. This has an impact on Third World societies. More than three-quarters of the world’s 80% population which relies on local health practitioners and traditional medicines for their health needs, is from the Third World. Patents increase the price of medicines and place them out of reach of the vast majority of the populace of Third World societies.

Biolgical protection of patents over life forms: Terminator, etc

Further, almost all the major seed and agrochemical companies are conducting research and development of technologies that will prevent the second generation seeds from germinating. The seeds are engineered not to
produce after the first growth. They become sterile thereafter for all time. Farmers must then go back to the
tent seed owners to buy seeds for the next generation. Companies call it the ‘technology protection system’ or
enetic use restriction technology (GURT). It is popularly referred to as the ‘Terminator’. Genetic seed
rilisation portends serious consequences for farmers and food security. It will change the whole way plants
and seeds and nature has been viewed. The technology will restrict farmers in their time-tested expertise of
lecting seed and breeding locally adapted varieties. More than 1.4 billion people, mainly poor farmers of the
uth, depend upon farm-saved seed and seed exchanged over the fence as their primary seed source. The
chnology is industry’s response to the difficulties of legal protection of owned life forms. Seeds are easily
licated. Policing millions of small farmers is simply not possible. Proving that patented seeds have been
ised in fields is equally onerous. Undermining practices developed over millennia is not feasible. This then is
 biological protection solution: devised to increase profits and market share. Seeds taken from farmers’ fields
 are then returned to farmers for a cost which is guaranteed by irreparably crippling the very function of
 seed itself.

The Terminator has spawned considerable debate and concern. The Scientific Body of the Convention on
ological Diversity discussed it and has called for further study of its implications. India has banned the import
terminator seeds. The CGIAR has resolved to eschew its incorporation into its breeding materials. Zeneca
precated the technology and vowed not to use it. The President of the Rockefeller Foundation has advised
ustry to disavow its use. And Monsanto publicly declared that it would not commercialise the technology,
ough it has not ruled out its future development and use.

variation of the terminator technology allows the seed to germinate but minus beneficial characteristics; the
ant requires to be sprayed with a patented cocktail of chemicals to express these characteristics.

is sterility concept is being considered for animals as well. A genetically engineered virus is being researched
Australia. It will then be released into the environment and infect rabbits, making them sterile. The potential
ngers are horrific as viruses could transfer to other species. As is now widely acknowledged, genetic
ingineering destroys species barriers. Indeed the emergence of many new pathogens is attributed to genes from
 species jumping into other species. This is horizontal gene transfer – which is what genetic engineering relies
 on and promotes. It breaks down and transcends species barriers.

n australian researchers are collaborating with Indian researchers to develop a technique to automatically sterilise
ian women by the use of viruses.

o the whole of nature is up for grabs by multinationals: to manipulate, to alter, to debilitate and finally to own.
its wake the diversity of life on earth, and the alternative knowledge systems that have sustained it – are being
royed. International rules are being changed by key players from the North and imposed on the rest of the
ld. TRIPS is pivotal to this strategy. Developing countries and peoples of the Third World are seeking every
ich way to rebuff and ward off the threats presented by this reordering of nature by a change of norms which
ntithetical to the values of Third World societies.

PART II : THE RESPONSE AND THE WAY FORWARD

IPS was not freely negotiated by countries of the Third World. Intellectual property rules were often part of
 package deal along with other trade issues which individual countries had to agree to if they wished to remain
 the international trading community. The negotiating process was asymmetrical and non-transparent. On
 eve of the conclusion of the Uruguay round of the GATT negotiations, the Chair of G77 and China
resenting the developing world) lamented that the developing countries were largely kept out of the process
d issues were finally decided, often without their knowledge. The process was repeated in the recent
inisterial Meeting of the WTO at Seattle. The WTO secretariat, as noted by a seasoned observer of the process, as used by the major powers to engage in untransparent procedures, such as holding informal meetings on crucial issues in small groups to which most developing countries were not invited. These so-called ‘Green room’ meetings infuriated the Third World members of the WTO, who form a large majority of its 135 participating countries.’ Finally the African Ministers refused to go along with an undemocratic process and fused to support any proposed declaration. The meeting collapsed when several other countries from the Caribbean and Latin America agreed with Africa.

**Countries national law responses**

A large number of developing countries is in the process of enacting legislation to

- (a) regulate access to their biological resources,
- (b) insulate indigenous knowledge systems and innovations from being undermined, and,
- (c) provide for a sui generis system for the protection of plant varieties which does not undermine indigenous breeding customs and practices.

**The national laws include the following:**

- **Bangladesh:** Plant Varieties and Farmers’ Rights Protection Bill, 1999; The Patents (Amendment) Bill, 1998
- **Pakistan:** Plant Breeder’s Rights Act, 1999
- **Philippines:** Plant Variety Protection Law
- **China:** Regulation of the People’s Republic of China on the Protection of Plant of New Varieties of Plants
- **Korea:** Seed Industry Law, 1995
- **Indonesia:** Access to Biological Resources Act (at drafting task force status)
- **Costa Rica:** Biodiversity Law, 1998
- **Peru:** Proposal on the Protection of Intellectual Property rights relating to the Traditional Knowledge of Local & Indigenous Communities
- **Vietnam:** Plant variety protection bill; Traditional Medicine Bill.
- **Bangladesh:** The Plant Varieties Act
- **Namibia:** Plant Variety Protection Law (draft)

There are also regional efforts, the most notable of which are:

- **AU:** African Model law for the Protection of the Rights of Local Communities, farmers and Breeders, and for the Regulation of Access to Biological resources,
- **APEC:** Decision 391 ‘Common Regime on Access to Genetic Resources’ of the Commission of the Cartagena Agreement.

**Acting sui generis national laws compatible with TRIPS**

The two immediate questions that arise are:

- (a) whether a law protecting indigenous knowledge is permissible under the existing obligations of countries under TRIPS; and,
- (b) what kind of law may be enacted under the sui generis option for plant varieties.
is submitted that sui generis laws may be enacted to protect alternative knowledge systems and innovations without violating TRIPS; and that there is no need to accede to UPOV to satisfy the requirements under TRIPS.

**TRIPS does not exhaust subject matter that may be covered**

Article 1.1 of TRIPS states that more extensive protection may be provided than that required by the agreement. All that is required is that the protection must not contravene the provisions of the agreement. TRIPS sets out a set of minimum obligations in each area of IPR law. There is nothing that constrains countries from setting up a different area of protection with broader rights. Areas outside TRIPS are entirely permissible. Indeed, countries may have laws outside of the areas identified in TRIPS (namely, copyright, trademarks, geographical indications, industrial designs, patents, layout designs of integrated circuits and 'undisclosed information').

These 'outsiders' include the following:

a. utility models: these protect minor mechanical inventions. These are recognized by Spain, Germany, Japan, Brazil, Mexico, Argentina and the Andean Pact countries.
b. breeders' rights at presently provided for and regulated by UPOV.
c. The European Union Directive on the Legal Protection of Data Bases (No. 96/9).
d. Internet Domain Names may also be similarly protected by a sui generis right.

This means that legislation which recognises the creativity of indigenous peoples and local communities may be enacted without violating TRIPS.

**Article 8 of TRIPS - another basis for community intellectual right law**

This Article allows measures to be taken to

a. protect public health and nutrition, and,
b. promote the public interest in sectors of vital importance to their socio-economic and technological development.

First, 80% of the world's people, living almost entirely in the Third World, depend upon traditional medicine and medicinal plants for their health needs. It is clear that measures taken to protect the knowledge systems that makes this resource available would be measures to protect public health. This complies with the first limb of Article 8.

Further, protecting community knowledge and indigenous technologies which provide sources of medicine, which result in the development of new resilient plant varieties, which protects biodiversity and enhances its sustainable use, and which also spawn a whole host of other useful products and processes is of vital importance to a Third World country's socio-economic development. Most Third World societies have a rural informal sector which lies upon their knowledge systems to survive. Serious social instability can ensue if such reliance were impaired or curtailed in any way.

Measures taken under Article 8 must be consistent with the provisions of the TRIPS agreement. This consistency may be assessed, inter alia, in the light of the objectives of TRIPS as set out in Article 7. This Article makes it clear that the protection of IPRs should

a. contribute to the promotion of technological innovation, and,
b. in a manner conducive to social and economic welfare.
Article 18(4) of TRIPS states clearly the need for countries to develop and use indigenous technologies for the conservation, and the sustainable use, of biodiversity in accordance with their national legislation. This is in the context of a clear acknowledgment in Article 8(j) that such indigenous technologies are the sources of innovation. Law to protect and further the knowledge systems of indigenous peoples and local communities would clearly contribute to the promotion of technological innovation in furtherance of social and economic welfare of large segments of the Third World's populace.

Countries free to define 'invention' under TRIPS

The TRIPS agreement does not define what constitutes an 'invention'. It merely states the basic requirements, for example, for patents, the invention must be new, involve an inventive step and be capable of industrial application. 'Capable of industrial application' is clarified as being synonymous with 'useful'. Countries are free then to set the criteria for the innovative activity that will be accorded recognition and protection.

The key issue here is: can countries exclude the patenting of biological materials which exist in nature? This is especially important as genetic engineering now makes it possible to reproduce biological materials. Patents have been given to materials taken from, or identified as existing in, humans, plants and animals. Often it is no more than a discovery. By conventional norms of intellectual property rights legislation, they do not qualify to be treated as an invention.

The European Patent Convention and US law have adopted a very expansive approach that really blurs the distinction between patents and discoveries. European law allows for the patenting of a substance found in nature, it can be characterised by its structure, its process of obtaining it or by other criteria, so long as it was not previously available to the public. In the US, an isolated and purified form of a natural product can be patented if it found in nature in a non-purified form. The principles for IPR protection have been broadened in these countries allow for claims to the patenting of natural genes.

This approach need not be followed. This means that it is possible to exclude the patenting of these biological materials in a law on community rights.

The exception under Article 27.2 of TRIPS - ordre public and morality

TRIPS allows countries to refuse patents for inventions whose commercial exploitation would be against ordre public or morality. This includes, but is not confined to, situations where human, animal or plant life or health and the environment needs protection.

Recent scientific evidence is emerging which suggests that genetically engineered plants and animals, commodities and products derived from them, may pose serious consequences to plant and animal life and to human health. There is therefore a basis for refusing patents for genetically modified organisms and derived products if, based on the precautionary principle, it can be shown that the commercial exploitation of the patent would harm human, animal or plant life or health; or that otherwise, there would be serious prejudice to the environment.

A patent may also be refused if it offends against morality. The European Patent Office considers an invention immoral if the general public would consider it so abhorrent that patenting would be inconceivable. Most Third World societies would consider the patenting of life forms not merely immoral, but as being antithetical to their cultural, social and religious values.
National Treatment need not apply to modalities of IPRs not covered by TRIPS.

National treatment in TRIPS—each member must accord no less favourable rights to others that it gives to its own nationals (Art 3)—has no applicability in respect of modalities not covered by TRIPS. Hence there is no national treatment under UPOV and utility model laws. Benefits are accorded on the basis of reciprocity. The US '84 Semiconductor Chips Protection Act has a similar strong reciprocity clause.

Similarly, as regards "neighbouring rights", in Europe, foreign authors and artists cannot participate on the same footing as nationals in the distribution of revenues from videos and audio levies. Canada's Bill C-32 recognises neighbouring rights (that is, rights of performers, producers of phonograms and broadcasting organisations) on und recordings. These rights would not apply to nationals of countries where similar rights are not reciprocally conferred.

The EU Directive on the legal protection of data bases is only for nationals of member states or those who have habitual residence in the EU. Data bases made in other countries may be protected on the basis of agreements to be included by the Council acting on a proposal from the EU Commission (Article 11.3).

Exclusion of plants and animals and essentially biological processes

TRIPS allows for these to be excluded. The US allows the patenting of genetically modified life forms on the ground that they are human made inventions. The European Patent Office has also interpreted a similar exclusion on patenting to extend only to animals and plants 'as such', animal races and animal and plant species.

Countries are within their rights to reject this development of essentially western patent laws. The exclusion in the article is of plants and animals and 'essentially' biological processes for the production of plants and animals'. A modified plant or animal retains all its basic characteristics. Chakrabarty, whose case allowed for the patenting of forms, said of his insertion of genes from three oil eating bacteria into a fourth bacteria to produce a super bacterium which he hoped would slurp up oil slicks created by spills, "I simply shuffled genes, changing bacteria at already existed. It's like teaching your pet cat a few new tricks." Key Dismukes of the National Academy of Sciences in the US said,

"...Chakrabarty did not create a new life form; he merely intervened in the normal processes by which strains of bacteria exchange genetic information, to produce a new strain with an altered metabolic pattern. 'His' bacterium lives and reproduces itself under the forces that guide all cellular life."

Even recent advances in recombinant DNA techniques which allows for more direct biochemical manipulations of cellular genes are, says Dismukes, only modulations of biological processes. Further, the exclusion of 'essentially biological processes' is limited to processes 'other than non-biological'. But a plant or an animal is produced by a process that is part biological. The scientists who produced Tracy (the sheep whose mammary glands were gineered with human genes to produce a protein, found in mother's milk, for the pharmaceutical industry) admit using 'junk DNA' to get a high yield of the protein. As the corporation's director said, "We left some of these random bits of DNA in the gene, essentially as God provided it and that produced high yield." The use of, and reliance on, the junk DNA constitutes a biological process. Further the regenerative capacity of the organism creates the future generations of the animal - clearly an essentially biological process.

The upshot is that plants and animals, including those that are genetically modified, may be excluded from patenting under Article 27(3)(b).
Protection of Plant Varieties

Article 27(3)(b) states that members must provide for protection for plant varieties either by patents or by an effective sui generis system or by a combination of both. Unlike the community intellectual rights regime which, discussed, may be enacted outside TRIPS, the plant variety protection regime clearly falls within TRIPS. This means any law made in fulfilment of the Article must be reported to the TRIPS Council and subject to the dispute settlement procedures under the WTO.

The sui generis option gives countries the option to develop a law that will not undermine the tradition of their farming communities and indigenous peoples in innovating and developing new plant varieties and enhancing diversity. Nothing in TRIPS obliges countries to join UPOV or enact UPOV-like laws - especially since it is widely canvassed that the obligations of UPOV will undermine the interest of farmers in the Third World as well as erode biodiversity.

Essentially, UPOV only gives rights to commercial breeders. Traditional breeders are accorded no recognition and no reward. And this despite the international recognition that much of the plant genetic diversity is maintained and continued by the innovative activity of small farmers. The rights of commercial breeders is based on applying breeders' techniques to germplasms developed by farmers.

There is indeed little purpose to join yet another international convention that will hamper national legislative activity -unless the country intends to participate very actively in the export of plant varieties. The provisions of UPOV can be adopted by a national law without joining this international organisation. At least then there is freedom to act in the country's interest and change the law as and when required.

What if countries have already joined UPOV? Often the question then asked is: can a national law be enacted which tries to balance the rights of commercial breeders and traditional breeders? Generally the country cannot ally depart from the obligations it has undertaken under UPOV. But there is a provision in both UPOV 1978 and 91 that allows the restriction of breeder's rights for reasons of public interest [sections 9(1) and 17(1) respectively]. This term 'public interest' is nowhere defined. It will be permissible then to adopt some of the exclusionary elements in sections 8 (read with section 7), 27(2), 30 and 31 of the TRIPS agreement, as well as the features of the CBD, as constituting the 'public interest'. On this basis the expansive rights of farmers to their traditional breeding innovations can be enacted in a national plant variety law as a counterbalance to the rights corded to commercial breeders.

Core elements of a sui generis law for indigenous knowledge

These include the following:

The community is declared and recognised as the owners of community knowledge. They hold this right as stodians for past, present and future members of the community.

This means the following:

a. Their knowledge and all innovation within the community belong to the community or communities.
b. It belongs to them in perpetuity.
c. The community's or communities' prior informed consent must be sought for any access to their knowledge.
d. Such consent can be refused.
e. The integrity of the knowledge cannot be impaired. This means that no exclusive monopoly, or similar, rights can be claimed or given in respect of that knowledge. It therefore means that the knowledge is inalienable.

All elements of the culture, system and practices of communities are formally recognised.

This means:

a. The entire identity and integrity of the knowledge system replete with its values, rituals and sacredness is accorded recognition.
b. This includes the practice of free exchange of knowledge and innovations between communities.
c. any use or practice suffices to establish the right.

The community is entitled to allow for the commercial utilisation of its knowledge and innovation on mutually agreed terms.

If evidentiary proof of the knowledge is required, any declaration by the community in a manner and form accepted by the cultural practices of the community shall be sufficient evidence of its existence. This implies also that the onus will lie on any person contending otherwise to prove its claim.

More than one community may be the owner of the knowledge and the innovation.

Any payments made for the use of the knowledge shall be paid into a fund to be co-administered by the community. The funds shall be used for, inter alia, the protection, development, strengthening and maintenance of the community and its knowledge and resources.

Core Elements of a sui generis Law for Plant Varieties

The essential elements of such a regime

The law should include the following essential elements:

Recognition of Rights

The law should recognise and protect the rights of traditional breeders over plant varieties developed by them—whether inter-generationally, collectively and for the social good or howsoever otherwise and for whatever purpose. This right should extend to any variety essentially derived from the variety developed by traditional breeders.

The following provisions will have to be included in the law:

a. The State shall recognise and protect the rights of traditional breeders over their traditional varieties and land races.

b. The traditional breeder's prior informed consent must be obtained by any commercial breeder wishing to use the variety to develop other varieties.

c. This protection shall be extended to varieties that are essentially derived from varieties developed by traditional breeders.
The right should be recognised in accordance with the customs and practices of traditional breeders. This also means that there is no need to apply for the grant of the right. It follows that there will be no need to apply for, and obtain, registration. Further, proof of its existence can be established in a form or manner accepted by the traditional breeder's customary law, traditions and practices. This could include oral tradition. Finally, the customary practice of free exchange amongst communities shall not be affected.

Provisions to be included could be as follows:

a. definition of knowledge: to include cultural and traditional practices of communities within which the knowledge is generated.

b. The right to the plant variety is recognised regardless of whether or not it is registered.

c. The right to the plant variety shall be established in a manner and form compatible with the culture, tradition and practices of the community.

d. Nothing in the law affects the right of traditional breeders to freely exchange the plant varieties amongst themselves provided no commercial use is intended.

Content of the Right

The right includes the following:

a. the right to save, reuse, and exchange seeds from whichever source;

b. the right to sell the harvest from whichever source;

c. the right over any distinct and identifiable variety wherever derived from.

Criteria for the right

For traditional breeders the test should be distinctiveness and identifiability of the variety.

those situations referred to earlier, where a claim is made by commercial breeder in respect of a variety developed from a variety which is not invested with the knowledge of indigenous peoples and local farming communities and the State decides to grant such a right, the following elements may be included:

Criteria for the right

the test is: the variety shall be new, distinct, uniform and stable.

Scope of the right

The right should not extend beyond the production for purposes of commercial marketing, the offering for sale and the marketing of the reproductive or vegetative propagating material as such of the variety. In particular, the breeder's rights should not extend to the harvested crop of the traditional farmer growing the breeder's protected variety.

The concept of 'essentially derived variety' should be limited such that it does not impair or stifle innovation of traditional farmers.

Traditional farmers should be entitled to save, exchange, use their seeds and market within their traditional and customary areas, their harvest from protected varieties.
Restrictions of commercial Breeder's Rights

Commercial plant breeders' rights shall be granted in the following situations (based on the provisions of the 3D and Articles 7, 8 and 27.2 of TRIPS and the 'public interest' element in Article 9 of UPOV 1978 and Article 9 of UPOV 1991):

a. where biodiversity may be adversely affected;
b. where the variety poses a possible hazard to the agricultural system and to human, animal and plant life or health, based on the precautionary principle;
c. where the variety does not possess the normal regenerative and reproductive capacity associated with the variety;
d. where the introduction of the variety may have an adverse socio-economic affect on the country or indigenous peoples and local communities;
e. where there are ethical reasons for rejecting the right.

Further exclusions to breeder’s rights

The following exclusions/limitations to the breeder’s rights should be provided for (permitted by Article 30 of TRIPS and Article 15 of UPOV 1991):

- acts done privately and for a non-commercial purpose;
- use of the variety for research and experimentation not designed for commercial exploitation;
- use of the variety for teaching purposes;

Compulsory licensing

This should be allowed in certain situations (permitted by Articles 30 and 31 read together with Article 8, and 27.2 of TRIPS):

- where anti-competitive practices of the rights holder are identified;
- where food sovereignty, food security or nutritional or health needs are affected;
- where a high proportion of the plant variety offered for sale is being imported;
- where the requirements of the farming community for propagating material of a particular variety are not met;
- where it is considered important to promote the public interest for socioeconomic reasons and for developing indigenous and other technologies.

Revocation of Rights

The breeder's right may be revoked if, after the grant, any of the reasons set out in paragraph 6 (i)-(e) above are und to apply.

1. "Parallel imports"

Imports of any varieties in respect of which rights have been granted shall be allowed. (This is permitted by Article 6 of TRIPS).
No patents

Patents shall be granted in respect of plants, plant varieties or any parts or modifications thereof.

Ban of certain technologies

There shall be a ban of any technology such as that which renders the seed infertile in the following generation or which switches on, or off, specific genes, or, multi-gene traits, by the application of an external catalyst.

Effective

The provision which requires plant variety protection states as well that the protection must be effective. What is effective will be determined ultimately by reference to the provisions of the WTO, and ultimately the dispute panel. There is no need for developing countries to accept the interpretation of developed countries that only POV will be an effective sui generis law. The term means 'real' protection and not the strongest possible protection. Protection should be given not only to commercial breeders but, as well, to traditional breeders. All at a sui generis law for plant varieties requires is an adherence to the minimum provisions of TRIPS, consistent well with obligations of countries under other international instruments to which they are parties, such as the 3D, and its protocols.

is also suggested by some developed countries that what is 'effective' must be adjudged from the view-point of rights holder of the IPR. But if traditional breeders are given rights under a sui generis law, then they too are rights holders. Whether the law is effective to protect their creativity must be assessed from their interest as well. these circumstances a sui generis law that balances the interest of both commercial breeders and traditional breeders can hardly be considered ineffective. In this sense the term effective means that there is an effective machinery to enforce the right.

Review of Article 27(3)(b) of TRIPS.

This Article states that this subparagraph shall be reviewed four years after the entry into force of the WTO. As a result the review process was to have been initiated last year, 1999. What the TRIPS Council did was to require developing countries to answer a 3 page questionnaire. This information-gathering is to provide the basis for review. The position of several leading developed countries is that the review is merely to see how far untries are providing for the protection of plant varieties, that is, to monitor the implementation of the provision in relation to plant varieties. The EU and the US stated clearly that the review is thus limited and could not lead to a renegotiation of the Article. In particular they state that any attempt by developing countries to debate the relationship of TRIPS to other "aspects such as competition, environment, and its impact on health and welfare ...must be resisted."

The developing world wants nothing less than a comprehensive review of the provisions of the Article that will take into account the needs of their societies. The proposal made in July 1999, by Kenya, on behalf of the Africa Group for presentation to the WTO Ministerial Conference in Seattle in November last year is instructive.

The Group asked for the 2000 deadline for implementation of the sui generis option for plant varieties to be tended to 5 years after the review is completed. It questioned the artificial distinction between plants and animals (excludable from patentability) and micro-organisms (not excludable). The same query was posed in respect of 'essentially biological processes' (excludable) and microbiological processes' (non-excludable). The TRIPS article stipulating the patenting of these natural things (micro-organisms) and natural processes microbiological processes), the proposal stated, violated the basic tenet of patent law which does not allow for
The patenting of discoveries of nature. Hence the Africa Group asked that the review process clarify that such patents were prohibited.

The proposal also asked for a footnote to Article 27(3)(b) that any sui generis law on the protection of plant varieties protection can provide for:

(i) the protection of the innovations of indigenous and local farming communities in developing countries, consistent with the CBD and the International Undertaking on Plant genetic resources;
(ii) the continuation of the traditional farming practices including the right to save, exchange and save seeds, and sell their harvest;
(iii) preventing anti-competitive rights or practices which will threaten food sovereignty of people in developing countries, as is permitted by Article 31 of the TRIPS agreement.

Finally it asked that the review process should seek to harmonise Article 27(3)(b) with the provisions of the CBD and the International Undertaking “in which the conservation and sustainable use of biological diversity, the protection of the rights and knowledge of indigenous and local communities, and the promotion of farmers’ rights, are fully taken into account.”

The Ministerial Meeting ended in shambles as earlier described. But a new round is being planned for this year. Not only will there be a need to review the Article, but there is also to be an overall review of the TRIPS agreement under Article 71.1 of the Agreement, and, the next set of multilateral trade negotiations which should encompass TRIPS within its scope.

The overarching trade concerns will most certainly be advanced and pursued vigorously by industrialised countries through the new round of negotiations scheduled for this year by the WTO. So the stage is set for the folding of the ultimate battle royal. An epic and real Earth War—involving life forms, knowledge systems of millennia, corporations. The stakes are high: the resources which have sustained life: the food we eat, the water we drink, the air we breathe. Globalisation’s promises remain deceitfully unfulfilled. Opportunities and rewards globalisation, says the 1999 UN Human Development Report, are being spread unequally and inequitably, concentrating power and wealth in a select group of people, nations and corporations, marginalising the others. The 20th century has bequeathed to this planet 1.3 billion living on less than $1 a day and 3 billion people on less than $2 a day; 1.3 billion people no access to clean water, 3 billion no access to sanitation, 2 billion no access to power. And 828 million chronically undernourished people in the world, an increase since the early 1990s, states UN FAO.

The relentless imposition of new forms of IPRs over life through international instruments threaten to destroy irreparably the biological life support systems which have sustained life on earth for millennia. Only a global response can meet and thwart this. In the words of Nelson Mandela, by “a globalisation of responsibility as well.”

The challenges of the new millennia are immense. The ostensibly conflicting obligations of various treaties need be resolved and harmonised. Where the conflict is intractable, an order of priority of treaty obligations must be reed to.
References:

Ibid.
For detailed information: see 'Biosafety: scientific findings and elements of a protocol, Report of the dependent group of scientific and legal experts on Biosafety', 1996, Third World Network; Mae Wan Ho, Genetic engineering: Dream or Nightmare, Gateway Books, 1998.
FAO Conference resolutions 4/89 and 5/89 incorporating Farmers’ Rights. Farmers Rights were negotiated through the Commission on Plant Genetic Resources (established under the FAO) and unanimously adopted by 160 countries.