

Biodiversity and Intellectual Property Rights: Can the Two Co-Exist?

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1. Introduction

The 1990s has been characterized by contentious debate about how to reconcile the protection of biodiversity and intellectual property rights. Two international treaties, the Convention on Biological Diversity (CBD),³ and the Trade Related Intellectual Property Rights (TRIPs) agreement⁴ of the World Trade Organisation (WTO) have significant implications for the nexus of intellectual property rights (IPRs), biodiversity and associated knowledge systems. The CBD requires parties to safeguard biodiversity and the traditions and knowledge of those indigenous and other local communities associated with this biodiversity, and lays down the basic elements for access to biodiversity resources and associated knowledge systems. The TRIPs Agreement obliges party states to modify their national IPR regimes to meet much-enhanced international standards, which could have significant implications for biodiversity and the associated knowledge systems. In addition, the World Intellectual Property Organisation (WIPO) and other international institutions are becoming increasingly active on the subject. The singular advantage that the WTO process has for ensuring compliance arises from the fact that it can use the instrument of trade sanctions against an erring member, while the CBD has no enforcement mechanisms.⁵

CBD principles most relevant to the debate over biological resources and IPRs can be summarised as: (a) states have sovereign control over the biological resources within their borders and shall ensure conservation and sustainable use of their same,⁶ (b) although states shall have the authority to control access to their biological resources, they shall endeavour to create conditions that facilitate such access; (c) such access shall be granted on mutually

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³ Convention on Biological Diversity, adopted June 5,1992, A/CONF.151/26, 31 ILM 818 (1992) (hereinafter the CBD).

⁴ Agreement on Trade Related Aspects of Intellectual Property Rights, Marrakesh Agreement Establishing the World Trade Organisation, Annex 1C, 33 I.L.M.81 (1994) (hereinafter the TRIPs Agreement).

⁵ The WTO is armed with an elaborate Dispute Settlement Mechanism that can be effectively used to ensure compliance by member states.

⁶ Preamble, Art. 3 and Art. 6, CBD.

agreed terms and subject to the prior informed consent of the party providing such access; (d) the benefits of commercial or other utilisation of genetic resources shall be shared in a fair and equitable way with the party providing such access; (e) the wider application of the knowledge, innovations and practices of indigenous and other local communities shall be conducted with the approval and involvement of the holders of such knowledge.

Several aspects of the TRIPs Agreement have implications for the above principles of the CBD: a) it mandates developing countries to amend their existing regimes for the protection of intellectual property and adopt ones similar to those prevailing in industrialised countries; (b) it proposes comprehensive coverage under national patent regimes, and mandates that patents shall be available for inventions, whether products or processes, in all fields of technology.⁷ The overarching objective is to extend patent protection to selected forms of life which were hitherto not considered patentable by most countries; (c) As regards plant varieties, the TRIPs Agreement provides that protection must be provided “either by patents or by an effective *sui generis* system or by any combination thereof”

In response to the debate at the international level, there is considerable activity at the national level. Several countries (Costa Rica, Eritrea, Fiji, India, Mexico, Peru, Philippines) are developing legislation, or other measures, which respond to the above treaties or in other ways address the relationship between IPRs and biodiversity.⁸ Nations are seeking to achieve the following objectives:

- Protection of indigenous knowledge (traditional and modern) from being "pirated" and used in IPR claims by industrial/commercial interests;
- Regulation of access to biological resources so that alleged historical "theft" of these resources by the more powerful sectors of the global society can be stopped, and communities/countries are able to gain control and benefits from their use.

Propelling the spurt in activity on this front are the IPR-related scandals that periodically shock the world,⁹ such as:

- The patenting of ancient herbal remedies, e.g. the US Patent (No. 5401504) granted for the healing properties of turmeric, known for centuries to Indians; the US Plant Patent (No. 5751) on the 'ayahuasca' plant, considered sacred and used for medicinal purposes by Amazon's indigenous peoples;¹⁰ the US Plant Patent (No. 5900240) for the use of a combination of herbal compositions as hypoglycemic (anti-diabetic) agents that have been in use and are also well-documented in Indian scientific literature and ancient texts for the same anti-diabetic properties;
- The patenting of crop varieties that are similar to those grown for centuries in certain geographical areas, e.g. for varieties of Basmati rice by Rice-Tec Corporation in the US (Patent No. 5663484); Rice-Tec even uses the term “Basmati,” long used to refer to aromatic rice grown in northern India and Pakistan, to describe its rice varieties;

⁷ Art. 27.1, TRIPs.

⁸ See for instance, LYLE GLOWKA, A GUIDE TO DESIGNING LEGAL FRAMEWORKS TO DETERMINE ACCESS TO GENETIC RESOURCES (1998).

⁹ These are well exposed by the series of *Communiqués* and other papers brought out by the Rural Agricultural Foundation International (RAFI), a Canada-based NGO. RAFI *Communiqués* can be accessed at <http://www.rafi.org>.

¹⁰ The U.S. Patent and Trade Office subsequently cancelled this patent in response to a request for reexamination of the patent filed with the PTO in March by the Coordinating Body for the Indigenous Organizations of the Amazon Basin (COICA), the Coalition for Amazonian Peoples and Their Environment, and lawyers at the Center for International Environmental Law (CIEL).

- The patenting of human genetic material, e.g. on the human cell line of a Haghahi tribesman from Papua New Guinea (US Patent No. 5,397,696);
- Plant breeders' rights or patents on entire taxa rather than specific varieties or breeds, e.g. on all transgenic cotton and soybeans granted to the company Agracetus; and
- Patents on technologies that threaten farming systems worldwide, such as US Patent (No. 5,723,765) granted to Delta and Pine Land Co., nicknamed the "Terminator Technology" for its capability to stop plant regeneration after the first generation.

All countries are now required to respond to these developments, especially in light of the following specific decisions made in international forums:

- Decisions (II/12, III/17, and IV/15) at successive Conferences of the Parties to the CBD, asking for more in-depth information, including: case studies, and other follow-up studies on the relationship between IPRs and biodiversity in general, and TRIPs and CBD in particular;
- The upcoming review of the relevant clause (27.3(b)) of the TRIPs Agreement, in late 1999 or early 2000;
- Decisions (III/17 and IV/9) at the Conferences of Parties to the CBD, and in other forums, to work towards the protection of indigenous and local community knowledge, if need be, through alternative IPR regimes;
- Decision IV/5 at the fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice,¹¹ which recommended that Parties not approve field-testing of new technologies until appropriate scientific information can justify such testing, citing the precautionary approach and lack of reliable data. SBSTTA also invited the FAO, UNESCO, UNEP and other competent organizations to further study the potential impacts of such technologies.

This article attempts to do the following:

- Provide a brief history of IPRs related to biodiversity;
- Explore the precise relationship between IPRs and biodiversity;
- Point out the contradictions between TRIPs and the CBD;
- Examine the provisions in existing regimes for implementation of appropriate national action; and
- Point to possible alternative regimes and actions that could help to resolve the conflicts between IPRs and protection of biodiversity.

2. A Brief History of IPRs and Biodiversity

IPRs, as the term suggests, accord legal protection to ideas and information that are used to develop new inventions or processes. These rights enable the holder to exclude imitators from marketing such inventions or processes for a specified time; in exchange, the holder is required to disclose the formula or idea behind the product/process. The stated purpose of IPRs is to stimulate innovation, by offering higher monetary returns than the market otherwise might provide.

While IPRs such as copyrights, patents, and trademarks are centuries old, the extension of IPRs to living entities and attendant knowledge/technologies occurred only relatively recently. In 1930, the US Plant Patent Act was passed, which accorded IPRs to

¹¹The Subsidiary Body on Scientific, Technical and Technological Advice is constituted under Art. 25, CBD.

asexually reproduced plant varieties. Several other countries subsequently extended some form of protection to plant varieties, until in 1961, an International Convention for the Protection of New Varieties of Plants was signed. Most signatories were industrialised countries, who had also formed a Union for the Protection of New Varieties of Plants (UPOV). This treaty came into force in 1968.

Plant varieties or breeders' rights (PVRs/PBRs) give the holder of the right limited regulatory powers over the marketing of 'their' varieties. Until recently, most countries allowed farmers and other breeders to be exempted from such rights, as long as they did not indulge in branded commercial transactions. However, a 1991 amendment to the UPOV has tightened the monopolistic nature of PVRs/PBRs, and some countries have virtually eliminated the exemptions for farmers and breeders.

Historically, plant varieties had been exempted from the international patent regime in deference to farmers' traditional practices of saving and exchanging seeds. Industrialised countries, however, have been debating the merits of PBRs as a form of monopoly that may encourage plant-breeding activity. This culminated in the International Convention for the Protection of New Varieties of Plants (UPOV Convention) in 1978, which as indicated above, was amended in 1991, further strengthening the monopolistic hold of plant breeders. Until recently, the UPOV Convention was primarily comprised of Organisation for Economic Co-operation and Development (OECD) countries. However, the TRIPs Agreement now extends the requirement to protect plant variety property rights to all WTO Member States.

In addition, in many countries, patents with full monopolistic restrictions are now applicable to plant varieties, microorganisms, and genetically modified animals. In 1972, the US Supreme Court recognized microbiologist Ananda Chakrabarty's patent claim for a genetically engineered bacterial strain. This legitimized the view that anything made by humans and not found in nature was patentable. Genetically altered animals, such as the infamous 'onco-mouse' of Harvard University (bred for cancer research), were also soon accorded patents. Finally, several patent claims have been made, and some granted, on human genetic material, including material that has hardly been altered from its natural state.

Until very recently, these plant rights were only recognized in some countries, and they could not enforce these rights in other nations. However, this has changed with the signing of the TRIPs Agreement. TRIPs requires that all signatory countries accord:

- Patents to micro-organisms and "microbiological processes;" and
- Some "effective" form of IPRs for plant varieties, either patents or some *sui generis* (new) version.

TRIPs allows countries to exclude animals and plants *per se* from patentability. However, the above provisions have serious implications in themselves, for no longer are countries allowed to wholly proscribe the patenting of life forms. Nor is there likely to be a great amount of flexibility in evolving *sui generis* systems of plant variety protection, for the term "effective" may well be interpreted by industrial countries to mandate a UPOV-like regime. Indeed, a series of events in 1999, including meetings in Africa (February 1999) and Asia (March 1999) hosted by UPOV, WTO, and other agencies, have demonstrated that this interpretation is already being imposed on developing countries. For example, the African Intellectual Property Organization (OAPI), representing 15 Francophone countries, has decided to join the UPOV 1991.

3. IPRs vs. Biodiversity

The CBD has two interesting provisions relating to IPRs. Article 16.5 states that Contracting Parties shall cooperate to ensure that IPRs are "supportive of and do not run counter to the CBD's objectives." However, this is "subject to national legislation and international law." Article 22 states that the CBD's provisions will not affect rights and obligations of countries under "existing international agreements, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity." Read together and in the spirit of the CBD, many people have concluded there is a basis for countering the seemingly inexorable march of the IPR regimes described above.

But in order for this argument to hold, the actual impacts of IPRs on biodiversity need to be examined. This is a difficult subject, for many impacts are hard to assess. However, the following must be considered:¹²

- Current IPR regimes have allowed industrial and commercial interests to appropriate the resources and knowledge of resource-rich but economically poor countries and communities, further impoverishing them and denying them the benefits of technological innovation;
- IPRs are likely to greatly intensify the trend of homogenization of agricultural production and medicinal plant use systems. In agriculture, for instance, any corporation that has spent enormous amounts of money obtaining an IPR would want to market its varieties in as large an area as possible. The result could be serious displacement of local diversity of crops (though of course IPRs would not be the only factor);
- Increasingly, species-wide IPRs (such as those for transgenic cotton and soybeans) could stifle even public sector and small-scale private sector crop variety development;
- Having to pay substantial royalties to industrial countries and corporations could greatly increase the debt burdens of many countries. This could further intensify the environmental and social disruption that is often caused when debt repayment measures are taken up, such as the export of natural products;
- Farmers who innovate on seeds through re-use, exchange with other farmers, and other means, would be increasingly discouraged from doing so if the tighter regimes that UPOV 1991 sanctions are imposed on their countries; these regimes would also increase the economic burden on farmers, further discouraging innovation;
- The ethical aspects of IPRs are serious, and to many communities and people the most important reasons for opposing current IPR regimes. The patenting of life forms is abhorrent to many traditional societies and modern conservationists because of the underlying assumption that nature exists apart from, and solely for the use of, humans. The privatisation of knowledge is also repugnant to many societies that hold knowledge to be largely, though by no means solely, in the public domain.

4. TRIPs vs. CBD

The TRIPs Agreement is only likely to greatly exacerbate the impacts outlined above. In particular, its attempt to homogenise IPR regimes militates against a country or community's freedom to choose the way in which it wants to deal with the use and protection of knowledge. Equally important, it contains no provision for the protection of indigenous and local community knowledge. Such knowledge, because of its nature, may not be

¹²Ashish Kothari & R.V.Anuradha, *Biodiversity, Intellectual Property Rights, and the GATT Agreement: How to Address the Conflicts?* 43 *ECON. & POL. WEEKLY* 2814, (October 1997). Also in 2 *BIOPOLICY*, Paper 4, PY97004, 1997, Online Journal, URL: <http://www.bdt.org.br/bioline/py>.

amenable to protection under current IPR regimes. Finally, it provides no recognition of the need to equitably share in the benefits of knowledge related to biodiversity. Indeed, it legitimises the conventional inequities that have characterised the interactions between the industrial-commercial use of biodiversity-related knowledge, and the community/citizen use of such knowledge.

The negative impacts of TRIPs on the three objectives of the CBD are already beginning to be felt in some countries.¹³ There is an urgent need to identify available provisions within existing regimes, to counter these threats, and to examine alternative regimes that foster conservation, sustainable use, and equitable benefit-sharing.

4.1 TRIPs vs. CBD in India

India is currently considering two laws to implement TRIPs and the CBD: the Plant Varieties and Farmers' Rights Bill (PVFRB) and the Biological Diversity Act (BDA). The PVFRB is intended to serve as India's *sui generis* plant variety protection regime (per Article 27.3(b) of TRIPs). The BDA, on the other hand, would implement the CBD provisions related to access to genetic resources and sharing of benefits from the use of such resources. However, in several ways these proposed laws are not harmonized:

- The BDA provides for the protection of local community rights in a broad sense, and recognizes that members of the local community, acting through the Biodiversity Management Committees at the local level, shall be consulted before biological resources and the knowledge and information of the community pertaining to the same is accessed. The PVFRB, however, contains only a narrow definition of farmers' rights (the right to reuse, exchange, and sell, except as branded products, protected plant varieties); it does not provide for the protection of farmers' own varieties (which are unlikely to pass the stringent tests of novelty, distinctiveness, etc.), but rather focuses on benefiting formal sector plant breeders;
- Whereas the BDA explicitly provides for benefit-sharing measures with local communities, the PVFRB has no such provision;
- The BDA also puts in place a mechanism for Prior Informed Consent (PIC) of the concerned authorities, and in consultation with the affected local community where relevant, before access to genetic resources is permitted. However, the PVFRB does not contain any provision mandating PIC when varieties developed by farmers are accessed for research and commercial purposes. Its parallel provision, enabling farmers and communities to claim compensation upon proving they had made a 'significant contribution' to the variety granted protection under the Act, represents an unfair deal for farmers. In effect, it establishes an unfair legal battle between a large breeding corporation with economic and legal resources, and a farmer/farming community that is at a distinct economic disadvantage because it may not have the resources to establish the significance of its contribution to the development of the variety in question;
- The BDA attempts to include local community representatives at various levels of decision-making and requires decision-making authorities at the state and national levels

¹³ See, BISWAJIT DHAR & SACHIN CHATURVEDI, *Implications of the Regime of Intellectual Property Protection for Biodiversity: A Developing Country Perspective*, paper presented at Workshop on Biodiversity Conservation and Intellectual Property Regime, RIS/Kalpavriksh/IUCN, New Delhi, (29-31 January, 1999); R.V.Anuradha, *Between the CBD and the TRIPs: IPRs and What It Means for Local and Indigenous Communities*, Paper presented at Workshop on Biodiversity Conservation and Intellectual Property Regimes, RIS/Kalpavriksh/IUCN, New Delhi, (29-31 January, 1999).

to consist of representatives of local communities. The PVRFB envisages a bureaucratic management structure with no representation from local farming communities or NGOs;

- Whereas the BDA requires impact assessments of proposed projects that are likely to have adverse effects on biological diversity to ensure that they are in harmony with biodiversity conservation and sustainable use objectives, the PVRFB does not require any such assessments for plant variety protection applications.

The conflicting provisions of the two proposed laws have yet to be resolved, though they have been highlighted by NGOs and activists.¹⁴

Interestingly, India is not even required to immediately adopt a plant variety protection law; the haste with which the PVRFB has been drafted attests to the influence of the increasingly powerful seed industry (domestic and foreign). Further, the TRIPs allows for the establishment of a *sui generis* system of plant variety protection, the scope and extent of which has not been adequately explored.

Another development on the IPR front in India has been the introduction of a mechanism for the granting of Exclusive Marketing Rights (EMRs) for substances that can be used, or are capable of being used, as a medicine or drug. Such substances were previously outside the purview of product patents under Indian law. However, the TRIPs Agreement mandated that a product patent regime would ultimately have to be introduced for medicines and drugs. Pending this change, it also mandates the granting of EMRs for such substances. It is concerning that commercial control over the market is assured for a patent-holder and EMR-holder alike with the exclusive sales and distribution rights. Moreover, an EMR application would not be subject to the same level of scrutiny as a patent application, both by the authority granting patents and the public.¹⁵ India introduced the EMR system under pressure from the US and a WTO ruling directing it to do so.

4.2 Opportunities within Existing Regimes

4.2.1 Opportunities within TRIPs

Though essentially favoring the further expansion of current IPR regimes, there are some provisions in TRIPs that can be exploited by communities and countries interested in protecting their interests against those of dominant industrial-commercial forces:

- Article 8 authorises legal measures to protect public health/nutrition, and the public interest; although environmental protection is not explicitly incorporated into this provision, it could be construed as an important aspect of the "public interest." Unfortunately, this clause is subject to "the provisions of TRIPs," which renders the interpretation of its applicability an open question;
- Article 27(2) allows for exclusion of inventions from patentability where commercial use needs to be prevented to safeguard against "serious prejudice" to the environment. However, this provision's utility may be limited because a country will both need to make a determination of the potentially serious environmental implications of the invention and the need to prevent commercial applications to justify denial of a patent;
- Article 27(3) allows countries to exclude plants and animals from patentability, as well as plant varieties, so long as there is some other "effective" form of IPR for such varieties.

¹⁴ ASHISH KOTHARI, *Intellectual Property Rights And Biodiversity: Are India's Proposed Biodiversity Act And Plant Varieties Act Compatible?* PAPER PRESENTED AT WORKSHOP ON BIODIVERSITY CONSERVATION AND INTELLECTUAL PROPERTY REGIME, RIS/KALPAVRIKSH/IUCN, New Delhi, (29-31 January, 1999).

¹⁵ See Art. 70(8), TRIPs Agreement.

As mentioned above, what is "effective" is likely to be determined by powerful countries, in which case the almost patent-like regime being advocated by UPOV could well be established. However, an exceptionally bold country could experiment with completely different *sui generis* systems (see alternatives, below), and face up to any charges that are brought against it at the WTO;

- Article 22 allows for the protection of products that are defined through "geographical indications." This could help protect some products that are strongly associated with the specific locations in which they have originated (as has been done, for instance, with champagne). Countries such as India are already considering domestic legislation in this context.

4.2.2. Flexibility within CBD

As indicated above, both Article 16(5) and Article 22 of the CBD provide countries with some maneuverability with regard to IPRs. If indeed a country can establish that IPRs are inimical to conservation and sustainable use objectives, and/or equitable benefit-sharing, it should be justified in denying such IPRs. However, the caveat "subject to national legislation and international law" may well make this difficult, since TRIPs also constitutes international law for its signature. Between TRIPs and the CBD, which holds legal priority? It might be argued under international law that TRIPs, being the treaty later in time, would supercede the CBD in cases of conflict between their provisions. However, given that the CBD deals much more specifically with the protection of public interest and morality, which TRIPs acknowledges as valid grounds for protective measures, it could be argued that CBD's provisions should supercede those of TRIPs. The interface of the respective agreements has not yet been tested in any active case in the international arena.

Perhaps the most crucial CBD provision may be Article 8(j), which requires countries to respect and protect indigenous and local community knowledge, ensure that such communities are asked before using their knowledge for wider societal benefits, and encourages the equitable sharing of benefits arising from such use. Built into this provision are the seeds of a radically different vision of protecting knowledge and generating and sharing benefits. Discussions within the CBD forums, including at successive Conferences of Parties, have demonstrated this potential, especially since a wide range of indigenous and local community groups have used the forums to press their case.

In this connection, an interesting question is whether a country can challenge another country's IPR regime on the ground that it fails to ensure adequate protection of informal innovations of indigenous or local communities, and therefore violates Article 8j of the CBD. For example, can India challenge the US patent regime as a whole, citing examples such as the turmeric patent? The Indian delegation to WTO's Committee on Trade and Environment posed this question in a June 1995 meeting, but reportedly did not receive a response. It would be interesting to see how the CBD forums would deal with a charge such as this.

4.2.3 Changing IPR Regimes

A combination of the relevant clauses in TRIPs and the CBD can be used as justification for for modification to existing IPR regimes that can help to safeguard the public interest. Many people have argued, for instance, that apart from the usual criteria of novelty, etc. that are required of an IPR application, the following information should also be required:

- Source (country/community/person) of the material or information that has gone into the produce/process for which an IPR is claimed;
- Proof of prior informed consent from the country and community of origin (Articles 15(5) and 8(j) of the CBD);
- Details of the benefit-sharing arrangements entered into with the community of origin, wherever applicable (Article 8(j) of the CBD).

Countries like India have also suggested that all IPR applications that are related to biodiversity and biodiversity-related knowledge should be posted on the Clearing House Mechanism web site (set up under the CBD), giving concerned government, communities or individuals an opportunity to object if they feel that their rights have been violated. These suggestions have not yet been accepted at the international level, but are being incorporated into some domestic legislation.

4.2.4 Other Opportunities

Some other forms of IPRs could be used for protecting indigenous and local community knowledge. These include copyright and know-how licences (see, for instance, the use of such licences in the case of the Aguaruna people of Peru). In addition, a number of other international treaties (though not legally binding) could well be used to counter the threat of current IPR regimes. These include the FAO Undertaking on Plant Genetic Resources, the ILO Convention 169 on indigenous peoples, the International Covenant on Economic, Social and Cultural Rights, the UNESCO/WIPO Model Provisions for National Laws on Protection of Expressions of Folklore, the Universal Declaration of Human Rights, and the UN Draft Declaration on the Rights of Indigenous Peoples.¹⁶

Perhaps what is most important is to ensure meaningful implementation of the precautionary principle within international regimes. Principle 15 of the Rio Declaration provides that, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation." The Preamble to the CBD also adopts the principle. No serious thought, however, has gone into formulating a standard to implement the principle within the CBD. Initially it should require determination of whether IPRs, in theory, pose significant threats. From the discussion above, it would appear that they do. In any case, countries and communities could assert that those who want to impose IPR regimes should have the burden of proof to establish that they do *not* pose such threats.

5. Alternative regimes

Given the extreme uncertainties about how far provisions within existing IPR/trade regimes can be stretched, there is a clear need for alternative regimes and measures that safeguard the interests of conservation, sustainable use, and equity in the use of biodiversity resources. Some possible approaches are discussed in the following sections.

5.1 Community-based IPR and resource rights regimes

A number of NGOs and individuals have advocated various forms of intellectual rights regimes that recognise the essentially community-based nature of a substantial portion

¹⁶ DARELL POSEY, TRADITIONAL RESOURCE RIGHTS: INTERNATIONAL INSTRUMENTS FOR PROTECTION AND COMPENSATION FOR INDIGENOUS PEOPLES AND LOCAL COMMUNITIES (1996).

of biodiversity-related knowledge. At the international level, for instance, an alternative to UPOV has been suggested by the Indian NGO, Gene Campaign, which focuses equally on farmers' and breeders' rights.¹⁷ At the national level, groups such as the Third World Network, GRAIN, and the Research Foundation for Science, Technology and Ecology, have advocated Community IPR regimes.¹⁸ There have also been suggestions for recognition of concepts such as Traditional Resource Rights, which encompass not just intellectual but also physical resource and cultural rights. Countries such as the Philippines are attempting to test such regimes, though it's far too early to make any judgements as to their efficacy. In addition, WIPO and other international agencies are also studying the possibility of protecting indigenous and local community knowledge through alternative regimes.

5.2 Defensive IPRs

An idea worth pursuing is a regime of essentially 'defensive' rights. Such a regime would not allow the right holder to monopolise knowledge or its use, but would permit them to stop others from appropriating or misusing their knowledge or resources. In other words, no one would be able to monopolise any resource or knowledge over which such a right has been granted. A country could pass legislation stating that its resources were accessible to all, provided that those wishing to avail themselves of these resources were willing to sign a legally binding agreement to not apply restrictive IPRs to these resources, or allow such application by third parties. In addition, appropriate benefit-sharing arrangements could also be worked out in Material or Information Transfer Agreements.

Of course, for a country to unilaterally introduce such a system would not make much sense; an acceptable regime at the international level would need to be established. What incentives for innovation would such a regime provide? This question is addressed below.

5.3 Civil society resistance and challenges to dominant IPR regimes

One final strategy for countering the inequitable and destructive nature of current IPR regimes is the mobilisation of civil society to resist and challenge them. In a number of countries, notably Thailand and India, farmers' groups, NGOs, and scientists have led the struggle against the "piracy" of indigenous and local community knowledge, and the imposition of IPRs on life forms and related knowledge. Legal challenges have been taken to the US and European patent offices (e.g. in the case of turmeric, by the Indian government; in the case of neem tree products, by several NGOs; and in the case of the sacred "ayahuasca" plant, by a combination of North and South American groups). Farmers in many countries have warned corporations and governments not to establish IPRs for crop varieties, and have opted to openly violate such IPRs, even if it means being jailed. Indigenous peoples everywhere are acquiring a deeper understanding of IPR regimes, and ways of challenging them when they impinge on their human or resource rights. Though not of the same nature, the Dutch challenge to the recent European Directive on Legal Protection of Biotechnological Inventions (which requires recognition of patents on life forms by all European Union member states), is also noteworthy.

¹⁷ GENE CAMPAIGN, CONVENTION OF FARMERS AND BREEDERS: A FORUM FOR IMPLEMENTING FARMERS AND BREEDERS RIGHTS IN DEVELOPING COUNTRIES: A DRAFT TREATY PRESENTED AS AN ALTERNATIVE TO UPOV. NEW DELHI (1998)

¹⁸ G.S. Nijar, In Defense of Indigenous Knowledge and Biodiversity: A Conceptual Framework and Essential Elements of a Rights Regime (1996).; GRAIN, *Towards a Biodiversity Community Rights Regime*, Seedling 12(3), 2, (October 1997); V. Shiva, A.H. Jafri, G. Bedi, and R. Holla-Bhar, *The Enclosure and Recovery of the Commons* (1997).

Another form of resistance is the revival of farming and medicinal systems that foster citizen and community self-reliance. This would reduce the dependence on corporate and State-controlled seeds and drugs, amongst other things, and help communities to escape the IPR trap altogether. Of course, given existing economic and social structures, and the increasing incursion of the global economy into the everyday lives of even 'remote' communities, this form of resistance is getting more difficult. But there are significant movements that have kept alive its possibilities, e.g. the widespread revival of agro-biodiverse farming systems in India¹⁹ and other parts of South and South-East Asia.

6. Who Will Provide the Incentives for Innovation?

One question that is frequently posed to those opposing the global imposition of current IPR regimes is what incentives will exist for continuous innovation if IPRs are not accorded. This question assumes that the monetary benefits derived from IPRs (by providing a market monopoly for a period of time) are the sole or primary incentive for innovation. This assumption has not been supported by the evidence. A recent study evaluating the US Plant Patents Act over the past 65 years concluded that the Act has neither fostered breeding as a profession nor stimulated species, genetic, or even market diversification.²⁰

For the majority of humanity's existence on earth, innovation has been born of motives other than personal monetary profit, including sheer survival, goodwill, social recognition, and power. The fact that Asian farmers could develop, out of one species of rice, hundreds of thousands of varieties to suit a diversity of ecological and social situations, is proof of this. Public sector crop breeding in a number of countries has progressed enormously on the motivation of public welfare. Although by no means universal, the spirit of public welfare and sharing that motivates traditional healers, farmers, and others, is still very much alive in many countries. Indeed, studies of community involvement in biodiversity conservation and sustainable use have demonstrated that tenurial security, social recognition and rewards and other non-monetised incentives drive such innovation more than the promise of monetary gain. To displace this spirit by forcing upon countries and communities a uni-dimensional view of innovation, which is based on the profit motive alone, is to do a grave injustice to humanity.

7. What is the Way Forward?

The arguments made above lead to the following recommendations for communities and governments:

1. Seek to broaden the parameters of "public interest" provisions in existing IPR regimes, including bold *sui generis* systems of plant variety protection and advocacy of application of the precautionary principle in all trade and other transactions;
2. Advocate that, in the upcoming review of Article 27.3(b) of TRIPs, maximum flexibility be built in, affording countries the option of fully excluding life forms from patent protection, and the possibility of developing *sui generis* systems of plant variety protection that are "effective" from a national or community point of view;
3. Seek to fully assess the relationship between IPRs and biodiversity (and biodiversity-related knowledge), and provide the results of these studies to relevant international actors;

¹⁹ ASHISH KOTHARI. CONSERVING INDIA'S AGRO-BIODIVERSITY: PROSPECTS AND POLICY IMPLICATIONS (1997).

²⁰ RAFI, *supra* note 9.

4. Mandate that IPR regimes require that all IPR applications, pertaining to or derived from biological substances, disclose the source of origin of such substances and related knowledge and information;
5. Challenge, in international forums, countries and corporations that are known to be violating Article 8(j) and other relevant provisions of the CBD; and use Article 16.5 and 22 of the CBD to the maximum extent possible to protect community interests;
6. Develop an international agreement (or protocol under the CBD) for the protection of indigenous and local community knowledge, and related access/benefit-sharing measures;
7. Steer the revision of the FAO Undertaking on Plant Genetic Resources, the WIPO initiative on "new beneficiaries," and other processes (including proposed ones such as the Database Treaty) in a direction that ensures conservation, sustainable use, and equity in benefit-sharing;
8. Develop and implement domestic legislation that maximizes biodiversity conservation and local community livelihood security.

Some of these steps were also advocated at the recent (February 1999) Workshop on Biodiversity Conservation and Intellectual Property Rights, organized by the Research and Information System on Non-Aligned and Developing Countries (RIS), and Kalpavriksh - Environmental Action Group, under the sponsorship of IUCN - The World Conservation Union. While largely arising from the experiences of South Asian countries, the recommendations of this workshop have much wider applicability. Their recommendations relating to international processes are therefore reproduced as an appendix to this article.

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Appendix

WORKSHOP ON BIODIVERSITY CONSERVATION AND INTELLECTUAL PROPERTY RIGHTS

New Delhi, 29-31 January, 1999

Organised by Research and Information System for Non-Aligned and Other Developing Countries, Kalpavriksh, and IUCN - The World Conservation Union

STATEMENT AND RECOMMENDATIONS²¹

PREAMBULAR STATEMENT

A Workshop on Biodiversity Conservation and Intellectual Property Rights was organised in New Delhi, on 29-31 January 1999, by the Research and Information System on Non-Aligned and Developing Countries (RIS), Kalpavriksh, and IUCN - The World Conservation Union. More than 60 academics, activists, researchers, NGO representatives, government officials, and representatives of industry from India, together with a number of participants from other South Asian countries, Europe and the USA, participated in the Workshop.

The major issue that was deliberated upon in the Workshop was the conflicts and complementarities between the Convention on Biological Diversity (CBD) on the one hand, and the elements of the international intellectual property regime, underlined by the World Trade Organization (WTO) in the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs), on the other. The participants identified specific action points that are required to be taken up in the multilateral forums of CBD or WTO, and in the national context within India and other developing countries, that would further the objectives of the CBD through full use of spaces within existing IPR regimes, through further development and adaptation of these using the review process in-built in the Agreement on TRIPs or, where necessary, through creation of new regimes.

The statement and recommended actions below are intended to reflect the range of views expressed at the workshop and to offer a sense of the meeting.

There was strong support for the three objectives of the CBD: conservation of biological diversity, sustainable use of its components, and the fair and equitable sharing of the benefits arising from such use. In addition, participants also recognised the immense contribution of traditional knowledge and practices of local and indigenous communities for conservation, and re-affirmed the need for the effective maintenance of such knowledge systems. In relation to the TRIPs Agreement, participants recognised that the objectives of the Agreement, i.e., the protection of IPRs, should provide benefits to both producers and users of technological knowledge in a manner conducive to social and economic welfare in reality. However, concern was expressed that the current IPR regimes, in particular the Agreement on TRIPs, fail to adequately address a number of concerns central to the achievement of the objectives of the CBD. They appear to pose a significant threat to conservation of biodiversity, they do not address a range of equity issues including intergenerational equity, and they render difficult both access to genetic resources and the fair sharing of benefits

²¹ This is a reproduction of only that part of the full statement dealing with recommendations for international actions; the rest deals with recommendations for national action in South Asia.

arising from their use. Perhaps more seriously they fail to recognise and protect traditional systems of knowledge that are needed to meet the objectives of the CBD fully, especially the local and community knowledge and the knowledge systems of indigenous peoples. There is therefore a need to achieve necessary amendments to existing regimes, and/or develop alternative regimes to address these concerns.

The workshop identified the following actions as steps to address some of these concerns:

RECOMMENDATIONS FOR ACTION

1. Recommendations Relating to International Regimes

Current international regimes which have relevance to IPR and biodiversity issues need to be substantially reviewed, and attempts made both to use the spaces available within them and create new spaces and alternative regimes which can help to conserve biodiversity and protect the rights of indigenous and local communities. In particular, actions are needed in the World Trade Organization (WTO), concerning specifically the Agreement on (TRIPs), the Convention on Biological Diversity (CBD), and the other relevant international processes, including those that have been initiated by the World Intellectual Property Organization (WIPO). Besides, the search for alternative international regimes is also important.

A. *WORLD TRADE ORGANISATION (SPECIFICALLY, TRIPs)*

At the level of the WTO, and specifically the TRIPs agreement, the following actions should be taken:

1. An open and transparent process, involving civil society, of reviewing article 27.3(b) in 1999 and the review in 2000 of the TRIPs Agreement overall;
2. A full consideration of the relevant provisions of the CBD, the FAO Undertaking on Plant Genetic Resources, the ILO Convention 169, the UNESCO/WIPO Guidelines for Protection of Folklore, the UN Draft Declaration on the Rights of Indigenous Peoples, international human rights declarations, and other relevant international treaties and processes, while undertaking the above-mentioned reviews;
3. An independent and transparent assessment of the environmental and equity implications of WTO in general and TRIPs in particular, with the involvement of civil society and of relevant international bodies relating to the CBD, the FAO and WIPO, and taking in particular the “precautionary principle” enshrined in Agenda 21;
4. A review of Article 31 of TRIPs to ensure its conformity with the preamble, and articles 7 and 8 of TRIPs, as well as article 16 of the CBD. The aspects of authorisation for commercial and non-commercial activity under Article 31 should be clarified during such review;
5. Expansion of, or at the very least maintenance of, the exceptions in Article 27.3(b) of TRIPs, for patenting of life forms; the expansion should ideally exclude micro-organisms, products and processes thereof, from patentability;
6. The definition of the term ‘micro-organism’ should not be expanded to cover tissues, cells or cell lines or DNA obtained from higher organisms, including human beings;
7. Expansion or at the very least maintenance of the *sui generis* clause relating to plant variety protection, in order to:
 - (i) ensure implementation of article 8(j) of the CBD relating to indigenous and local communities;

- (ii) ensure that full consideration of environmental and ethical concerns about IPRs on life forms are addressed; and
 - (iii) allow the completion of a biosafety protocol that establishes minimum international standards for the environmental safety of releases of genetically modified organisms.
8. Amending the provisions of Article 27.3(b) by either deleting the term “effective” in the context of *sui generis* systems of plant variety protection, or defining it such that national priority is paramount in the interpretation of the term, including the following:
 - (i) Conservation and sustainable use of biodiversity;
 - (ii) Promotion of traditional lifestyles;
 - (iii) Promotion of food security and health security;
 - (iv) Ensuring equitable benefit sharing;
 - (v) Invoking the precautionary principle;
 - (vi) Respect of the principles of equity and ethics;
 9. Exploring ways of interpreting and implementing TRIPs that help achieve the objectives of the CBD;
 10. Measures to prevent the unilateral pressure by some members to coerce other members to strengthen IPR regimes beyond the TRIPs requirements;
 11. Enhancing the scope of Article 23 of TRIPs to strengthen protection of geographical indications for goods other than wine and spirits, such as Darjeeling tea;
 12. The scope of Article 22 of the TRIPs should be expanded to protect denominations relating to geographic origin, and characteristics associated with a specific region;
 13. Inclusion of requirements (in Article 29 of TRIPs) for disclosure of the genetic resources and the traditional knowledge used in inventions for which IPRs are claimed, the country and community of origin of these resources and knowledge, and proof of consent having been sought of the relevant community and equitable benefit-sharing arrangements having been entered into with them, as required by the CBD;
 14. Steps to ensure that TRIPs implementation and elaboration fulfils all the objectives stated in Article 7. This should include striking a balance between rights and obligations, a balance that should take into account the objectives of the CBD as well as the principles enunciated at the Earth Summit;

B. *CONVENTION ON BIOLOGICAL DIVERSITY (CBD)*

The CBD process should take the following measures:

1. Assess the relationship of IPRs to access and benefit-sharing provisions, including in the development of guidelines or best practices for achieving equitable benefit-sharing from use of genetic resources. In particular, there should be consideration of mechanisms such as certificates of origin, evidence of prior consent for access to genetic resource, evidence of prior approval of indigenous and local communities for access to traditional knowledge, and disclosure of this evidence in patent applications;
2. Evaluation of the impacts of international processes relating to IPRs, including TRIPs, on the objectives of Article 8(j) of the CBD;
3. Development of a protocol on the protection of indigenous and local community knowledge and resource rights;
4. Providing inputs into the ongoing WIPO processes on “new beneficiaries” which are assessing issues relating to protection of traditional knowledge; and

5. Development of a code of conduct, or a protocol, on access and benefit-sharing, especially in relation to the resources and knowledge of indigenous and local communities, and of 'developing' countries;
6. These steps could be taken up as concrete points for the inter-sessional process relating to the implementation of Article 8(j), which the CBD COP4 initiated; and of other processes relating to the Biosafety Protocol and the inter-sessional work on access and benefit-sharing.

C. OTHER PROCESSES

Other international processes relevant to IPRs and biodiversity need to take the following steps:

1. Development of the FAO Undertaking on Plant Genetic Resources, either in itself or as a protocol under the CBD, should incorporate comprehensive protection of indigenous and local community knowledge, along with provisions to conserve biodiversity and sustainably use biological resources;
2. Cooperation at the SAARC level to jointly conserve biodiversity, achieve sustainable use, and promote equitable benefit-sharing, especially through appropriate regional agreements;
3. Ensuring that any agreement on databases (e.g. the proposed Database Treaty) ensures effective control by communities of their knowledge, mechanisms that ensure effective and equitable sharing of benefits with and within communities, and space for communities define the terms by which they control access and require benefit-sharing;
4. At all international forums, setting up of "intercultural panels" to evaluate the terms of "cross-cultural transactions" by which knowledge relating to biodiversity from one knowledge system is used in another system, including in dispute-resolution processes.