

INTELLECTUAL PROPERTY PROTECTION AND TRADITIONAL KNOWLEDGE

An Exploration in International Policy Discourse

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1. Traditional Knowledge as Intellectual Property

“Indigenous cultural knowledge has always been an open treasure box for the unfettered appropriation of items of value to Western civilization. While we assiduously protect rights to valuable knowledge among ourselves, indigenous people have never been accorded similar rights over their cultural knowledge. Existing Western intellectual property laws support, promote, and excuse the wholesale, uninvited appropriation of whatever indigenous item strikes our fancy or promises profit, with no obligation or expectation to allow the originators of the knowledge a say or a share in the proceeds.”¹

(i) Nature of Traditional Knowledge

The notions of traditional knowledge, indigenous knowledge and indigenous peoples have acquired wide usage in international debates on sustainable development as well as those on intellectual property protection. However, their usage is often subject to confusion. There have been various efforts to define the concepts of traditional knowledge, indigenous knowledge, and indigenous peoples, but there are so far no universally adopted definitions. Different persons define them differently depending on their intellectual persuasion and professional interest. And many often use the concept of traditional knowledge interchangeably with that of indigenous knowledge.

Stephen Brush has defined indigenous knowledge as “the systematic information that remains in the informal sector, usually unwritten and preserved in oral tradition rather than texts...[It] is culture specific, whereas formal knowledge is decultured.”² One may well ask whether Brush’s definition of indigenous knowledge and his distinction between such knowledge and that which he terms “formal knowledge” stands repeated empirical testing. First, he reduces (perhaps unconsciously) knowledge to information and as such misplaces the “practical or skills aspect” of indigenous knowledge holders: one who possesses knowledge usually has skill and experience in the particular problem domain but one may possess information without experience and skill. Knowledge

¹ Greaves, “Tribal Rights” in Brush and Stabinsky (Eds.) *Valuing Local Knowledge: Indigenous Peoples and Intellectual Property Rights* (Island Press, Covelo, 1996).

² *Ibid.* p. 4.

(whether indigenous or non-indigenous) is associated with practical experience and skill in solving a particular problem while holding information (for example, about indigenous activities) does not necessarily endow one with skill and experience in solving a problem. As Greaves asserts: “indigenous knowledge is, in the main, something more than matter-of-fact information. Rather, it is usually invested with a sacred quality and systemic unity, supplying the foundation on which members of a traditional culture sense their *communitas*, personal identity, and ancestral anchorage.”³

Secondly, Brush’s classification of knowledge into indigenous and formal fails not only because there are striking similarities across the two classes, but also for the reason that indigenous information could be formalized. It could be codified in ethno-botanical databanks and packaged for use in the formal sector, for example by modern pharmaceutical industries.

The International Labor Organization (ILO) Convention Concerning Indigenous and Tribal Peoples in Independent Countries defines indigenous peoples as:

[P]eoples in independent countries who are regarded as indigenous on account of their descent from populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.⁴

The ILO Convention definition carries four vital factors of time, geographical space, resilience, and territorial occupation by outside populations to be considered in any discussion of indigenous peoples and knowledge.

In a recent publication Darrell Posey and Graham Dutfield tend to use the concepts of indigenous peoples and traditional peoples interchangeably.⁵ While we appreciate the conceptual difficulties that one runs into in any attempt to define the two related concepts, we eschew the use of the two as synonymous. In this study we subscribe to the ILO Convention definition of indigenous peoples and define traditional peoples as those who hold an unwritten corpus of long-standing customs, beliefs, rituals and practices that have been handed down from previous generations. They do not necessarily have claim of prior territorial occupancy to the current habitat; that is, they could be recent immigrants. Thus traditional peoples are not necessarily indigenous but indigenous peoples are traditional.

Indigenous knowledge, as far as we are concerned, is that knowledge that is held and used by a people who identify themselves as indigenous of a place based on a “combination of cultural distinctiveness and *prior territorial occupancy* relative to a more

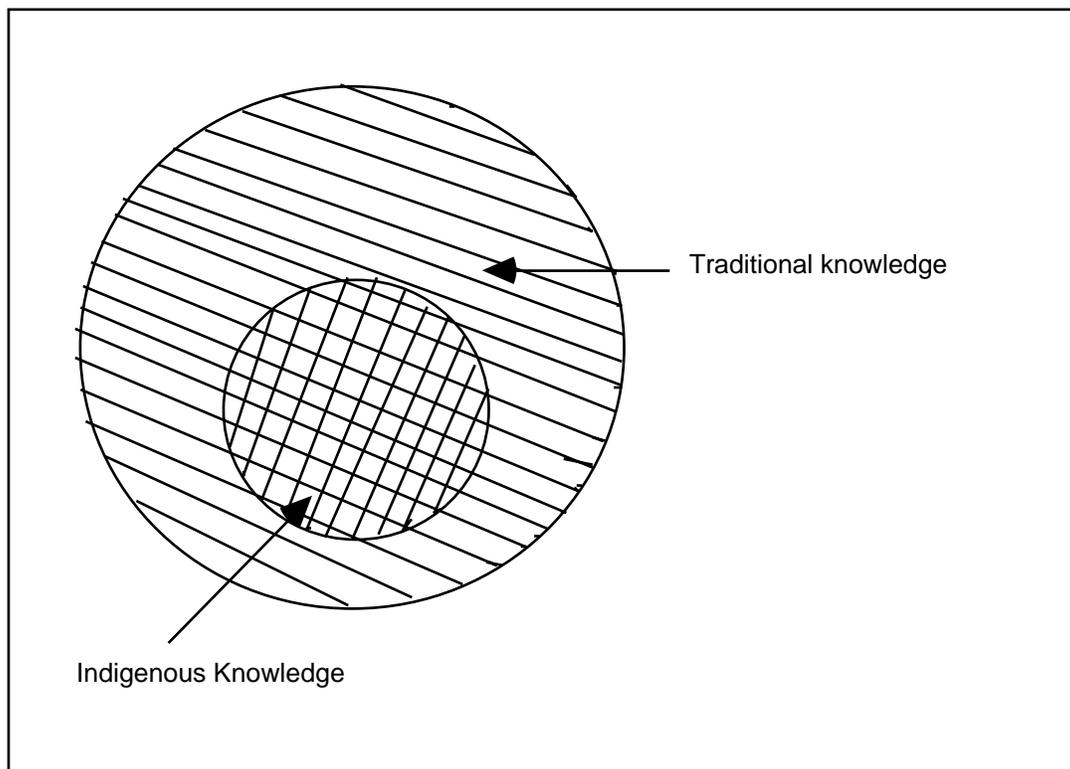
³ *Ibid.* p. 26.

⁴ Article 1, International Labor Organization Convention Concerning Indigenous and Tribal Peoples in Independent Countries, June 1989 (referred to as Convention 169).

⁵ Posey and Dutfield, *Beyond Intellectual Property* (International Development Research Center, Ottawa, 1996) pp. 3 and 22-41.

recently-arrived population with its own distinct and subsequently dominant culture”.⁶ Traditional knowledge is, on the other hand, that which is held by members of a distinct culture and/or sometimes acquired “by means of inquiry peculiar to that culture, and concerning the culture itself or the local environment in which it exists.”⁷ Indigenous knowledge fits neatly in the traditional knowledge category but traditional knowledge is not necessarily indigenous. That is to say, indigenous knowledge is traditional knowledge but traditional knowledge is not necessarily indigenous.

Figure 1: Traditional knowledge system



Traditional knowledge is thus the totality of all knowledge and practices, whether explicit or implicit, used in the management of socio-economic and ecological facets of life. This knowledge is established on past experiences and observation. It is usually a collective property of a society. Many members of the particular society contribute to it over time, and it is modified and enlarged as it is used over time. This knowledge is transmitted from generation to generation. According to the United Nations Environment Program (UNEP), this knowledge “can be contrasted with cosmopolitan knowledge, which is drawn from global experience and combines ‘western’ scientific discoveries, economic preferences and philosophies with those of other widespread cultures.”⁸ It is generally an attribute of a particular people, who are intimately linked to a particular

⁶ UNEP/CBD/COP/3/Inf. 33, Annex 2.

⁷ *Ibid.*

⁸ UNEP/CBD/COP/3/Inf. 33., p. 9.

socio-ecological context through various economic, cultural and religious activities.

Traditional knowledge is dynamic in nature and changes its character as the needs of the people change. It also gains vitality from being deeply entrenched in people's lives. It is difficult to isolate or archive traditional knowledge from traditional people. Examples of traditional knowledge include knowledge about the use of specific plants and/or parts thereof, identification of medicinal properties in plants, and harvesting practices.

There is an adequate and growing evidence of traditional knowledge and associated practices contributing significantly to the conservation and enhancement of biodiversity.⁹ Local people embodying traditional lifestyles and knowledge have devised and deploy various technologies to conserve the environment in general and biodiversity in particular.

⁹ Biodiversity is defined as “the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” See Article 2, Convention on Biological Diversity, 1992.

Local communities and households in different parts of Africa have accumulated a broad technological knowledge base to conserve and sustainably use plant genetic resources. They deploy different and unique technological systems to conserve and use plants and their genetic components. These systems include home gardens, seed banks and sacred groves. The home gardens are mainly small plots of land within the homestead on which several species, sometimes up to 100 or more, of plants are domesticated. Many local and traditional communities in Africa conserve rare medicinal plants in home gardens. They select and conserve specific species of plants whose medicinal values and properties they know. They domesticate these in small gardens normally at the back of their homesteads.

Apart from home gardens, seed banking is another established local conservation system. In Ethiopia, for example, the Tigray communities' efforts specifically address these problems: the loss of traditional seeds (genetic resources) and the traditional knowledge for selection and conservation. With financial support from some non-governmental organizations (NGO's), the Tigray farmers have established a community seed bank that currently holds seeds of a wide range of traditional crops. The seeds are selected by the local farmers based on specific cultural, technological and ecological criteria. The farmers select seeds on the basis of:

- (a) better crop stand: that is, sample seeds are selected from fields with high-yields and high quality seeds;
- (b) plant vigor: that is, they select seeds from plants that show traits of resistance against disease and pests; and
- (c) seeds on which cultural knowledge has been accumulated by the communities are selected. However, the farmers are also interested in new seeds and knowledge. Moreover, they stress the importance of transmitting the selection skills to new generations. This ensures that technological knowledge and skills for genetic resource conservation are retained in the community: institutional memory is sustained through generations of social change.

The seeds selected by the Tigray farmers are stored under special containers that are moisture free or have low moisture content. The seeds are then invested in the custody of local women who frequently check the seeds to ensure that they are viable and free from pest infection. The women occasionally sun-dry the seeds. They also grow samples of the seeds in home gardens to ensure that the stored seeds retain their regenerative potential.

One important feature of the Tigray form of institutional organization is that it facilitates easy sharing or exchange of seeds among the farmers and even outside communities. One channel of seed exchange is the practice of offering a portion of the best-selected seeds as gifts to the poor in connection with the St. Mary celebration in the Orthodox church. Because these are considered blessed seeds, the poor will take some home and plant them.

Source: Mugabe, 1994. *Technological Capability for Environmental Management:*

The Case of Biodiversity Conservation in Kenya. Ph.D. Dissertation Submitted to the University of Amsterdam, The Netherlands.

Contributions of indigenous and other traditional peoples to the global crop production system have well been documented.¹⁰ It is estimated, for example, that the economy of the United States of America (the U.S.A.) alone has annual sales at least US\$ 50 million from genes of 15 major crops that were first cultivated and enhanced by traditional peoples.¹¹

(ii) Traditional Knowledge and Biodiversity Prospecting

Over the past decade or so, biotechnology, pharmaceutical and human health care industries have increased their interest in natural products as sources of new biochemical compounds for drug, chemical and agro-products development.¹² The decade has also witnessed a resurgence of interest in traditional knowledge and medicine. This interest has been stimulated by the importance of traditional knowledge as a lead in new product development. Of the 119 drugs developed from higher plants and on the world market today, it is estimated that 74% were discovered from a pool of traditional herbal medicine.¹³ It has been estimated that the annual world market for medicines derived from medicinal plants discovered from indigenous peoples amounted to US\$ 43 billion in 1985.¹⁴ A report prepared by the Rural Advancement Fund International (RAFI) estimated that at the beginning of the 1990s, worldwide sales of pharmaceuticals amounted to more than US\$130,000 billion annually.¹⁵

Developing countries and their traditional peoples have contributed considerably to the global drugs industry. Okoth-Owiro and Juma have estimated that plant-derived prescription drugs in the U.S. originate from 40 species of which 50% are from the tropics. The 20 species generate about US\$4 billion for the economy of the U.S.A.¹⁶ The search for these plants has been accompanied by appropriation of traditional knowledge. For example in the 1970's, the National Cancer Institute (NCI) of the U.S.A. invested in extensive collections of *Maytenus buchananii* from Simba Hills of Kenya. NCI was generally led by the knowledge of the Digo communities - indigenous to the Simba Hills area - who have used the plant to treat cancerous conditions for many years. More than 27.2 tons of the shrub were collected by the NCI from a game reserve in the Simba Hills

¹⁰ See, for example, Kloppenburg, *First the Seed: The Political Economy of Plant Biotechnology 1492-2000* (Cambridge University Press, Cambridge, 1988).

¹¹ Roht-Arriaza, "Of Seeds and Shamans: The Appropriation of Scientific and Technical Knowledge of Indigenous and Local Communities", 17 (1996) *Michigan Journal of International Law*, pp. 919-963.

¹² Reid *et. al.*, (Eds.), *Biodiversity Prospecting: Using Genetic Resources for Sustainable Development*, (World Resources Institute, Washington, D.C., 1993).

¹³ Laird "Natural Products and the Commercialization of Traditional Knowledge" in Greaves, T. (Ed.), *Intellectual Property Rights for Indigenous Peoples: A Sourcebook* (Society for Applied Anthropology, Oklahoma City, 1994) pp. 145-149.

¹⁴ Posey and Dutfield, *op. cit.* p. 34.

¹⁵ RAFI "Conserving Indigenous Knowledge: Integrating Two Systems of Innovation" (A study prepared for the United Nations Development Program (UNDP), New York, 1994).

¹⁶ C. Juma and J.B. Ojwang, *In Land We Trust: Environment, Private Property and Constitutional Change*, (ACTS Press, Nairobi, 1996) pp. 282-283.

for testing under a major screening program.¹⁷ The plant yields maytansine which was considered a potential treatment for pancreatic cancer. All the material collected was traded without the consent of the Digo, neither was there any recognition of their knowledge of the plant and its medicinal properties.

The NCI has also collected *Homalanthus nutans* from the Samoa rainforests. The plant contains the anti-HIV compound prostratin. The collection was undertaken on the basis of traditional knowledge.¹⁸ The NCI has also benefited from traditional knowledge of local communities living around Korup Forest Reserve in Cameroon. The Institute has collected *Ancistrocladus korrupensis* from the reserve to screen for an anti-HIV principle, Michellamine B. This bio-prospecting effort has progressed into pre-clinical development. The NCI and other drug research and development organizations continue to invest considerable sums of money to prospect for plants containing useful chemicals, and many of them are investigating the efficacy of traditional medicines.

Although trade in medicinal plants from developing countries has increased in the past few decades with more drugs developed, few if any benefits accrue to the source countries and the traditional communities. Total trade in herbal remedies and botanicals in 1995 yielded over US\$ 56 billion and the only payments to the communities were for the manual labor involved. According to Posey, less than 0.001% of profits from drugs developed from natural products and traditional knowledge accrue to traditional people who provided technical leads for the research.¹⁹

There are, however, a few exceptions. These include Shaman Pharmaceuticals and the Body Shop.²⁰ Shaman develops new therapeutics by working with indigenous peoples of tropical forests. The Body Shop is bioprospecting in the Kayapo area of Brazil extensively drawing on traditional knowledge of the Kayapo Indians. It has invested in ethnobotanical research for the development of new ingredients for its body-care products.²¹ In 1991, the Body Shop had at least 300 products with annual sales of US\$90 million. By 1995, its annual sales stood at least at US\$ 200 million.

Both Shaman and the Body Shop have developed mechanisms for returning some of the benefits from the commercialization of medicinal plants and traditional knowledge to the traditional people. The Body Shop also sponsors projects to assist local people to establish enterprises for processing crude products.

¹⁷ C. Juma, *The Gene Hunters: Biotechnology and the Scramble for Seeds* (Zed Books and Princeton University Press, London and Princeton, 1989).

¹⁸ Posey and Dutfield, *op. cit.* page 35.

¹⁹ Posey, "Intellectual Property Rights for Native Peoples: Challenges to Science, Business, and International Law", (Paper presented at the International Symposium on Property Rights, Biotechnology and Genetic Resources, Nairobi Kenya, 1991).

²⁰ These are pharmaceutical companies whose product development activities are largely based on traditional knowledge. They have established systems to recognize the value of traditional knowledge and to provide a certain measure of compensation to local people for the knowledge.

²¹ Laird, *op. cit.*

On the whole, a significant part of the global economy is based on the appropriation and use of traditional knowledge. Indeed, traditional knowledge is increasingly contributing to production in modern economies where property rights are inimical to community intellectual property. Modern economic policies and laws (particularly modern property laws) undervalue this knowledge: at best they ignore it and at worst they contribute to its destruction.

“Traditional knowledge plays a significant role in industry R&D programs. ... But traditional knowledge has been and continues to be an element in the commercialization of natural products, it is currently supplied to commercial interests through databases, academic publications or field collections and it should be paid for in some form. This form will to some extent be dictated by the market, but should also be established in light of the fact that . . . , the market will not reflect the true commercial value of traditional knowledge.”²²

Traditional people (particularly the indigenous ones) and their knowledge are, however, threatened with destruction. Modest estimates show “that 85 Brazilian Indian groups became extinct in the first half of this century. In the Amazonian region, ... on an average, one Amerind group has disappeared for each year of this century.”²³ The destruction of traditional people and their knowledge is caused by many interrelated and complex factors. They include destruction of ecosystems in search for expanded agricultural lands, deforestation associated with harvesting of timber and other forest products, and appropriation of traditional knowledge with no rewards to the holders of that knowledge.

Concern over the growing interest in and economic importance of traditional knowledge as well as the loss of this knowledge has generated a wide range of public policy issues including those associated with intellectual property protection. “Growing interest and catapulting markets in ‘natural’ food, medicinal, agricultural, and body products signals increased research activities into traditional knowledge systems. Now, more than ever, the intellectual property rights of native peoples must be protected and just compensation for knowledge guaranteed. We cannot simply rely upon the goodwill of companies and institutions ... If something is not done now, mining of the riches of indigenous knowledge will become the latest - and ultimate - neocolonial form of exploitation of native peoples.”²⁴

(iii) Intellectual Property Rights in Traditional Knowledge

Intellectual property law has recently received attention as a motor for technological innovation and industrial change. It has also been seen as a tool for promoting the conservation of biological diversity, sustainable use of its components, and

²² Laird, *op. cit.* p. 154.

²³ Posey, “Intellectual Property Rights for Native Peoples: Challenges to Science, Business, and International Law”, *op. cit.* p. 3.

²⁴ *Ibid.* p. 7.

for ensuring that benefits arising from the utilization of genetic resources are shared in a fair and equitable manner among the relevant stakeholders.²⁵ Critics argue that intellectual property protection increases the costs of products, promotes genetic monoculture by concentrating industrial and agricultural activities on a few cultivated varieties or species, and, when extended to plants and animals, is in conflict with the morals of many societies.

Intellectual property laws vary in nature and scope from one country to another. Intellectual property protected in one country may not be recognized in another country. Despite the existence of various international agreements that attempt to harmonize intellectual property protection, there are still differences among national laws, especially those regarding patents. For example, while the U.S.A. and countries in the European Union allow patent protection over genetically engineered organisms which meet the normal requirements for patentability, many other countries are opposed to extending patents to such subject matter.

There are also differences in the duration of patent protection. The period for which an inventor is granted a patent varies from one country to another. In addition, different countries have different conditions for the disclosure of information concerning the invention. While some (for example, the U.S.A. and the European Union countries) have strict conditions and mechanisms for enforcing patent application requirements, others (particularly those of the developing world) have weak institutional arrangements for ensuring compliance with disclosure requirements.

These differences in national application of intellectual property law are at the center of much of the debate on the intellectual property rights of indigenous and local peoples. The case of traditional knowledge of indigenous and local peoples has opened debate on the adequacy and ethics of intellectual property protection. The debate (particularly the absence of consensus on whether and how to extend intellectual property protection to traditional knowledge) has so far shown these issues are complex and controversial. This is partly because of differences in conceptual treatment and often lack of clarity on the two concepts of traditional knowledge and intellectual property. It is also because a scant body of information is available to those responsible for policy and law making, at both national and international levels. In addition, these issues are often debated in isolated United Nations, business sector and non-governmental organizations' conferences---each with its distinct sectoral interest and focus in the subject. For example, dialogue (within the ILO and the United Nations Working Group on Indigenous Populations, amongst others) on the human rights of indigenous peoples has seldom addressed, at least consistently, issues of intellectual property rights in traditional knowledge. The World Trade Organization (WTO) regime has not confronted the implications of its Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement) for the protection and use of traditional knowledge. On the whole, international debate on issues of intellectual property protection in general and rights in traditional knowledge in particular, is characterized by tension and inconsistency.

²⁵ Gollin in Reid *et. al.* (Eds.), *op. cit.* pp. 159-197.

However, environmental non-governmental organizations (NGO's), anthropologists and the Convention on Biological Diversity (the CBD) have begun to create a strong political foundation for addressing these issues in a holistic manner. The CBD's holistic nature and its large and diverse constituency open to NGO's has provided, at least in the recent past, an intergovernmental forum where these issues are being debated with a certain measure of coherency.

The debate in the CBD and other forums now oscillates between two extremes: one position that advocates the extension of intellectual property protection to cover traditional knowledge, even including patenting of that knowledge, and another position that promotes the *status quo* where such knowledge is treated as a public good. Those who subscribe to or promote the first position often advance the following arguments. First, they argue that extending intellectual property protection to traditional knowledge will in fact promote technological innovation as it would facilitate the dissemination and development of that knowledge in the modern economic space. Second, recognition of intellectual property rights in traditional knowledge could generate incentives for local and indigenous peoples to conserve the environment and manage biodiversity. Third, the industrialized countries have a moral obligation to ensure that indigenous and local peoples receive a fair and equitable share of benefits arising from the use of their traditional knowledge and commercialization of genetic resources.²⁶ Proponents of this view further suggest that traditional knowledge should be validated.

Those who oppose the extension of intellectual property protection to traditional knowledge have argued that such a move would in fact destroy the social basis for generating and managing the knowledge. Traditional knowledge, as we have observed, is communal property, passed on from one generation to the next. If it is protected under intellectual property law it would be privatized, and this may deny future generations and industry access to such knowledge. As has been stated:

“It is crucial to remember that the underlying purpose of IPR is to turn knowledge into a marketable commodity, not to conserve such knowledge in its most fitting cultural context. This goal necessarily translates into a focus on segregating and isolating information into identifiable and manageable pieces that can be protected by law as intellectual property. In contrast, ethnobotanical knowledge by its very nature is integrative, holistic, and synergistic. It is most meaningful *in situ* where plants are understood in relation to the ecological and cultural environments in which they have been grown, managed, and used by local residents. IPR departs from such traditions by valuing the discrete properties of plants that can most easily be taken out of their natural and cultural context and replicated through artificial selection in a laboratory or greenhouse. Given the legal premises upon which IPR are based, it is unlikely that IPR will ever be a useful model for protecting ethnobotanical knowledge.”²⁷

²⁶ This argument was expressed in this manner during the negotiations of the CBD and is still prevalent in biodiversity debates at both national and international levels.

²⁷ Nabhan *et. al.* in Brush and Stabinsky, *op. cit.* p. 193.

The two groups—proponents and opponents of intellectual property rights in traditional knowledge—express legitimate concerns. The problem is in the nature of intellectual property law as established and enforced on the basis of Western capitalistic models. Let us now examine various intellectual property law regimes to establish their adequacy in protecting traditional knowledge.

(a) The Paris Convention for the Protection of Industrial Property

The Paris Convention for the Protection of Industrial Property, 1883 is an international legally binding agreement concerning property rights in patents, utility models, industrial designs, service marks, indications of source or appellations of origin and trademarks. The Convention had, as at December 1998, 151 Member States. Article 1 of the Convention defines the scope of industrial property. It states in Article 1(3) that “[i]ndustrial property shall be understood in the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example, wines, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers, and flour.”²⁸

Article 2 sets conditions for national treatment—each Contracting Party to the Convention must grant the same intellectual property protection to nationals of other Parties that it gives to its own nationals. Article 5(a) of the Convention allows Parties to pass legislation that would grant compulsory licenses in order to prevent abuses resulting from the exercise of exclusive rights.

It is possible for innovations of indigenous and local peoples to be protected under the trademark, utility models, industrial designs, service marks, and indications of source or appellations of origin provisions of the Paris Convention. In this respect, Article 7 of the Convention is worth noting. It allows member countries to “accept for filing and to protect collective marks belonging to associations the existence of which is not contrary to the law of the country of origin, even if such associations do not possess an industrial or commercial establishment.”²⁹ If indigenous and local peoples form associations that are legally legitimate in their countries, it is possible for them, as a collectivity, to acquire collective marks.

This Convention does not, however, contain provisions for granting patents to traditional knowledge *per se*, or any other kind of knowledge for that matter, although it recognizes and would protect modern industrial products and services generated from that knowledge.

(b) Plant Breeders’ Rights

²⁸ Goldstein *et. al.*, *Selected Statutes and International Agreements on Unfair Competition, Trademark, Copyright and Patent* (The Foundation Press, Inc., New York, 1997) p. 420

²⁹ *Ibid.* p. 431.

Plant breeders' rights are used to cover plant varieties.³⁰ They vest exclusive exploitation rights in the developers of new varieties of plants as an incentive to pursue innovative activity and to enable breeders to recover their investment in breeding. Like most intellectual property rights, plant breeders' rights are limited in time, at the end of which the varieties pass into the public domain.

The 1978 and 1991 Acts of the International Convention for the Protection of New Varieties of Plants ("the UPOV Convention") establish minimum international standards for the protection of plant breeders' rights. Both Acts are administrated by an intergovernmental organization, the International Union for the Protection of New Varieties in Plants (UPOV).

Plant breeders' rights under the UPOV Convention provide intellectual property protection to plant varieties that are distinct, novel, uniform and stable. These conditions or requirements are similar to those for patenting although the requirements of "novelty" and "distinctiveness" for purposes of plant breeders' rights are interpreted more leniently than for patent protection. Plant breeders' rights are useful regimes for countries that do not wish to extend patents to plant varieties and other living organisms. However, in 1991 several amendments that tilt plant breeders' rights more towards patents were introduced in the UPOV Convention. First, there was an expansion of subject matter for protection under the regime of plant breeders' rights. The 1978 Act of the UPOV Convention provided protection only to plant varieties of nationally defined species. The 1991 Act extends protection to varieties of all genera and species. In addition, the revised UPOV Convention has extended protection to commercial use of all material of the protected variety while the 1978 regime restricted the commercial use of only the reproductive material of the variety. Secondly, the "farmer's privilege" in the 1978 Act is more limited in the 1991 Act, under which it is left to Member States of UPOV to determine on a discretionary basis whether or not to exempt from the breeder's rights any traditional form of saving seed. Under the 1991 UPOV Convention, a farmer who produces a protected variety from farm-saved seeds is guilty of infringement unless the national law provides otherwise. This weakens the economic position of rural farmers and stifles local and traditional innovations. In addition, the UPOV Convention does not contain any provisions for recognizing the knowledge and other contributions that indigenous and local peoples make to plant breeding programs. In our view, therefore, plant breeders' rights as embodied in the 1991 Act of the UPOV Convention are inadequate in protecting traditional knowledge of indigenous and local peoples.

(c) Protection of traditional knowledge under TRIPS

The negotiation and adoption of the TRIPS Agreement as part of the Uruguay Round in 1994 have added new dimensions to the debate on intellectual property rights in traditional knowledge. The TRIPS Agreement sets minimum standards for countries to follow in protecting intellectual property. Its objective is stated in the preamble as "to reduce distortions and impediments to international trade, and taking into account the

³⁰ Most developed countries, including European Union members and the U.S.A, exclude life forms in their purely natural state from patent protection.

need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade.”³¹ Countries that ratify the Agreement are expected to establish comprehensive intellectual property protection systems covering patents, copyright, geographical indications, industrial designs, trademarks, and trade secrets.

However, Article 1 of the TRIPS Agreement (on the nature and scope of the obligations) provides some flexibility in the implementation of the provisions of the Agreement. It states in paragraph 1 of that Article that “[m]embers may, but shall not be obliged to, implement in their domestic law more extensive protection than is required by [the] Agreement, provided that such protection does not contravene the provisions of [the] Agreement.”³² According to Dutfield, parties to the TRIPS Agreement can invoke this provision to enact legislation for protecting traditional knowledge. He asserts “[T]he absence of any mention of traditional ... knowledge in the Agreement, does not prevent any Member from enacting legislation to protect such a category of knowledge.”³³

³¹ Goldstein *et. al. op. cit.* p. 435.

³² *Ibid.* p. 436.

³³ Dutfield, *Can the TRIPS Agreement Protect Biological and Cultural Diversity?* (Biopolicy International No. 19, ACTS Press, Nairobi, 1997) p. 16.

After reviewing the TRIPS Agreement, we consider that it is not possible to protect traditional knowledge under current patent law.³⁴ The TRIPS Agreement requires Member States to provide patent protection for “any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.”³⁵ The “inventive step” and “capable of industrial application” requirements are deemed “to be synonymous with the terms ‘non-obvious’ and ‘useful’ respectively.”³⁶ Traditional knowledge products fail the test for patenting on one, or all, of the “new”, “inventive step” and “industrial application” standards. On the “new” standard they will probably fail because by its very nature traditional knowledge has been known for some length of time. One could try and argue that traditional knowledge is new to the world outside of the community from which it came but this is unlikely to succeed.

Article 29.1 of the TRIPS Agreement requires that a patent applicant disclose sufficient and clear information regarding the invention so that another person “skilled in the art” would be able to reproduce the product or complete the process. This is a standard patent law condition. Opponents of patenting have been quick to point out that this condition of information disclosure could erode the rights of indigenous and local people because it would make traditional knowledge easily available to commercial entities. Given the absence of financial and organizational competencies of indigenous and local peoples to monitor and enforce patents in modern economic space, their knowledge could easily be used without due compensation.

On the whole, in our view, the conditions set under the TRIPS Agreement do not enable the patenting of traditional knowledge and/or traditional innovations.

Article 27.2 of TRIPS states that “[m]embers may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by domestic law.”³⁷ The notions of *ordre public* (public order) and morality are not defined in the Agreement. However, it is clear that those inventions that cause injury to human, animal and plant life as well as the environment may be excluded. States are given flexibility to adjudicate. Some may still provide patent protection for inventions that cause damage to the environment. Patenting of genetically-engineered organisms and life forms is generally possible under these provisions. Further, it is also possible for a State to provide patent protection to a modified gene or a whole organism which meets the normal requirements for patentability.

³⁴ Some limited protection of traditional knowledge would be possible using regimes of copyright, trade secrets and geographical indications. These measures do, however, have their own limitations in protecting traditional knowledge as the intellectual property of traditional and local peoples. The problem, as we shall show, is because of the rigidities built in to these measures and the very nature of traditional knowledge.

³⁵ Goldstein *et. al.*, *op. cit.* p. 448. Article 27.1 of the TRIPS Agreement.

³⁶ Dutfield, *op.cit.* p. 24.

³⁷ Goldstein *et. al.* *op. cit.* p. 448. Article 27.2 of the TRIPS Agreement.

Article 27.3(b) of the TRIPS Agreement has generated controversy and opportunity. It states that “[m]embers may also exclude from patentability... plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by a combination thereof. The provisions of this sub-paragraph shall be reviewed four years after the entry into force of the WTO Agreement.”³⁸

First, there is controversy as to what “an effective *sui generis*” regime is. “Effectiveness” of the *sui generis* system is not defined. The nature of a *sui generis* system is also left to individual members to determine. According to the Crucible Group report of 1994, [t]he term *sui generis*, ..., may offer a wider range of policy choices because it could presumably include any arrangement for plant varieties that offers recognition to innovators—with or without monetary benefit or monopoly control.”³⁹ If there is any dispute on the nature and minimum standards of “an effective *sui generis*” system, the WTO is itself the mechanism for adjudication.

Second, it has also been noted that multinational companies and developed countries are likely to promote plant breeders’ rights as the effective *sui generis* system. “[Plant breeders’ rights] may be used as a measure of effectiveness under the TRIPS Agreement thereby limiting the ability of developing countries to develop a system to properly reflect their own social and economic needs.”⁴⁰ They will require or encourage developing countries to establish the UPOV arrangement. This, as Johnston and Yamin have rightly observed, could potentially remove plant varieties from the scope of the CBD and may significantly undermine the rights of local farmers. It could also erode prospects of ensuring that benefits from the use of plant genetic resources are shared in a fair and equitable manner.⁴¹

The TRIPS Agreement has, on the other hand, generated new opportunities to develop alternative property rights regimes which are ethically, socially and environmentally appropriate to the needs and conditions of indigenous and local people in developing countries. As stated earlier, under Article 27.3(b) of the TRIPS Agreement Members may establish effective *sui generis* regimes. This is an opportunity which developing countries should quickly tap by devising and promoting non-patent measures. They could easily lose out if Article 27.3(b) were to be removed from the Agreement during its review in 1999. Some developed countries, particularly the U.S.A., are already campaigning for its removal so that no restrictions are imposed on the patenting of life

³⁸ Goldstein *et al.*, *op. cit.* p. 448. Article 27.3 of the TRIPS Agreement.

³⁹ The Crucible Group, *People, Plants and Patents* (International Development Research Center, Canada, 1994) p. 53.

⁴⁰ Johnston with Yamin, in J. Mugabe *et. al.* (Eds.), *Access to Genetic Resources: Strategies for Sharing Benefits* (African Center for Technology Studies (ACTS) Press, Nairobi, 1997) p. 251.

⁴¹ *Ibid.* p. 260.

forms.

The TRIPS Agreement itself does not provide any protection for the traditional knowledge and innovations of indigenous and local people but it creates flexibility for establishing alternative non-conventional intellectual property protection measures.

On the whole, conventional intellectual property law does not cover inventions and innovations of indigenous and local peoples. Their contributions to plant breeding, genetic enhancement, biodiversity conservation and global drug development are not recognized, compensated and even protected. Similarly, the traditional knowledge of indigenous and local peoples is not treated as intellectual property worth protection, while the knowledge of modern scientists and companies is granted protection. As such, the patentability of products and/or processes derived from traditional knowledge of indigenous and local peoples poses a number of critical questions associated with compensation for the knowledge, and protection against future uncompensated exchange of the knowledge.

The imbalances in the intellectual property system have been created and are sustained by established mechanisms of accessing the modern economic space and power. Indigenous and local people often experience insecure resource tenure, are financially weak, and lack institutional arrangements to safeguard their property rights. Thus, the issues extend to fundamental and more complex questions of human rights of these peoples.

(iv) Traditional Knowledge and Indigenous People in the Human Rights Agenda

The debate on the protection of traditional knowledge by intellectual property law has recently moved to the human rights forums. There are a number of reasons for this. First, the appropriation of the knowledge by industrialized country firms and scientists without fair compensation or reward to indigenous and local peoples is now seen as contravening fundamental moral, ethical and legal norms that protect people from any form of economic, ecological, political and social abuse. Second, knowledge of indigenous and local peoples is their property and there is no reason why international law should discriminate against them and create barriers to their enjoyment of the rights in that property. The concern in the human rights forums is therefore whether and how to apply international human rights standards and laws to protect traditional knowledge of indigenous and local peoples as their intellectual property.⁴²

Existing international and national laws and programs do not *explicitly* recognize rights in traditional knowledge as part of the bundle of human rights. The Universal Declaration of Human Rights, 1948 (the UDHR) and the International Covenant on Economic, Social and Cultural Rights, 1966 (the ICESCR) contain provisions that could be interpreted to cover rights of indigenous and local peoples. For example, Article 1 of

⁴² See, for example, Posey, D. in Sanchez and Juma, *Biodiplomacy: Genetic Resources and International Relations* (African Center for Technology Studies (ACTS) Press, Nairobi, 1994).

the ICESCR “establishes the right of self-determination, including the right to dispose of natural wealth and resources. This implies the right to protect and conserve resources, including intellectual property.”⁴³ Posey goes on to argue that Article 7 of the UDHR can be used to extend intellectual property to the traditional knowledge of indigenous peoples. Article 7 states that “All are equal before the law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.”⁴⁴

It is important to note that Article 27 of the UDHR could be invoked, albeit implicitly, to argue for protection of traditional knowledge of indigenous and local peoples as well as demand for the sharing (with the peoples) of benefits arising from the use of that knowledge. Article 27.1 reads: “Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.” This provision provides a ‘soft legal basis’ for indigenous and local peoples to be entitled to benefits arising from the use of their knowledge and resources. Denying them access to the benefits would be construed as an abuse of their human rights. Article 27.2 states that: “[e]veryone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.” Indigenous and local peoples have moral, cultural and material interests in their traditional knowledge and thus (invoking the UDHR) these interests should be protected by protecting that knowledge and its products.

On the whole, the UDHR contains provisions on a wide range of civil, political, economic, social and intellectual rights. As already observed, it is Article 27 of the Declaration that is particularly relevant to the issue of intellectual property protection of traditional knowledge. There are, however, a number of limitations to using it as a legal instrument to protect traditional knowledge of indigenous and local peoples. First, while traditional knowledge is a collective property and generates collective rights, the UDHR largely provides for individual rights.

“Generally, the rights of indigenous peoples are said to include rights to land, natural resources, self-determination, and culture. Inherent in each of these rights is the concept of collective rights. Indigenous groups often do not have a concept of individual private ownership of property. ... Traditional knowledge may also be collectively owned. Traditional western legal concepts, however, do not generally include the notion of collective rights. The emphasis has been on individual rights *vis-a-vis* the state. This emphasis may limit the utility of Western concepts in helping indigenous peoples maintain their identity and rights in the face of pressure to assimilate and yield to the “modern” world.”⁴⁵

⁴³ *Ibid.* p. 125.

⁴⁴ Universal Declaration of Human Rights in L. Guruswamy *et. al.*, *Supplement of Basic Documents to International Environmental Law and World Order: A Problem-Oriented Coursebook* (West Publishing Co., U.S.A., 1994) p. 1137. Emphasis is mine.

⁴⁵ Axt *et. al.*, *Biotechnology, Indigenous Peoples, and Intellectual Property Rights* (Congressional Research Services Report for Congress, Washington, D.C., 1993) p. 27.

The problem is not just with the Western legal concepts but with many of the human rights theorists. They assert that collective rights are not human rights. For example, Jack Donnelly has stated that “[a]ny rights that might arise from solidarity would not be human rights.”⁴⁶

The second limitation of the UDHR is that responsibility for enforcing its provisions is vested in the state. However, as Audrey Chapman has observed many “states have been reluctant to grant subnational minorities the rights of peoples.”⁴⁷

The ILO was the first United Nations agency to address issues of indigenous peoples’ rights. In 1926, the ILO established an expert committee to develop international standards for the protection of native workers. This committee generated the basis for the adoption, in 1957, of the Convention Concerning the Protection and Integration of Indigenous and Other Tribal and Semi-Tribal Populations in Independent Countries. This Convention, commonly referred to as Convention 107, essentially dealt with measures to integrate indigenous peoples into modern production systems. This Convention was revised in June 1989 as Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries. The revised Convention eschews the approach of promoting the assimilation of indigenous and tribal peoples. It promotes the protection of indigenous peoples as distinct and separate peoples. Article 2.2(b) provides that governments shall have the responsibility of developing measures for “promoting the full realization of the social, economic and cultural rights of these peoples with respect for their social and cultural identity, their customs and traditions and their institutions.” Article 5(a) provides that “the social, cultural, religious and spiritual values and practices of these peoples shall be recognized and protected, and due account shall be taken of the nature of the problems which face them as groups and individuals.” These provisions should be broadly read to include recognition and protection of traditional knowledge of the peoples.

Convention 169 also contains provisions that explicitly recognize collective rights of indigenous peoples. For example, Article 13.1 states that “governments shall respect the special importance of the cultures and spiritual values of the peoples concerned of their relationship with the lands or territories, or both as applicable, which they occupy or otherwise use, and *in particular the collective aspects of this relationship*.”⁴⁸ This provision provides a basis for arguing for the enlargement of intellectual property regimes to accommodate collective rights of indigenous peoples. However, the Convention has not been adequately invoked to create the legal basis for creating intellectual property rights in traditional knowledge of indigenous peoples. It has not been ratified by many States.

⁴⁶ Donnelly, *Universal Human Rights in Theory and Practice* (Cornell University Press, New York, 1989) p. 144.

⁴⁷ Chapman, in Greaves (Ed.), *op. cit.* p. 216.

⁴⁸ International Labor Organization Convention (No. 169) Concerning Indigenous and Tribal Peoples in Independent Countries, in Guruswamy, L. *et. al. op. cit.* p. 1173.

The adequacy of Convention 169 is a concern of some indigenous groups and NGO's. These groups have been concerned with a number of the provisions of the Convention. First, the Convention only requires that indigenous peoples be consulted on matters affecting them. It does not require that the consent of these peoples be sought before measures affecting them are instituted. Second, the groups are of the view that provisions dealing with land and natural resources are inadequate.

The rights of indigenous peoples have also been articulated in the United Nations Economic and Social Council. In 1972, the Council established under its Commission on Human Rights a Sub-Commission on the Prevention of Discrimination and Protection of Minorities. The Sub-Commission commissioned a study on discrimination against indigenous populations. The study, completed in 1983, concluded that existing human rights standards are not fully applied to indigenous peoples, and that international legal instruments are not "wholly adequate for the recognition and promotion of the specific rights of indigenous populations as such within the overall societies of the countries in which they now live."⁴⁹ It recommended that a declaration leading to a convention be adopted. In addition, the Sub-Commission recommended the establishment of a Working Group on Indigenous Populations to:

- (1) "review developments pertaining to the promotion and protection of the human rights and fundamental freedoms of indigenous populations, . . .and;
- (2) give special attention to the evolution of standards concerning the rights of indigenous populations, taking into account both the similarities and differences in the situations and aspirations of indigenous populations throughout the world."

In 1984, the Sub-Commission directed the Working Group to focus its attention on the preparation of standards on the rights of indigenous populations, and accordingly to consider the drafting of a body of principles on indigenous rights based on relevant national legislation, international instruments and other judicial criteria and consider the situation and aspiration of indigenous populations throughout the world.

The Working Group has prepared a Draft Declaration on Indigenous Rights. The Draft Declaration contains provisions on the protection of intellectual property rights in traditional knowledge. Paragraph 12 of the text completed at its eleventh session in 1993, which is the most current draft, provides that:

"[i]ndigenous peoples have the right to practice and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artifacts, designs, ceremonies, technologies and visual and performing arts and literature, as well as the right to the restitution of cultural, intellectual, religious and spiritual property taken without their free and informed

⁴⁹ United Nations Document E/CN.4/Sub.2/Add.4. para 625.

consent or in violation of their laws, traditions and customs.”⁵⁰

Paragraph 29 states that:

“Indigenous peoples are entitled to the recognition of the full ownership, control and protection of their cultural and intellectual property. They have the right to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral tradition, literatures, designs and visual and performing arts.”

It recognizes that the traditional knowledge of indigenous peoples is not eligible for protection under conventional intellectual property laws and therefore “special measures” are required.

On the whole, the Draft Declaration contains provisions that would provide comprehensive protection of indigenous peoples and their traditional knowledge. However, the Declaration is simply a statement of principles with no legally binding status.

(v) Indigenous and Local Peoples’ Concerns in the Global Environmental Agenda

Issues of indigenous and local peoples’ rights have been extensively discussed in global environmental processes. The World Commission on Environment and Development (WCED) established in 1982 by the United Nations General Assembly devoted attention to issues of indigenous peoples, particularly their knowledge in the sustainable development process. The Commission observed that:

“Tribal and indigenous peoples will need special attention as the forces of economic development disrupt their traditional lifestyles—lifestyles that can offer modern societies many lessons in the management of resources in complex forest, mountain, and dryland ecosystems. Some are threatened with virtual extinction by insensitive development over which they have no control. Their traditional rights should be recognized and they should be given a decisive voice in formulating policies about resource development in their areas.”⁵¹

The Commission calls for “the recognition and protection of their traditional rights to land and other resources that sustain their way of life—rights they may define in terms that do not fit into standard legal systems.”⁵² It further recommends that local

⁵⁰ Draft Declaration on the Rights of Indigenous Peoples, as agreed upon by the members of the Working Group on Indigenous Populations at its Eleventh Session, August 23, 1993, United Nations Document E/CN.4/Sub.2/1993/29.

⁵¹ World Commission on Environment and Development, *Our Common Future* (Oxford University Press, Oxford, 1987) p. 12.

⁵² *Ibid.* p. 115.

institutions through which indigenous and local peoples socialize and conduct their economic activities should be strengthened. Though it did not explicitly address the question of intellectual property protection of traditional knowledge, it created a political framework for addressing these issues within environmental circles.

The United Nations Conference on Environment and Development (UNCED) held in 1992 at the recommendation of WCED addressed issues of intellectual property rights in traditional knowledge and innovations. Agenda 21 adopted by more than 160 states at the UNCED contains a whole chapter on indigenous peoples' concerns and makes a wide range of recommendations on how these peoples' rights should be protected.

Chapter 26 of Agenda 21 begins by noting that indigenous peoples and their communities, which represent a significant percentage of the global population, have developed a holistic relationship with the natural environment. Over many generations, they have developed a "holistic traditional scientific knowledge of their lands, natural resources, and environment."⁵³ It observes that "indigenous peoples and their communities shall enjoy the full measure of human rights and fundamental freedoms without hindrance or discrimination" and recommends that governments should adopt policies and/or legal instruments that will protect intellectual and cultural property of indigenous peoples.

Another output of the UNCED, the Rio Declaration, also recognizes the role of indigenous and local people in global efforts to achieve sustainable development. Its Principle 22 states that: "[i]ndigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development." This view is echoed by the Forests Principles⁵⁴ also adopted at UNCED. For example, Section 5(a) of the Forests Principles recommends that "[n]ational forest policies should recognize and duly support the identity, culture and the rights of indigenous peoples, their communities and other communities and forest dwellers. Appropriate conditions should be promoted for these groups to enable them to have an economic stake in forest use, perform economic activities, and achieve and maintain cultural identity and social organization, as well as adequate levels of livelihood and well-being, through, *inter alia*, those land tenure arrangements which serve as incentives for the sustainable management of forests." Section 12(d) goes further to recommend that "[b]enefits arising from the utilization of indigenous knowledge should therefore be equitably shared with such people."

The CBD, which was signed by more than 150 states during UNCED, also explicitly recognizes the rights of indigenous and local peoples in traditional knowledge and innovations. Its preamble states: "the close and traditional dependence of many

⁵³ Agenda 21, 1992 (Chapter 26, section 1).

⁵⁴ "Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation, and Sustainable Development of all Types of Forests."

indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components.”⁵⁵

Articles 8(j), 10(c) and 18.4 make reference to the rights of indigenous and local people. Article 10(c), for example, provides that each Contracting Party “shall [p]rotect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.” Article 18.4 defines technologies broadly to include “indigenous and traditional technologies.”

Article 8(j) is perhaps the most authoritative provision dealing with traditional knowledge. It provides that each Contracting Party shall, as far as possible and as appropriate, “subject to its national legislation, respect, preserve, and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.”⁵⁶

There are a number of limitations with Article 8(j) in so far as the question of intellectual property rights in traditional knowledge is concerned. First, the Convention leaves the protection of the knowledge, innovations and practices of indigenous and local communities to the discretion of parties. Some parties to the CBD may in fact invoke language of Article 8(j) not to undertake any measures that protect indigenous and local peoples’ knowledge, innovations and other rights. Language such as “subject to national legislation” and “as far as possible and as appropriate” was promoted during the negotiations for the CBD by governments that did not want to commit themselves to protection of indigenous peoples and their rights.

Second, Article 8(j) does not talk of protection of the knowledge but merely calls on parties to “respect, preserve and maintain” it. It does not guarantee indigenous and local people any rights in traditional knowledge.

Limitations of Article 8(j) have been recognized by parties to the Convention. This is implicit in a number of the decisions that the Conference of Parties (COP) to the Convention has so far made. For example, the third COP held in Argentina in November 1996 agreed (in Decision III/14) on the need to “develop national legislation and corresponding strategies for the implementation of Article 8(j) in consultation with representatives of their indigenous and local communities.” The Parties also agreed to establish an inter-sessional process to advance further the work on the implementation of Article 8(j) and related provisions. In support of this process, the Executive Secretary of

⁵⁵ Convention on Biological Diversity, 1992.

⁵⁶ *Ibid.*

the CBD was requested by the COP to prepare background documentation on the following issues: (i) consideration of linkages between Article 8(j) and such issues as technology transfer, access, ownership of genetic resources, intellectual property rights, alternative systems of knowledge protection and incentives; (ii) elaboration of key terms of Article 8(j); and (iii) a survey of activities undertaken by relevant organizations and their possible contributions to Article 8(j).

Paragraph 9 of Decision III/14 recommended that a workshop on traditional knowledge and biodiversity be convened, prior to the fourth COP, to deliberate on the implementation of Article 8(j), assess priorities for the future work by Parties and by Conference of the Parties, and provide advice to COP on the possibility of developing a work plan on Article 8(j) and related provisions including modalities for such a work plan.

In response to this decision, a Workshop on Traditional Knowledge and Biological Diversity was held in Madrid, Spain from 24 to 28th November 1997 at the invitation of the Government of Spain.

The Madrid workshop discussed a wide range of issues. There was consensus at the workshop that Article 8(j) of the CBD did not provide an adequate legal basis for protecting knowledge and innovations of indigenous peoples. Several of the participants called for a thorough re-examination and revision of current intellectual property protection systems to create flexibility for protecting indigenous knowledge and innovations. Others called for the establishment of a *sui generis* system that recognizes collective rights of indigenous and local peoples. It is important to note that some of the participants at the workshop argued that indigenous peoples are peoples with inalienable *a priori* rights and therefore they, in these rights, qualify to be parties to the Convention.⁵⁷

A document prepared for the fourth COP by the Executive Secretary of the Convention states that many governments are not implementing Article 8(j). None of the studies submitted by governments and other bodies to the CBD Secretariat “refers to a single piece of legislation which specifically addresses the implementation of Article 8(j), but rather, its implementation is carried out, sometimes indirectly, through provisions contained in a wide variety of statutes regarding such matters as land tenure, protected areas, protection of endangered species, land development, water quality . . . and so on. This wide variety of statutes is sometimes further complicated because similar legislation often exists at national, sub-national and local levels, with resultant inconsistencies.”⁵⁸

Concerns on intellectual property protection of traditional knowledge have occupied the agenda of the COPs. The third COP called for dissemination of case studies on the relationships between intellectual property rights and the knowledge, innovations and practices of indigenous and local communities. COP 4, in Decision IV/9, recognized the importance of making intellectual property-related provisions of Article 8(j) and

⁵⁷ See also Final Document of the Second International Indigenous Forum on Biodiversity, 1997. UNEP/CBD/TKBD/1/3 Annex 1.

⁵⁸ Implementation of Article 8(j) and Related Provisions, 1998. UNEP/CBD/COP/4/10.

related provisions of the Convention on Biological Diversity and provisions of international agreements relating to intellectual property mutually supportive, and the desirability of undertaking further cooperation and consultation with the World Intellectual Property Organization.⁵⁹

The COP further decided that an *ad hoc* open-ended inter-sessional working group composed of Parties including indigenous and local communities be established to, *inter alia*, “provide advice as a priority on the application and development of legal and other appropriate forms of protection for the knowledge, innovations and practices of indigenous and local communities . . .”⁶⁰

On the whole, these efforts are being made a result of the recognition that the Convention does not contain adequate legal obligations to protect any property rights of indigenous and local peoples in their traditional knowledge.

2. Towards Alternative Regimes

The preceding sections have shown that conventional international intellectual property law does not, at least adequately, protect the traditional knowledge of indigenous and local peoples. The international community has recognized that there is need to devise new regimes or enlarge existing ones to accommodate the protection of traditional knowledge. However, so far no coherent and inclusive international efforts are being made to address this concern.

There are a number of alternatives that countries could exploit to protect traditional knowledge of indigenous and local peoples. The first is *trade secrets*. While there is excessive attention being placed on patents and their restrictive nature in relation to the protection of traditional knowledge, trade secrets have not been adequately exploited by national institutions and local peoples to protect the knowledge. It is however known that traditional peoples have used—and possibly continue to use—trade secrets to protect their knowledge. However, this form of protection of traditional knowledge is generally not institutionalized: institutions to safeguard trade secrets of indigenous and local peoples are either weak or absent in most countries. It is therefore crucial that national legislation be enlarged to contain specific measures that would enable indigenous and local peoples to apply trade secrets to protect their knowledge and innovations. Such measures may include explicit articulation of traditional knowledge as subject matter for protection through trade secrets. In addition, there are a wide range of institutional barriers to the commercialization of traditional knowledge and innovations in modern economic space. For example, current economic policies of most countries are inimical to the direct use of traditional innovations and placement of such innovations on modern

⁵⁹ Decisions Adopted by the Conference of Parties to the Convention on Biological Diversity at its 4th Meeting, 1998.

⁶⁰ Decisions Adopted by the Conference of Parties to the Convention on Biological Diversity at its 4th Meeting, 1998.

economic space. They fail the test of rigidly established industrial standards. Such policies should be reviewed with the view of making them more accommodative of traditional knowledge and innovations. There is need for more research to be conducted to explore the potential application of trade secrets. The World Intellectual Property Organization (WIPO) and organizations such as the African Center for Technology Studies (ACTS), the World Conservation Union (IUCN) and UNEP could invest in such studies. The studies could also cover assessment of how well other forms of non-patent intellectual property protection would be applied to protect traditional knowledge.

Second, countries should invest in the creation of *sui generis* legislation suitable to their cultural and political conditions. They should explore the development of systems that will first and foremost protect traditional knowledge as intellectual property of indigenous and local peoples. Such systems should also encourage (or even require) the flow of benefits from bioprospecting to indigenous and local peoples. According to Dutfield, “legislation could be drafted in such a way as to allow a community to become the successor in title of . . . discovery and development process. Under this interpretation, indigenous communities would have the right to protect traditional practices utilizing intellectual property rights mechanisms, stopping the usual appropriation by others of the commercial value arising from their knowledge. As a right holder, they would have exclusive rights to withhold from third parties their consent to make, use, an offer for sale, or import the plant variety that they developed.”⁶¹

Third, it is crucial that new research be conducted on traditional forms of intellectual property and how traditional knowledge was/is protected by indigenous and local peoples in different parts of the world. Case studies illuminating how indigenous and local peoples perceive intellect and whether they treat it as property worth protecting would be useful. This work would form the basis for national and international processes to establish property protection regimes suitable for traditional knowledge and innovations.

⁶¹ Dutfield, *op cit.* pp. 39-40.

3. Conclusions

This paper has provided a review of literature on intellectual property protection and traditional knowledge. In our view, conventional intellectual property law does not adequately cover or protect traditional knowledge and innovations of indigenous and local peoples. However, non-patent forms of intellectual property protection could be exploited to protect the knowledge and innovations. For example, trade secrets and trade marks offer flexibility for protecting traditional knowledge and innovations. Indigenous and local peoples do not have strong institutional arrangements to safeguard their property and enforce trade secrets and trade marks in modern economic space. We propose that countries invest in the establishment of *sui generis* regimes covering traditional knowledge and rights.

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