

KEEPING BIOPIRATES AT BAY

CREATING A NEW LEGAL AND INSTITUTIONAL
PROTECTION REGIME FOR TRADITIONAL KNOWLEDGE

Master of Arts in Law and Diplomacy Thesis

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Abstract

It is clear that industry, with increased support from Government, is quickly establishing control over biological resources and traditional knowledge through bio-prospecting and the dominant use of the Western intellectual property systems. Indigenous communities are increasingly losing control over their own resources and traditional knowledge to commercial exploitation by companies and other entities. International instruments as well as regional, national and local efforts have to be strengthened and re-examined in order to turn the tides. Indigenous efforts have to become organized and centralized in order to effect change. There needs to be significant patent law reform if change is to be real. The collective nature of innovation and traditional knowledge must be recognized in national legislation and at international levels.

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I.) Who are Indigenous People? What is Traditional Knowledge?

There are over 350 million indigenous people living in our world today. Many indigenous societies still live in remote areas, maintaining a close connection to the natural world. The UN Working Group on Indigenous peoples and the Special Rapporteur of the United Nations Sub-Commission on Prevention of Discrimination and Protection of Minorities defines indigenous peoples as:¹

Those who have a historical continuity with pre-invasion, pre-colonial societies, consider themselves distinct from other sectors of society in their territories; form non-dominant sectors of society; are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identities, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems and belong to indigenous peoples through self-identification as indigenous.

Indigenous people are also referred to as original inhabitants, first peoples, tribal peoples, aboriginal peoples and, sometimes, the "Fourth World."

There are common values that link indigenous peoples around the globe, namely spirituality, collective rights, obligations and the holistic way in which they view and relate with the surrounding natural world.²

Indigenous people around the world harbor and protect traditional knowledge. The World Intellectual Property Organization (WIPO) defines traditional knowledge as "indigenous cultural and intellectual property," "indigenous

¹ Office of High Commissioner for Human Rights, Forum on Indigenous Peoples, available at: http://193.194.138.190/indigenous/ind_wgip.htm

² Solomon, Maui, Values and Principles of Indigenous and Traditional Peoples: Are They Being Protected? November 15, 2002. (Presented: "Biodiversity, Biotechnology & Protection of Traditional Knowledge," Washington University in St. Louis School of Law, Conference, April 4-6, 2003).

heritage,” and customary heritage rights”.³ More specifically, traditional knowledge encompasses literary, artistic or scientific works, performances; inventions; scientific discoveries; designs, marks, names and symbols; undisclosed information; and all other innovations and creations that are “tradition-based”. Tradition-based” refers to knowledge systems that have been transmitted from generation to generation; pertain to a particular people and their territory; and are constantly evolving in response to a changing environment. Categories of traditional knowledge include agricultural knowledge, scientific knowledge, technical knowledge, ecological knowledge, medicinal knowledge and biodiversity-related knowledge.⁴

II.) The Value of Traditional Knowledge

The importance of traditional knowledge to indigenous people and its importance and application to modern life cannot be underestimated. For starters, there is a proven link between the presence of indigenous communities and their traditional knowledge and bountiful biodiversity and healthy ecosystems.⁵

Traditional knowledge also constitutes much of the world’s medicinal knowledge and agricultural knowledge. Indigenous and local communities around the world rely on this knowledge for their survival, daily life, healing and nutrition needs. In Africa alone, 80% of the population relies on traditional remedies to

³ WIPO, “Intellectual Property Needs & Expectations of Traditional Knowledge Holders,” WIPO Report on Fact-Finding Missions on Intellectual Property & Traditional Knowledge (1998-1999) p.25

⁴ Id at 25.

⁵ Balick, Michael, “Traditional Knowledge: Lessons from the Past, Lessons for the Future,” p. 3, paper presented at conference, “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003.

combat disease.⁶ Traditional knowledge is also used by indigenous societies in rituals, in tracking the seasons and in understanding the world.

Increased awareness of the value of traditional knowledge has induced many organizations, scientific bodies and corporations to profit from traditional knowledge. There has been an explosion of research, writing and international focus on traditional knowledge and indigenous peoples. The “value” of traditional knowledge is being applied in the fields of botanical, pharmaceutical, agricultural, biotechnological and genetic research.⁷

Sadly, these modern applications of traditional knowledge rarely value it for its holistic worth as they do for its commercial value. Attempts to acquire traditional knowledge and research, document, exploit and patent it have reached extreme levels.

Scientists, too, want access to traditional knowledge to help answer questions where science has proven inadequate. For example, traditional knowledge is now being used in modern meteorological studies. Australia's Bureau of Meteorology wants access to thousands of years of Aboriginal weather knowledge to expand its understanding of Australia's harsh climate. For example, when a bearded dragon lizard sits upright and points its head towards the sky, traditional Aboriginal

⁶ “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003.

⁷ Solomon, Maui, Values and Principles of Indigenous and Traditional Peoples: Are They Being Protected? November 15, 2002. (Presented: “Biodiversity, Biotechnology & Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003).

communities know that it is going to rain the next day. If bull ants abandon their tree nests for mounds of dirt, then bushfires are coming,⁸ and so on.

Pharmaceutical companies want access to biodiversity and related traditional knowledge for the immense commercial and industrial potential of mainstream medicines. As mentioned, other industries also have much to gain from traditional knowledge and biodiversity. The commercial value to these industries as measured in annual net sales, is illustrated in the following year 2000 statistics:⁹

Food	\$2-3 trillion
Agro forestry	\$300-400 billion
Pharmaceutical	\$300 billion
Agrochemical	\$35 billion
Commercial seed	\$23 billion
Biotechnology	\$23 billion
Veterinary medicine	\$19 billion
Cosmetic	\$15 billion

(WSJ, Agriculture News, 2000; www.globalexchange.org/campaigns/mexico/biopiracyReport.html)

III). Traditional Knowledge in Danger

a. “Devolution”

As demand for commercialization of biodiversity and traditional knowledge increases at a rapid pace and as the world globalizes, develops and modernizes, indigenous societies are being encroached upon faster than traditional knowledge can be protected. Their cultures and knowledge are being lost. In many parts of the world, the very existence of indigenous societies is under threat.

⁸ Perry, Michael, “The Weather: Aboriginal Style,” Reuters, Sydney Australia, March 18, 2003, available at: <http://www.icomm.ca/survival/australia.htm>

⁹ RAFI, Wall Street Journal, Agriculture News-2000); at: <http://www.globalexchange.org/campaigns/mexico/biopiracyReport.html>>

According to Michael Balick of the New York Botanical Garden,¹⁰ we are currently experiencing a period of “devolution.” Balick suggests that with modernization, knowledge about living things is decreasing or “*devolving*”.¹¹

Balick cites modernization as the key component. Many once tradition-based peoples now have modern career goals. TV has substituted family and village storytelling, which has traditionally been the method for transmitting traditional knowledge.¹² Diffusion of the family and individualism are becoming the norm. Young people can no longer recognize value in traditional ways since there are fewer perceived economic returns. Indigenous people who assimilate into mainstream society to earn a living do not have time or interest in traditional knowledge.

Instances of devolution abound. For example, Micronesian indigenous people are losing the art of canoe making. During a 1999 course on ethnobotanical techniques at the College of Micronesia, an informal survey was taken involving questions on whether students remembered seeing their grandparents and parents make canoes. Not a single person knew canoe building.¹³ Surveys were also taken on other forms and applications of traditional knowledge, such as planting taro; using plants to stun fish; fermenting breadfruit as a preservative and baiting turtles.¹⁴

The results showed continuous devolution.

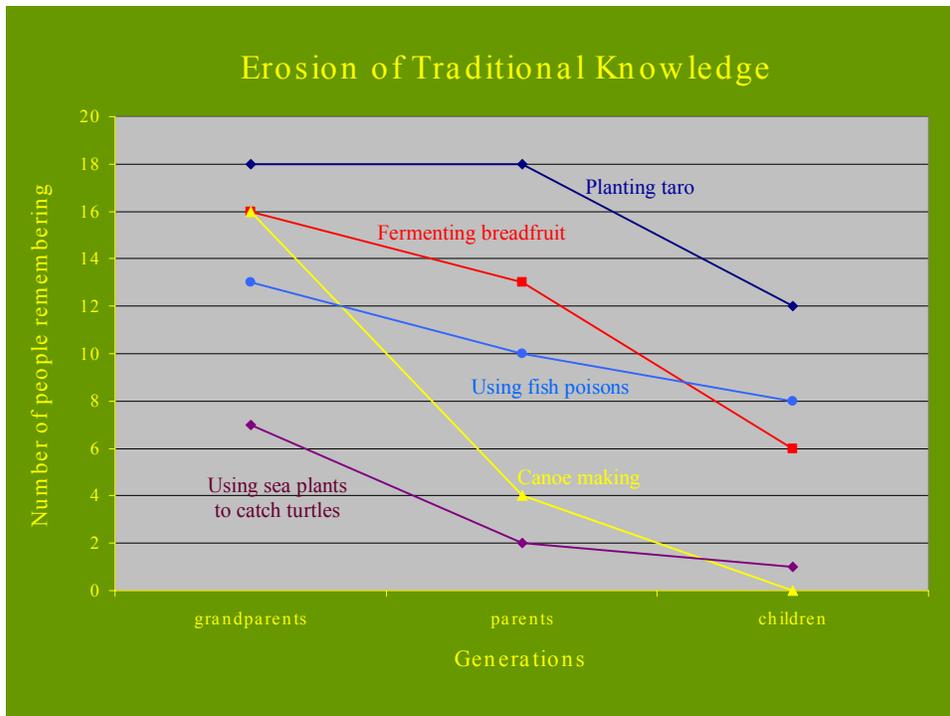
¹⁰ Michael Balick works at the Institute of Economic Botany at the NY Botanical Garden

¹¹ Balick at 2. (The concept of devolution initiated through a study they conducted at Northwestern University, where students were provided a list of 80 trees and asked to circle species they had *heard* of before).. Balick cites Wolff and Medin (2001) for the survey information.

¹² Balick at 11.

¹³ Balick at 5.

¹⁴ Id.



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b. Encroachment, Bioprospecting and Biopiracy

Not only are indigenous people subject to the forces of globalization and devolution, they are also subject to encroachment, and natural resources extraction on their lands. Often, indigenous land is considered “untitled” and becomes "state land," which then becomes subject to mining and timber concessions without consultation with the indigenous peoples.¹⁶ Corporations and governments are interested in the commercial value of the resources on the land, and in some cases, they want the land itself. Because indigenous people are often poor, politically

¹⁵ Balick at 6.

¹⁶ Griffiths, Tom, “Guyana: Empowerment of indigenous peoples through participatory mapping,” *Forest Peoples Programme*, World Rainforest Movement bulletin N° 62, Sep. 2002., <http://www.wrm.org.uy/bulletin/62/Guyana.html>

marginalized, and rarely have the rights to the subterranean resources on their land, they are subject to constant harassment and vulnerability.¹⁷

Vandana Shiva, prominent Indian environmentalist, states that due to encroachment and extraction, the role of natural resources, biodiversity in particular, is transitioning from a system of life support system to a supplier of raw materials to corporations and governments.¹⁸

One of the biggest threats to biodiversity and related traditional knowledge is ever-increasingly *bioprospecting* activities on behalf of ethnobotanists, pharmaceutical companies and others who wish to profit from the rich biodiversity and traditional knowledge in indigenous territories. This will be the primary subject of this paper.

Bioprospecting is defined as the “examination of biological resources for features that may be of value for commercial development,”¹⁹ and is fueled by biotechnology, free trade, and consumer demand for natural products, combined with the search for new pharmaceuticals, decorative plants and commercial crops.²⁰

It is too often the case that bioprospecting on indigenous lands turns into “biopiracy,” or the false patenting of biodiversity-related traditional knowledge.²¹ Biopiracy is also defined as “the stealing of knowledge from traditional and indigenous communities or individuals”. The term can also be used to suggest a “breach of a contractual agreement on the access and use of traditional knowledge to

¹⁷ Id.

¹⁸ Id.

¹⁹ Hall, Kristy, “Bioprospecting or Biopiracy: Improving the Management of New Zealand’s Biodiversity,” The University of Auckland., New Zealand.

²⁰ Id.

²¹ Shiva, Vandana, “The US Patent System Legalizes Theft and Biopiracy,” The HINDU, July 28, 1999, *available* at: <http://www.organicconsumers.org/Patent/uspatSYS.cfm>

the detriment of the provider.²² It is also defined as, “the illegal appropriation of life microorganisms, plants and animals, including humans, and the traditional cultural knowledge that accompanies it.” Biopiracy does not recognize, the rightful owners of the life forms appropriated or the related traditional knowledge.²³ Biopiracy is facilitated by the fact that current intellectual property and patent regime allows it to take place.²⁴ Current legal systems are inadequate, allowing for the biopiracy of biodiversity and traditional knowledge. "Legislation is required and it is required yesterday," says Nolwazi Gcaba, a South African patent attorney.²⁵

IV). Inadequacy of Legal Systems that Address Traditional Knowledge

a. The Intellectual Property System

The modern intellectual property system goes back to as early as 1492 when Queen Isabel and King Ferdinand gave Christopher Columbus the right to “discover and conquer”²⁶ and that the Pope, in his “Bull of Donation,” solidified the idea by

²² Kalpavriksh and Grain, “Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection,” October 2002, note 37, at <http://www.grain.org/publications/tk-asia-2002-en.cfm>

²³“Biopiracy, A New Threat to Indigenous Rights and Culture in Mexico,” Global Exchange, available at <http://www.globalexchange.org/campaigns/mexico/biopiracyReport.html>

²⁴ Kalpavriksh and Grain, “Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection,” October 2002, <<http://www.grain.org/publications/tk-asia-2002-en.cfm>>

²⁵ “Focus on Biopiracy in Africa,” *Science in Africa*, September 2002, available at <http://www.scienceinfrica.co.za/2002/september/biopiracy.htm>;

*Gcaba spoke on behalf of the Second South-South Biopiracy Summit at the World Summit on Sustainable Development in Johannesburg in August 2002.

²⁶ Shiva, Vandana, *Biopiracy: The Plunder of Nature and Knowledge*, (Boston, South End Press, 1997), p, 4

“granting all islands and main lands as “discovered and to be discovered, one hundred leagues to the West and South of the Azores towards India.”²⁷

The more recent history of intellectual property protection goes back to the industrial revolution. The United States patent system was initiated during that time to protect innovation of machine tool designs and other industrial innovations. The United States Congress adopted the first patent law in 1790.²⁸ Thomas Jefferson, in 1793, stated that all inventions, “any new and useful art, machine, manufacture or composition of matter and any new and useful improvement on any art, machine, manufacture or composition of matter” is patentable.²⁹ This definition of invention can still be found in the latest patent statutes, with minor modifications. The patent system, as defined by the United States grants patents on the basis of three criteria. An ‘invention’ must be:

- 1. New (novelty requirement)**
- 2. Useful (the utility requirement) and**
- 3. Non-obvious (the non-obviousness requirement).³⁰**

Although proponents of patents argue that they are designed to stimulate innovation, others argue that the system is designed to stimulate and protect the commercialization and monopoly of knowledge by granting exclusive commercial rights for 17 – 20 years to the one who invents something novel and non-obvious.³¹

²⁷ Id.

²⁸ Ladas and Parry Intellectual Property Lawyers, “A Brief History of the Patent Law of the United States” available at: <http://www.ladas.com/Patents/USPatentHistory.html>.; Patent Act 1793 sec. 1; term "art" was replaced by "process" in 1952 but this term is itself defined as a "process, art or method" 35 USC

²⁹ Id.

³⁰ University of Utah, Technology Transfer Office, “Patent Basics: Elements of Patentability, available at: <http://www.tto.utah.edu/ResearchorsorInventors/patent2.htm>

³¹ “How patents work,” at: http://www.ipcreators.org/Heckel/ACM_Paper/patwork.htm

Before the US Patent and Trademark Office will allow a patent application to go through, it does a search to find “prior art”³² or official prior evidence of the invention.³³ If the invention is sufficiently different from the prior art, the patent is granted.³⁴ If evidence of the invention is found, then prior art will prevent the patent. Prior art can negate the novelty requirement, because novelty dictates that an invention in question cannot have been made public in any way through any published literature, display or other formal description, nor cited in a previous patent prior to the granting of the patent. If evidence of a similar invention is found in a printed publication or patent in the United States, this will constitute a prior art, regardless of where it is found. Practically speaking, this is not always true for evidence found in the general public domain. In this case, the US historically has only considered knowledge *within the United States or its territories* to make a determination of prior art. Article 102 of the U.S. Patent Law, which defines prior art, does not recognize technology and methods in use in other countries. Thus, if knowledge is new for the U.S., it can be considered ‘novel,’ even if it is part of an ancient centuries-old tradition or the traditional knowledge of another culture.³⁵

This is arguably a fundamental error in the US patent system in that it disregards global knowledge that may constitute prior art.³⁶

³² Smith and Hopen, PA, at: http://www.baypatents.com/glossary/default.asp?ID_Glossary=19, All subject matter (patents, publications, etc.) bearing on the novelty and nonobviousness of a claimed invention pursuant to 35 U.S.C. Sections 102 and 103

³³ “How patents work,” available at: http://www.ipcreators.org/Heckel/ACM_Paper/patwork.htm

³⁴ Id.

³⁵ Shiva, Vandana, “The US Patent System Legalizes Theft and Biopiracy,” THE HINDU, July 28, 1999, *available* at: <http://www.organicconsumers.org/Patent/uspatSYS.cfm> and also see: “Introduction to Intellectual Property Rights: The US Patent System,” available at <http://usinfo.state.gov/products/pubs/intelprp/patent.htm>

³⁶ University of Utah, Technology Transfer Office, “Patent Basics: Elements of Patentability,” available at: <http://www.tto.utah.edu/ResearchersorInventors/patent2.htm>

It should also be noted that modern intellectual property rights, as recognized by individual nations around the world, belong to ‘persons, individuals or legal entities such as corporations,’ not to collective communities.³⁷ The Western notion of intellectual property rights focuses on inventions and the economic right to use property for exploitation and profit. The needs of individuals and corporate legal entities such as multi-nationals, are preferred over that of collective societies.³⁸ There is no reciprocity and respect for the “resources as living and breathing entities with their own or life force”.³⁹

The flawed machinery of the patent system is further compounded by the fact that developed nations are attempting to expand these intellectual property standards worldwide.⁴⁰ As a result, the international intellectual property system has become a complex web of Western-influenced laws; UN and other international institutions that promote these laws, international treaties, distinct national laws, regional declarations, and developing country and NGO positions that differ from the established intellectual property regimes.

b. The World Intellectual Property Organization

The World Intellectual Property Organization (WIPO), based in Geneva, Switzerland, is a United Nations organization mandated “to ensure that the rights of the creators and owners of intellectual property are protected worldwide.” WIPO

³⁷ <<http://globalizationproject.uchicago.edu/AnnotBibJerome.doc>>

³⁸ Solomon, Maui, “IPR and IPRO Intellectual Property Rights and Indigenous Peoples Rights and Obligations,” p.4. (Presented at “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003).

³⁹ Id.

⁴⁰ US Mission to the European Union, “U.S. Urges Worldwide Harmonization of the Patent System,” March 26, 2002, available at: <http://www.useu.be/Categories/Trade/Mar2602PatentRoganWIPO.html>

works to create information and facilitate policy on intellectual property rights for its members. Areas of protection coverage include patents, trademarks, industrial designs, appellations of origin, biotechnology, information technology, and, recently, biodiversity, traditional knowledge, and folklore issues linked to intellectual property.⁴¹

WIPO is leading efforts to standardize the patent system worldwide.⁴² Specifically, WIPO is aiming to create: 1) a uniform set of procedures through the 2000 Patent Law Treaty (PLT),⁴³ 2) a single international search tool through the 1970 Patent Cooperation Treaty (PCT) which creates a common search tool to search for prior art⁴⁴ and 3) a uniform patent law through the Substantive Patent Law Treaty (SPLT), which has not yet been finalized.

There is much controversy surrounding the SPLT's future elements. One of the main controversies is whether or not to disclose the country of origin for genetic material and traditional knowledge and whether to state proof of prior informed consent. Developed countries have been trying to block the inclusion of these safeguards; stating that they constitute an administrative burden.⁴⁵

In fact, one WIPO report states:

“Further exploration of TK protection through IP must be based upon an understanding of the context within which TK formations are generated, preserved and used, and the cultural and ethical values of their holders. Above all, future work

⁴¹ Goel, Malini (for Center for International Environmental Law), “Questions and Answers on WIPO's Role in the Intellectual Property System and the Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore (IGCGRTKF),” July 2002, Geneva, Switzerland.

⁴² <<http://www.grain.org/docs/wipo-patent-2002-en.pdf>>

⁴³ Id.

⁴⁴ Id. *Currently this process is done nationally but states can also choose to have WIPO examiners do a prior art search in their databases.

⁴⁵ Grain, “Wipo Moves Towards a World Patent System,” July 2002, p. 3, *available at*: <http://www.grain.org/docs/wipo-patent-2002-en.pdf>

must be informed and guided by the needs and expectations of the TK holders themselves.”

While the previous draft contained the phrase “future work must be led by TK holders”, this final report was watered down to satisfy developed countries,⁴⁶ who are worried that over-regulation will limit access to genetic resources, traditional knowledge and folklore and hinder innovation.

As a result of these conflicts, WIPO established the Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore (ICGR TKF) in 2000 to create a forum for dialogue on the subject.⁴⁷

The system is far from perfect. NGOs have been accorded “observer status” in meetings, if approved by the Committee. This is of major concern to indigenous peoples, especially since there is very minimal participation by indigenous people at the meetings. As a result, some indigenous peoples argue that the outcomes at WIPO are being driven and approved not by the TK holders themselves, but by the needs of member states that have vested interests in commercial ventures.⁴⁸

Nuno Pires de Carvalho, Head of WIPO’s Intergovernmental Committee on Genetic Resources, Traditional Knowledge, recently shed light on the controversy.⁴⁹

According to Carvalho, Shamans that contribute to genetic resources or

⁴⁶ Solomon, Maui, Values and Principles of Indigenous and Traditional Peoples: Are They Being Protected? November 15, 2002. (Presented at “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, April 4-6, 2003).

⁴⁷ Id, endnote 18

⁴⁸ Solomon, Maui, “IPR and IPRO Intellectual Property Rights and Indigenous Peoples Rights and Obligations,” p28 (Presented at “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003).p.28

⁴⁹ Carvalho, Nuno for WIPO, “From the Shaman’s Hut to the Patent Office, A Road Under Construction,” (Presented at “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003).

traditional knowledge is not considered “inventors” by their communities, or by patent law. While Carvalho agrees that protection should be given to TK holders so that they have the right to say no to the unauthorized use and the distortion of their knowledge, culture, their identity, many indigenous people, on the other hand, he says some do want the protection because they do not want to commercialize their traditional knowledge. Nonetheless, Carvalho suggests that in order to survive and prevent misappropriation of their knowledge, indigenous *people* need to join the intellectual property regime, because existing IP mechanisms can protect much Shaman’s tradition knowledge. Despite differing views of many indigenous peoples, he maintains that existing intellectual property regimes can prove beneficial to indigenous populations and protecting their traditional knowledge.

c. The Convention on Biological Diversity (CBD)

A prominent international treaty that addresses traditional knowledge is the Convention on Biological Diversity, which was signed by 183 member states and was adopted in 1993 after the Rio Earth Summit.

The CBD established sovereign national rights over biological resources, committing member states to conserve, sustainably develop and share benefits from biodiversity use. “Sustainably develop” generally means finding new drugs, crops, and industrial products, while conserving the resources.⁵⁰

The CBD’s Article 8(j) reads as follows:⁵¹

⁵⁰ Gollin, Michael, “New Rules for Natural Products,” Sep. 1999, Vol. 17, No 9, p.921–922, at: http://www.nature.com/cgi-taf/DynaPage.taf?file=/nbt/journal/v17/n9/full/nbt0999_921.html

⁵¹ Kalpavriksh and Grain, “Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection,” October 2002, note 37 available at <http://www.grain.org/publications/tk-asia-2002-en.cfm>

“Each contracting party shall, as far as possible, and as appropriate "Subject to it’s national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for 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.”

The CBD Working Group is currently studying “existing systems for handling and managing innovations at the local level and their relation to existing national and international systems of intellectual property rights, with a view to ensure their complementarities”. Article 8(j) of the Convention recognizes the need to respect the skills and knowledge of indigenous communities, to get consent for the use of these skills and to ensure equitable benefit sharing when use takes place.⁵²

With respect to intellectual property, several developing countries argue that the following CBD proposals:

- disclosing the origin of resources;
- providing evidence of “Prior Informed Consent” (that resources have been accessed with after consultation and approval by the countries and communities in question),
- equitable benefit sharing.⁵³

should be mentioned when filing a patent application.

Under the CBD, prior informed consent (PIC) is the standard for ensuring a fair and equitable access and benefit-sharing agreement concerning the acquisition of

⁵² Id.

⁵³ United Nations Environment Programme, Convention on Biological Diversity, “Access to Genetic Resources and Benefit Sharing,” at: <http://www.biodiv.org/programmes/socio-eco/benefit/>; Article 1 states, “fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding”.

biodiversity or traditional knowledge. The CBD mandates that a source country know in advance what will be done with the resource, and what benefits will be shared. Without an understanding between the collector and the supplier, there is no fair agreement.⁵⁴

Despite its good intentions, the CBD is far from perfect. For starters, it does not *prevent* access to biodiversity, genetic resources and traditional knowledge, but only provides protective padding for the tackle by bioprospectors. Secondly, it technically only applies to member states, such that access agreements and PIC need only be provided to governments, and not necessarily indigenous communities. Thirdly, the CBD assumes that developing countries and indigenous peoples will have equal knowledge and capacity to negotiate PIC and fair and equitable benefiting sharing. This is rarely the case due to poverty and lack of capacity.

As in WIPO, the business community tries to weaken the already weak CBD by arguing that PIC and other safeguards cause an imposition in the global patent system and is beyond the scope of the CBD. Business also argues that disclosure and PIC conflict with Article 15, which facilitates access.⁵⁵

⁵⁴ Gollin, Michael, "New Rules for Natural Products," Sep. 1999, Vol. 17. No 9, p.921–922, at: http://www.nature.com/cgi-taf/DynaPage.taf?file=/nbt/journal/v17/n9/full/nbt0999_921.html

⁵⁵ International Chamber of Commerce World Business Council Policy Statement, Commission on Intellectual Property, Document no. 450/941 Rev., 10 April 2002, at: http://www.iccwbo.org/home/statements_rules/statements/2002/should_patent_applicants.asp

The components of the CBD are further complicated by the fact that they conflict with the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

d. The World Trade Organization's "TRIPS" Agreement.

In 1947, the General Agreement on Tariffs and Trade (GATT) was signed by 23 nations, entering into force in January 1948. In 1994, GATT was updated,⁵⁶ and established the World Trade Organization in January 1995.⁵⁷ The WTO at that time, set basic standards for protecting patents, trade secrets, trademarks, and copyright.⁵⁸ The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) emerged from the trade round and establishes a basic global framework for the protection of intellectual property creations, including those in biological form.⁵⁹

For the purpose of this paper, the area of TRIPS that relates to the protection of traditional knowledge and related biodiversity is Article 27, which reads:

Patentable Subject Matter

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available 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...

⁵⁶ Fiftieth Anniversary of the Multilateral Trading System," available at: http://www.wto.org/english/thewto_e/minist_e/min96_e/chrono.htm

⁵⁷ "The WTO," http://www.wto.org/english/thewto_e/thewto_e.htm

⁵⁸ Gollin, Michael, "New Rules for Natural Products," Sep. 1999, Vol. 17, No 9, p.921-922, at: http://www.nature.com/cgi-taf/DynaPage.taf?file=/nbt/journal/v17/n9/full/nbt0999_921.html

⁵⁹ Walker, Simon, "The Trips Agreement: Sustainable Development and the Public Interest," Center for International Environmental Law; IUCN Environmental Law Center, 2001, p. vii

2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect public order 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 their law.

3. Members may also exclude from patentability:

(a) diagnostic, therapeutic & surgical methods for treatment of humans or animals;
(b) plants and animals other than micro-organisms, 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 any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.⁶⁰

and the paragraph on Geographical Indications, which states

"a good originating in the territory of a member, or a region or locality in that territory, where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin."⁶¹

Currently Geographical Indicators can only be invoked to protect “wine and spirits,” but the clause is being reviewed to include more subject matter.⁶²

Regarding Article 27, it is important to note that paragraph 27.1 limits inventions covered to those that have industrial applications. This serves to exclude indigenous innovations that are not applied in an industrial or commercial setting.

While members may exclude plants and animals from patentability, TRIPS indirectly mandates patent protection of *biotechnological* aspects, since plant ‘varieties’ differ from ‘plants’ in that they have undergone some sort of technical intervention. This is due to the idea that “pure discoveries” cannot be patented. This

⁶⁰ World Trade Organization, “**TRIPS: AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS, Part II: Standards concerning the availability, scope and use of Intellectual Property Rights,**” available at: http://www.wto.org/english/tratop_e/trips_e/t_agm3_e.htm#5

⁶¹ Id, Geographical Indicators Clause

⁶² “WTO Log jammed over TRIPS,” ICTSD, Sep 2000, available at <http://www.ictsd.org/html/weekly/story1.26-09-00.htm>

aspect of TRIPS also puts tradition shaman's innovations at a disadvantage since they are often not "technologically" modified into plant varieties.

There is also a hovering ambiguity about the requirement of protection for "micro-organisms."⁶³ Article 27.3(b) states that Members may exclude from patentability, "plants and animals other than 'microorganisms, and essentially biological processes...and other than non-biological and microbiological processes'".⁶⁴ However, by mandating protection for "microbiological processes," Article 27.3 contravenes the basic premise of what patent laws are based on, that it cannot be a natural discovery and must be inventive.

A primary area of debate concerns consolidating TRIPS with the CBD. Some countries have asked that TRIPS be amended to require an applicant for a patent related to biological materials or traditional knowledge "to provide information on the country of origin of the biological resources, evidence of prior informed consent and that of a fair and equitable benefit-sharing arrangement as a condition to acquiring patent rights."⁶⁵ While this does not challenge the patentability of traditional knowledge or biological resources, it is still a step forward in potentially curbing biopiracy.

Developing nations are urging TRIPS to provide protection for informal systems within its framework so that it is more compatible with Article 8(j) of the CBD.⁶⁶ Developing countries want these issues clarified as soon as possible and

⁶³Resource Book on TRIPS and Development, Part II: Substantive Obligations: available at: http://www.ictsd.org/iprsonline/unctadictsd/docs/RB2.5_Patents_2.5.5.pdf

⁶⁴ Id

⁶⁵ Solomon, Maui, "IPR and IPRO Intellectual Property Rights and Indigenous Peoples Rights and Obligations," p.28

⁶⁶ Walker, Simon, "The Trips Agreement: Sustainable Development and the Public Interest," Center for International Environmental Law; IUCN Environmental Law Center, 2001, p. 34

also want Article 27.3 to be reconciled with CBD Article 8(j). As a consequence of the above-stated matters, Article 27.3 is currently undergoing extensive review.⁶⁷

Furthermore, the contradictions between the CBD and TRIPS create "schizophrenia between patent legislation and protection of indigenous knowledge," according to Rachel Wynberg, a South African researcher with the University of Strathclyde in the UK. According to Wynberg, the existing system of intellectual property rights and patents "does not accommodate non-western systems of knowledge ownership and access."⁶⁸

It remains yet to be seen how the debate plays out. Meanwhile, however, it remains that CBD and TRIPS are at odds.

V). A Clash with Indigenous Methods of Protecting TK

As has been described above, the current intellectual property system and its institutions do not seem to cater to the best interests of indigenous people and their traditional knowledge. There is a fundamental clash between the prevailing intellectual property rights system and the philosophical underpinnings of Indigenous Peoples' collective culture, rights and obligations.

The TRIPS agreement has been developed to protect formal knowledge systems, but the standards are ill adapted to protect *informal* knowledge systems like traditional knowledge.

⁶⁷ Resource Book on TRIPS and Development, Part II: Substantive Obligations: available at: http://www.ictsd.org/iprsonline/unctadictsd/docs/RB2.5_Patents_2.5.5.pdf

⁶⁸ "Focus on Biopiracy in Africa," *Science in Africa*, September 2002, available at <http://www.sciencein africa.co.za/2002/september/biopiracy.htm>

The IP system and TRIPS also do not take into account traditional ways of protecting their knowledge. The biggest problem is that under current patent law system, traditional knowledge is, for the most part, technically excluded since “discovery in nature” is not patentable, missing the required inventive step with no identifiable inventor⁶⁹ and no identifiable inventive improvement.

According to Vandana Shiva, the TRIPS Agreement is based on a highly restricted concept of innovation. As stated earlier, Shamans are not really considered “inventors” as per the IP definitions and applications. According to Article 27.1, to be considered an invention, innovation has to be capable of industrial application. This immediately excludes all sectors that produce and innovate outside the *industrial* mode of organization. This means most traditional societies.⁷⁰ Practically-speaking then, the current system of intellectual property rights cannot be adapted to indigenous societies.

Traditional knowledge is intergenerational, so it is not ‘novel’ for the purposes of a patent. Traditional knowledge often involved the use of known substances so it falls out of the scope of protection.⁷¹ Furthermore, traditional knowledge is passed down orally from generation to generation and has generally not been published for the purposes of prior art determination.

Traditional societies, furthermore, generally do not document their collective traditional knowledge or processes, nor do they inventory their biological resources.

⁶⁹ Kelbessa, Workikeh, “Indigenous Environmental Knowledge and Intellectual Property Rights: Integrating Two Systems of Innovation,” Addis Ababa University

⁷⁰ Shiva, Vandana, *Biopiracy: The Plunder of Nature and Knowledge*, (Boston, South End Press, 1997), p. 8-10

⁷¹ Walker, Simon, “The Trips Agreement: Sustainable Development and the Public Interest,” Center for International Environmental Law; IUCN Environmental Law Center, 2001, p. 34

Instead, they pass their traditions on orally, through family generations, as the knowledge is carried within a collective community.⁷²

Erica Irene Daes of the UN Economic & Social Council's Sub-Commission on Prevention of Discrimination of Minorities, states that one cannot distinguish between indigenous "cultural property" and "intellectual property." She cites the collective cultural heritage of Indigenous peoples as:

"all expressions of the relationship between the people, their land and the other living beings and spirits which share the land, and is the basis for maintaining social, economic and diplomatic relationships - through sharing - with other peoples. All of the aspects of heritage are interrelated and cannot be separated from the traditional Territory of the people concerned. What tangible and intangible items constitute the heritage of a particular indigenous people must be decided by the people themselves."⁷³

Ownership of varieties of plants is a foreign concept to many indigenous cultures. The required criteria of "novelty" and "inventive step" are not always possible, especially where traditional knowledge has been in use for hundreds and thousands of years.⁷⁴

The systems collide, as exemplified by the Maori people of New Zealand. A Maori elder "may look at a native totara tree and pay homage to an ancient member as part of his family."⁷⁵ On the other hand, a bioprospector may survey plants to determine their properties, while a scientist will look at the same tree and think of

⁷² Declaration on Biopiracy, Biodiversity and Community Rights, the World Summit on Sustainable Development, in Johannesburg, August 2002, available at: <http://www.biowatch.org.za/jhbdecl.htm>

⁷³ Frankel, Michael and Associates, *The Nature of Indigenous Cultural and Intellectual Property*, <<http://www.icip.lawnet.com.au/html/part1.htm>>

⁷⁴ Kalpavriksh and *Grain*, "Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection," October 2002, available at: <http://www.grain.org/publications/tk-asia-2002-en.cfm>

⁷⁵ Solomon, Maui, *Values and Principles of Indigenous and Traditional Peoples: Are They Being Protected?* November 15, 2002. (Presented at "Biodiversity, Biotechnology and the Protection of Traditional Knowledge," Washington University in St. Louis School of Law, Conference, April 4-6, 2003).

ways to alter its genetic programming to maximize efficiency.⁷⁶ The scientists consider ways to “improve” the tree by the application of modern technology.⁷⁷

If value is seen in improvement that creates a marketable product, toying with the product to modify it becomes necessary. At the same time, the biodiversity and the traditional knowledge on which the invention is based, gets reduced to mere raw material input.⁷⁸

Traditional knowledge is generally passed down through families in a narrative fashion. Shaman and healers hold knowledge that is sacred, while other knowledge is public knowledge (even if it is not recorded in writing) that binds indigenous societies, according to John Hunter, an Aboriginal Masters student Macquarie University in Australia.⁷⁹

Hunter recently described traditional aboriginal knowledge through the depiction of a painting that “took 2 days to paint,” and “10 years of learning,” that depicts traditional knowledge that is thousands of years old. The painting depicts a tree and embodies aboriginal public knowledge related to the tree, according to Hunter. The tree provides fruit. The grubs in the tree provide more to eat. The sap and the flowers, like the white blossom, can be eaten and also have other uses. The tree has a special association with two stories from dreaming or “dreamtime,” which explain the aboriginal values of how to live and how to relate to all living things.

Hunter’s painting depicts the “Rainbow Serpent,” a spiritual ancestor whose

⁷⁶ Id.

⁷⁷ Id.

⁷⁸ Shiva, Vandana, *Biopiracy: The Plunder of Nature and Knowledge*, (Boston, South End Press, 1997),p.71

⁷⁹ John Hunter of Macquarie University, speaker at “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003).

footprint or “dreaming track” is always associated with waterways, such as billabongs, rivers, creeks and lagoons.⁸⁰ The serpent is the protector of the land, people, and the source of all life and tells how to respect these things, else the Rainbow Serpent can destroy (for example it may cause drought) if it not respected.⁸¹ The Rainbow Serpent has been found in Aboriginal rock art up to 6000 years old.⁸²



“The education system is the aboriginal way,” says Hunter. “The water, the tree, the flowers and the fruits, traditional knowledge explains how we are all connected.” “This is important for researchers to understand,” added Hunter. “The knowledge we have been given is “public knowledge” (implying that it is obvious and not novel for the purposes of intellectual property rights) and cannot be patented.

It is inevitable that misapplication occurs when one kind of cultural knowledge (reductionist industrial Western knowledge) is applied to and is supposed to protect another culture’s (holistic indigenous knowledge).⁸⁴

⁸⁰ “Indigenous Australia,” available at: <http://www.dreamtime.net.au/indigenous/spirituality.cfm>

⁸¹ Id.

⁸² Id.

⁸³ “Aboriginal Rock Art in the Northern Territories,” available at: http://www.ozoutback.com.au/postcards/postcards_forms/rockpaintings_nt/Pics

VI.) Biopirates Make Away with Treasure

Devolution, encroachment, the bioprospecting rush, lack of appropriate legal systems and a clash of systems all make traditional knowledge highly vulnerable to biopiracy. In some ways, biopiracy and the patenting of indigenous knowledge constitute “double theft” since it allows theft of innovation, then allows exclusive rights and economic monopoly by granting a patent on the stolen indigenous knowledge.⁸⁵

There are countless examples of biopiracy. In 1999 in Australia alone, Canada-based NGO RAFI (Rural Advancement Foundation International) and the Australian Heritage Seeds Curators Association documented 147 suspected cases of institutional biopiracy.⁸⁶

Several traditional plants and related knowledge in Asia, specifically India, have also been allegedly falsely patented by the US patent office, including: ‘neem’, ‘haldi’, pepper, ‘harar’, mustard, basmati rice, ginger, castor, ‘jaramla’, ‘karela’ and ‘jamun’.⁸⁷ The African continent has too been plagued by biopiracy –with the case of West Africa’s sweet genes and one of the most recent cases involving “Hoodia” still unresolved. There has also been a mad bioprospecting rush to Latin America, with hundreds if not thousands of medicinal, agricultural and other biodiversity and

⁸⁴ Jerome, Jessica Scott, Intellectual Property Rights and Indigenous Peoples, available at: <http://globalizationproject.uchicago.edu/AnnotBibJerome.doc>

⁸⁵ Shiva, Vandana, “The US Patent System Legalizes Theft and Biopiracy,” THE HINDU, July 28, 1999, *available* at: <http://www.organicconsumers.org/Patent/uspatsys.cfm>

⁸⁶ Someshwar Singh, “Rampant Biopiracy of the South’s Biodiversity,” *available* at: <http://www.twinside.org.sg/title/rampant.htm>

⁸⁷ Shiva, Vandana, “The US Patent System Legalizes Theft and Biopiracy,” THE HINDU, July 28, 1999, *available* at: <http://www.organicconsumers.org/Patent/uspatsys.cfm>

related knowledge being falsely patented, including Mexican beans, Bolivian quinoa, Maca plant and the sacred Amazonian “Ayahuasca” plant.

Most cases have not been resolved post-patent. Some cases have been resolved but clearly demonstrate the problems with the intellectual property system

a. Neem

Neem, a tree legendary to India, has been used as a biopesticide and medicine in India for centuries.⁸⁸ The shoots of the Neem tree are eaten. The Neem tree is worshipped. The chemical in neem makes it resistant to termites and used in construction. The oil is a spermicide and can also be used as lamp fuel.⁸⁹ Ancient Indian Ayurvedic texts have described the Neem tree and its medicinal healing properties as far back as 5000BC.⁹⁰ All parts of the Neem tree (leaves, fruit, seed, bark, roots and oils) have applications in livestock production, agriculture, pest control, medicine and cosmetics. Long before toothpaste, people in India chewed on Neem twigs for their anti-bacterial properties.⁹¹ In Sanskrit, the Neem tree or 'Aristha,' means ‘reliever of all diseases.’⁹²

Despite Neem’s ancient tradition, over 12 US patents were recently taken out neem-based emulsions and solutions.⁹³ Four of the patents belong to U.S. Company W.R. Grace, which set up its own manufacturing plant in India for neem-tree based

⁸⁸ Shiva, Vandana, “Indigenous Knowledge and IPRs,” *Biopiracy: The Plunder of Nature and Knowledge*, South End Press, Boston, p. 69

⁸⁹ American University, Mandala Projects “Trade and Environment Databases,” at: <http://www.american.edu/ted/neemtree.htm>

⁹⁰ “About Neem,” at <http://www.neem.com.au/about.html>

⁹¹ Shiva, Vandana, “Indigenous Knowledge and IPRs,” *Biopiracy: The Plunder of Nature and Knowledge*, South End Press, Boston, p. 69

⁹² “About Neem,” at: <http://www.neem.com.au/about.html>

⁹³ Id.

pesticides.⁹⁴ Even though Indian manufacturers were making neem-based biopesticides and toothpastes before W.R. Grace's patents, W.R. Grace started suing Indian companies for making neem-based emulsions when it got its patent.⁹⁵

Traditional knowledge of neem was not well documented because it was obvious in India. "Common knowledge and use of neem were the primary reasons given by the Indian Central Insecticide Board for not registering neem products under the Insecticides Act of 1968."⁹⁶ WR Grace claimed that their "modernized extraction process" was a novel invention, stating:

Although traditional knowledge inspired the research and development that led to these patented compositions and processes, they were considered sufficiently novel and different from the original product of nature and the traditional method of use to be patentable.

In May 2000, the Opposition Division of the European Patent Office (EPO) revoked the patent which had been granted to the United States and W.R. Grace for the Neem tree fungicide, on the grounds that the claimed invention was lacking an inventive step, novelty, and that its properties were "prior art" years before they applied for the patent.⁹⁷ Vandana Shiva and others cited ancient Sanskrit texts to show that neem products had been used in India for centuries. The patents granted to WR Grace were blatantly false; the patent examiners had just not conducted an adequate prior art search and indigenous peoples were not sufficiently involved in the process.

⁹⁴ Id.

⁹⁵ American University, Mandala Projects "Trade and Environment Databases," at: <http://www.american.edu/ted/neemtree.htm>

⁹⁶ Shiva, Vandana, *Biopiracy: The Plunder of Nature and Knowledge*, (Boston, South End Press, 1997) at 71.

⁹⁷ "NEEM PATENT REVOKED!!! MAJOR VICTORY AGAINST BIOPIRACY," International Federation of Organic Agricultural Movement at: http://www.ifoam.org/press/win_final_neu.html

While Shiva was successful in contesting and revoking WR Grace's patents on Neem, more than 80 other patents on the medicinal and other properties of the neem remain to be challenged worldwide.⁹⁸

b. Turmeric

In 1993, the US PTO granted the University of Mississippi Medical Center patent rights over a "healing a wound by administering turmeric to a patient afflicted with a wound."⁹⁹ But again, Turmeric has been used for centuries in India.

Indians grow up with a constant awareness of turmeric The tuber when dried keeps practically forever. Its decoction is a dye. It's a condiment that adds character to Indian food and helps digestion. Turmeric powder heals open wounds. Drunk with warm milk, it stems coughs and cures colds. Indians paint doorways with turmeric paste as an insecticide. Women in the south make a depilatory skin cream with it. Add the juice of fresh lime to dry turmeric, let it marinate for three days, dry it in the sun and grind it to a fine powder and voila, you have the brilliant red kunkum that 'dots' Indian women's foreheads and surrounds the gods in the temples. Roots are exchanged between people as a formal symbol of goodwill.¹⁰⁰

The Indian Council for Scientific and Industrial Research (CSIR) alleged that the patent was void since it did not meet the "novelty requirement" and was obvious!¹⁰¹ The patent was eventually cancelled in 1998 after re-examination

⁹⁸ Shiva, Vandana, *Biopiracy: The Plunder of Nature and Knowledge*, (Boston, South End Press, 1997), 65-71.

⁹⁹ Walker, Simon, "The TRIPS Agreement, Sustainable Development and the Public Interest: A Discussion Paper," IUCN Law and Policy Paper No 41, IUCN & CIEL, 2001, page 36.

¹⁰⁰ "Abduction of Turmeric Provokes India's Wrath," available at: <http://www.goodnewsindia.com/Pages/content/traditions/turmeric.html>

¹⁰¹ Walker, Simon, "The TRIPS Agreement, Sustainable Development and the Public Interest: A Discussion Paper," IUCN Law and Policy Paper No 41, IUCN & CIEL, 2001, page 36.

proceedings,¹⁰² but revealed to India and to indigenous societies around the world, again, how easy it was to falsely patent centuries-old traditional knowledge.

c. Basmati Rice

In 1997, the US patent office granted a patent in September 1997 to 'Rice Tec' for a strain of Basmatic rice, an aromatic rice grown in India and Pakistan for centuries.¹⁰³ This case has not yet been resolved, but the Indian Government is actively pursuing the case, stating that it violates both TRIPS and the CBD.

India feels that the US's granting of the patent for Basmati rice violates the TRIPS clause on Geographical Indicators, since Basmati ("perfumed") rice has traditionally been grown in India and Pakistan. India claims that the granting of the patent violated the Geographical Indications Act under TRIPS,¹⁰⁴ since Basmati rice is as indigenous to India and Pakistan as Champagne is to France. Indians argue that "just as the US cannot label their wine as champagne, they should not be able to label their rice Basmati."

According the 'South Asia Commission on Economic and Social Policy, Rice Tec's patent also violated the CBD in not recognizing the sovereign rights of India and Pakistan over Basmati rice.¹⁰⁵

The Basmati case demonstrates the problem as illustrated in TRIPS, that patents are granted to *biotechnological* processes. Thus, even though basmati rice

¹⁰² Gollin, Michael, "New Rules for Natural Products," Sep. 1999, Vol. 17. No 9, p.921–922, at: http://www.nature.com/cgi-taf/DynaPage.taf?file=/nbt/journal/v17/n9/full/nbt0999_921.html

¹⁰³ Devraj, Ranjit, "US Corporate Biopirates Still Staking Claim on Basmati Rice," *CommonDreams NewCenter*, October 9, 2000, available at <http://www.commondreams.org/headlines/100900-01.htm>

¹⁰⁴ American University, Mandala Projects "Trade and Environment Databases," at: <http://www.american.edu/TED/basmati.htm>

¹⁰⁵ Id.

has been in South Asia for centuries, Rice Tec just altered it slightly through crossing with a Western strain of grain, and successfully claimed it was its own.

d. Maca

In 2001 after the Viagra craze, two US companies patented extracts of the Andean plant, “Maca” which has traditionally been used to enhance fertility and sexual function. The patents were granted on the basis of “unlocking maca’s chemical secrets” through advanced processes.¹⁰⁶

One of the companies that obtained the patent, Pure World Botanicals, said that they unlocked maca’s chemical secrets, by “conducting the most comprehensive analysis of maca ever performed” and that Pure World’s team of chemists “discovered” several previously unknown compounds in the plant. The company cited its new product, “MacaPure” as a standardized product of the ‘novel’ compounds, representing a significant botanical breakthrough.¹⁰⁷

Based on this analysis, the Maca patents were based on *biologically* based compounds and methods of *discovery*, which under the frameworks and laws previously described, are *not* patentable. Nonetheless, these companies have successfully obtained patents on Maca.

It has become clear, though narrating these few cases, that IP laws cannot or are not being effectively applied to prevent the biopiracy of traditional knowledge.

¹⁰⁶

American University, Mandala Projects “Trade and Environment Databases,” at: <http://www.american.edu/TED/maca.htm>

¹⁰⁷ “PureWorld Botanicals,” <http://www.pureworld.com/news/maca.html>

Traditional knowledge is being treated as a free input into research and commercial product development. When patents are falsely granted, equitable benefit sharing is not taking place either, while indigenous peoples remain subject to biopiracy and become ever more marginalized in the process.¹⁰⁸

VII.) Lack of Political Power, Voice and Sovereignty

The problems of a partial and exploitable patent system, the clash of cultures, and rampant biopiracy are further compounded by the fact that indigenous societies have little political power to address the forces working in their disfavor.

There has been deliberate and systematic disempowerment of indigenous peoples over the last two hundred years all around the globe. From the alteration of their language and grammar, to derogatory name calling, to forced removal of indigenous people from their land and families, to extraction of natural resources of their land.¹⁰⁹ Lack of opportunity means lack of the same skills, knowledge, networks and access to power as other stakeholders,¹¹⁰ which in turn means lack of resources and bargaining power.

While many indigenous societies wish to stave off researchers, companies and others, most indigenous power is vested with their national governments, in a sovereignty-based political system. In the United States, for example, sovereignty of indigenous peoples is “subsumed within the sovereignty of the nation-state through military enforcement of U.S. laws” that denies international status to indigenous

¹⁰⁸ Higher Education and Research Opportunities in the UK (HERO), “Knowledge Grabbers Pay Nothing,” available at: http://www.hero.ac.uk/research/knowledge_grabbers_pay_no4305.cfm

¹⁰⁹ “POLICY IN RELATION TO ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLES AND THE NATIONAL ESTATE,” <http://www.ahc.gov.au/policies/variouspolicies/indigenouspolicy.html>

¹¹⁰ Id.

peoples.¹¹¹ It seems that the United Nations has carried this idea through to fruition, granting only sovereign countries the right to be primary actors in international law, while others play from the sidelines. Indigenous peoples, with common histories, language, culture and forms of social cohesion, came long before nation-states, but are still denied “full” sovereignty.

Exploitation of natural resources, combined with limited access to education and health (due to poverty that prevents them from affording school fees, transportation and medical attention), has created a generation of disempowered indigenous societies with high levels of illiteracy and ill health.

This, combined with modernization, globalization, the information age, and imposition by foreign cultures has all lead to the devolution of traditional knowledge and the destruction of indigenous peoples, who struggle for self-determination and rights world-wide.¹¹² Things concerns need to be taken into account in any new regime that addresses protection of traditional knowledge.

“They took our land, things sacred, during 200 years of assimilation and destruction. If they now want to have access to our traditional knowledge, they have to do it on our terms, in the right way,” says John Hunter.

VIII.) Current Strategies to Increase Protection of Traditional Knowledge

a. International Efforts

¹¹¹ “Indigenous Peoples, Global Issues, Law and Politics,” available at: <http://www.nativeweb.org/pages/legal/indig-intersections.html>

¹¹² “Indigenous Peoples in the Americas,” available at: <http://atagu.ki.gl/Debat/indlaeg/1997/97011004.htm#SEC4>

There are several international legal platforms and instruments that currently address intellectual property protection as it relates to traditional knowledge. Some of the most prominent include:

1. The UN Draft Declaration on Rights of Indigenous Peoples. This

UN Draft Declaration, in Article 29, specifically 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 traditions, literatures, designs and visual and performing arts.¹¹³

2. Johannesburg Declaration on Biopiracy, Biodiversity and Community Rights

One of the most recent international declarations was made last year at the World Summit on Sustainable Development, and relates specifically to biopiracy. Members of local communities, civil society, NGOs and indigenous peoples gathered in Johannesburg and made a declaration against the privatisation of biological resources and for the protection traditional knowledge.¹¹⁴ **(Exhibit A).**

3. The International Labor Organization's Convention 169 Concerning Indigenous Peoples in Independent Countries

¹¹³ UN Economic and Social Council, "Discrimination Against Indigenous Peoples," Report of Working Group on Indigenous Populations in its 11th Session, E/CN.4/Sub.2/1993/29/Annex I 23 August 1993, <http://www.cwis.org/fwdp/drft9329.html>

¹¹⁴ Declaration on Biopiracy, Biodiversity and Community Rights, the World Summit on Sustainable Development, in Johannesburg, August 2002 available at <http://www.biowatch.org.za/jhbdecl.htm>

Established in 1989, this is one of the first international Conventions that recognize the “collective aspects of indigenous people and traditional knowledge for the purpose of intellectual property.”¹¹⁵ It also recognizes indigenous peoples rights to their land, natural resources and knowledge.¹¹⁶

While the ILO Convention says the right things, these ideas have not yet been incorporated into legal instruments that would provide real protection.

4. Global Guidelines

A recent positive initiative is the drafting of a set of corporate guidelines for businesses that want to use native plants and traditional knowledge from indigenous communities to make commercial drugs.

In April 2002 in The Hague, delegates of the UN Biodiversity Congress from 166 countries negotiated and adopted global guidelines during a two-week long U.N. sponsored CBD conference that was designed to encourage pharmaceutical companies to make responsible agreements with countries whose resources they use.¹¹⁷ Prior to this agreement, although not yet flawless, indigenous knowledge had little protection under current IPR systems. The guidelines, though promising, are still voluntary. The guidelines propose several initiatives, including:¹¹⁸

- Making "prior informed consent" of all indigenous stakeholders the keystone of access and benefit sharing.
- Encouraging "capacity building" to help source countries develop the skills to *negotiate* and apply strong access and benefit-sharing arrangements.

¹¹⁵ Posey, Darrell A, “International Agreements and Intellectual Property Right Protection for Indigenous Peoples: A Sourcebook,” Oklahoma: Society for Applied Anthropology, 1994, p. 227

¹¹⁶ Posey, Darrel A. and Dutfield, Graham, *Beyond Intellectual Property Towards Traditional Resource Rights for Indigenous People and Local Communities*, 1996, International Research Center, Ottawa, Canada, p. 117

¹¹⁷ United Nations Convention on Biological Diversity, available at www.biodiv.org

¹¹⁸ Kelly, Janis, “Hague Meeting Targets Biopiracy,” April 24, 2002, available at: <http://www.biomedcentral.com/news/20020424/04/>

- Recommending that each country designate one "national focal point" for information about procedures required for obtaining prior informed consent and mutually agreed terms, including benefit-sharing.
- Encouraging disclosure of the country of origin and of traditional knowledge in patent and similar applications.
- Requiring users to ensure "fair and equitable" sharing of benefits.

The guidelines also make concrete recommendations for the fair and equitable sharing of profits from any products derived from the biological source in question. Profit sharing relates both to the source countries and to indigenous groups whose traditional invite bioprospecting researchers.¹¹⁹

The aim is that with contracts based on the guidelines, local and indigenous communities with traditional knowledge will gain stronger bargaining power, and receive added protection and equitable compensation for the use of their native biodiversity and traditional knowledge.¹²⁰

5. Other International Platforms

While declarations and efforts are being made to modify IPR language and strengthen protection for traditional knowledge, still more needs to be done to empower indigenous people so they can *fully* participate as stakeholders in I.P.R. negotiations at all levels. Several international ‘platforms’ are available for indigenous peoples to participate in where they can voice their concerns and bring light to important issues. Some of these platforms include:

The Working Group on Indigenous Populations, which was established

¹¹⁹ Thomas, Otti “UN conference backs indigenous peoples' drug payout” *Reuters Monday, April 22, 2002*, at: <http://www.planetark.org/dailynewsstory.cfm/newsid/15574/story.htm>>

¹²⁰ Kelly, Janis, “Hague Meeting Targets Biopiracy,” April 24, 2002, available at: <http://www.biomedcentral.com/news/20020424/04/>

pursuant to Economic and Social Council resolution 1982/34 is a subsidiary organ of the Sub-Commission on the Promotion and Protection of Human Rights in 1984 and which is open to all representatives of indigenous peoples and their communities and organizations, including representatives of Governments, non-governmental organizations and United Nations agencies,¹²¹ The organization's mandate is to:

- to review developments pertaining to the promotion and protection of human rights and fundamental freedoms of indigenous peoples
- to give attention to the evolution of international standards concerning indigenous rights

The Permanent Forum for Indigenous Issues, established in 2000 to give indigenous peoples a larger political voice. Under the Forum, Indigenous representatives, not only representatives of Member States will for the first time, participate in a high-level forum in the United Nations system. Indigenous people have been seeking representation at the international level since they approached the League of Nations in the early 20th century.¹²²

The Forum is specifically expected to:

- (a) provide advice and recommendations on indigenous issues to the Council, as well as to programmes, funds and agencies of the UN through the Council,
- (b) raise awareness and promote the integration and coordination of activities relating to the indigenous issues within the UN system; and
- (c) to prepare and disseminate information on indigenous issues.¹²³

The International Decade of the World's Indigenous People (1995 - 2004),

¹²¹ Office of High Commissioner for Human Rights, Forum on Indigenous Peoples, at: http://www.unhcr.ch/indigenous/ind_sub.htm

¹²² Id. (Permanent Forum on Indigenous Peoples)

¹²³ Id. See also: http://193.194.138.190/indigenous/ind_pfii.htm

claimed by the UN General Assembly on 21 December 1993 to strengthen international cooperation in addressing problems faced by indigenous people in human rights, environment, development.¹²⁴ The Decade has created awareness of biopiracy and protection of traditional knowledge.

Indigenous capacity to participate in such forums should be strengthened so that these forums become genuinely effective means of creating awareness, effecting change, protecting traditional knowledge and bettering the lives of indigenous groups worldwide

b. Regional Initiatives:

Regional initiatives are also taking hold and proving to be promising, primarily because indigenous peoples are finding strength in numbers.

1. The Cancun Declaration & Cusco Declaration on Access to Genetic Resources, Traditional Knowledge and Intellectual Property Rights

In February 2002, Environmental Ministers from 12 countries met in Cancun, Mexico met to discuss issues related to biodiversity in their countries, identifying a need to establish terms governing the granting of patents. They also proposed the conversion of innovations by indigenous and local communities into commercial projects and added protections for traditional knowledge. At the WSSD in

¹²⁴ Id.

Johannesburg this past August, their group was established as a permanent negotiating body to address these issues.”¹²⁵

As a follow-up to the Cancun meeting, State Ministers and representatives of Bolivia, Brazil, China, Colombia, Costa Rica, Ecuador, the Philippines, India, Indonesia, Kenya, Malaysia, Mexico, Peru, South Africa and Venezuela met in Cusco, Peru in November 2002, to create an action plan, the “Cusco Declaration,” under the Cancun Declaration. Important results of the meeting included:¹²⁶

“A commitment to promoting bioprospecting in a manner consistent with sustainable use of biodiversity, in accordance with national laws and policies and to prevent biopiracy and illegal access to genetic resources and traditional knowledge;

A commitment to the need to promote the development of sui generis regimes to protect traditional knowledge, based on IPRs and other instruments;

A commitment to create a mechanism for cooperation and exchange of information among countries and develop legal regimes regarding property rights of traditional knowledge and, to promote technology transfer and capacity building;

A commitment to devise mechanisms to guarantee the fair and equitable sharing of benefits derived from the use of biodiversity and traditional knowledge;

And a commitment to devise mechanisms to:

¹²⁵ Bravo, Elizabeth, “The Biodiversity Convention: 10 years On,” October 2002, available at: <http://www.grain.org/seedling/seed-02-10-4-en.cfm>

¹²⁶ Cusco Declaration, Nov. 2002, available at: <http://www.comunidadandina.org/ingles/document/cusco29-11-02.htm>

- guarantee full protection of indigenous rights over their traditional knowledge so that their heritage is not used without their consent or without due benefit sharing;
- obtain prior informed consent from the country of origin before the issuing of a patent.”¹²⁷

The Cancun and Cusco Declarations, if genuinely implemented, could jump-start indigenous-oriented regimes worldwide and provide attention and protection to traditional knowledge.

2. The Inter-American Declaration on the Rights of Indigenous Peoples/Populations,

The Inter-American Declaration is another example in the movement towards regional initiatives. This Declaration was drafted by the Organization of American States (OAS), and reinforces how regional states can collaborate for the protection of traditional knowledge. Article 20 of the draft specifically states:¹²⁸

- Indigenous peoples have the right to the recognition and the full ownership, control and protection of their cultural, artistic, spiritual, technological and scientific heritage, and legal protection for their intellectual property through trademarks, patents, copyright and other such procedures as established under domestic law; as well as to special measures to ensure them legal status and institutional capacity to develop, use, share, market and bequeath that heritage to future generations.
- Indigenous peoples have the right to control, develop and protect their sciences and technologies, including their human and genetic resources in general, seed, medicine, knowledge of plant and animal life and procedures.
- The states shall take appropriate measures to ensure participation of the indigenous peoples in the determination of the conditions for the utilization, both public and private, of the rights listed in the previous paragraphs 1 and 2.

¹²⁷ Id.

¹²⁸ Inter-American Commission on Human Rights, Organization of American States (OAS), 1997, 95th regular session, available at: <http://www.cidh.org/indigenous.htm>

c. National Efforts

1. Panama

Individual countries are also making efforts to provide additional protection for indigenous peoples and traditional knowledge within the global intellectual property regime by creating safeguards and *sui generis* (self-tailored) regimes. For example, in the country of Panama, there is a new Panamanian Act in place that protects the cultural identity of indigenous peoples and recognizes the power of indigenous authorities *to allow or refuse the use of their heritage and traditional knowledge* as a progressive *sui generis* initiative.

The new Act, which was enacted in June 2000, was adopted through pressure by the indigenous organizations of Panama, and is aimed primarily at protecting their cultures and traditional knowledge. The Act implicitly recognizes *the collective rights and jurisdiction of indigenous authorities with respect to intellectual property protection*.¹²⁹ Without recognition of collective rights or the granting of some weight and sovereign authority to indigenous organizations, little progress can be made. However, Panama leads the way with Act 20. The ‘*sui generis*’ Act benefited from the input of indigenous representatives and WIPO during the drafting process. It could be used as inspiration and model for those who want to work on creating similar legislation in their countries.

2. Peru

In enacting law “27811,” in August 2002, Peru has also committed itself to establishing a comprehensive legal system designed to protect the traditional

¹²⁹ Lopez, Aresio, “Experience with Act 20, June 26, 2000, Panama's Indigenous Intellectual Property Law,” available at: <http://www.ichrdd.ca/english/commdoc/publications/indigenous/aresioPanamaLawEng.html>

knowledge of indigenous peoples.¹³⁰ Peru has also recently modified its national laws to include more protection for indigenous people and traditional knowledge and as per the CBD requires all parties to obtain prior informed consent and create benefit-sharing agreements before obtaining traditional biodiversity-related knowledge.¹³¹

The law also specifically protects the collective nature of traditional knowledge by referring to traditional knowledge as “related to use and properties of biodiversity” and not “practices and innovations.”¹³² The law states that the knowledge to be protected is specifically that of communities, not individuals. The law adds that communities can freely exchange their traditional knowledge, but also states that entities who wish to acquire traditional knowledge must:

- Must obtain prior informed consent (PIC)
- Must sign a license for the use of knowledge before contracting it out

The law also establishes unfair competition procedures and registers to document traditional knowledge (to protect against misappropriation/biopiracy) and a Fund for Indigenous People.¹³³

In enacting law 27811, Peru shows that national governments clearly have a role in setting the standard for the protection of traditional knowledge. Not all governments, however, may be willing to act as Peru has acting, in light of the fact

¹³⁰ Ruiz, Manuel, Lapena, Isabel, “New Peruvian Law Protects Indigenous Peoples’ Collective Knowledge,” p15, BRIDGES, ICTSD, Post Johannesburg Summit Issue, September 2002, available at: <http://www.ictsd.org/monthly/bridges/BRIDGES6-6.pdf>

¹³¹ Resource Book on TRIPS and Development, Part II, Substantive Obligations 2.5, Patents, ITSCD-UNCTAD Capacity-Building Project on IPRS and Sustainable Development, p. 16, available at: http://www.ictsd.org/iprsonline/unctadictsd/docs/RB2.5_Patents_2.5.5.pdf

¹³² Id.

¹³³ Id.

that some nations have different priorities to indigenous peoples. Nonetheless, Peru's national law can serve as an example.

Other countries have enacted/are enacting similar laws such as Bangladesh's draft "Biodiversity and Community Knowledge Protection Act, 1998," India's draft "Kerala Tribal Intellectual Property Rights Bill," 1996 and Sri Lanka's 2000 "Access to Traditional Knowledge relating to the Use of Medicinal Plants Act," which is similar to but not as strong as Peru's laws.

3. New Zealand

While enactment of stronger national legislation is a key component for increased protection, it cannot be the only component, since legislation sometimes only pays lip service.

The New Zealand Resource Management Act 1991 and Conservation Act 1987 of New Zealand demonstrate these points. While Maori cultural values are recognized in the Resource Management Act 1991 and there was considerable consultation with Maori in creating the legislation, the 12-year duration of the law has proven that it is ineffective.¹³⁴ In fact, indigenous peoples in New Zealand have even labeled the law as "*fatally flawed*", since it lacks real protection, but the government ignores this allegation.

The lack of real progress is primarily a result of continued racism on the part of mainstream society and the government to involve Maori in consultation, and control over their resources. The government has failed to fulfill its legal and customary obligations, despite national legislation.

¹³⁴ Solomon, Maui, "IPR and IPRO Intellectual Property Rights and Indigenous Peoples Rights and Obligations," p. 12-13 (paper presented at Washington University School of Law, April 6, 2003).

d. Local Level Indigenous Self-Determination Efforts

While individual countries have attempted to reform their national laws to recognize the efforts and importance of indigenous societies in determining the fate of their traditional knowledge and playing a primary role in negotiations and the design of I.P. systems that protect their traditional knowledge, other indigenous societies are working hard to take a stand against their governments or influence the decision-making process.

1. The Maori

For instance, once again, in the case of the Maori, there was recently a case in New Zealand that debated whether the New Zealand Parliament had the right to legislate intellectual property laws without consultation with the indigenous Maori people. The Maori tribes brought a claim against the Crown entitled, "The Indigenous Flora and Fauna and Maori Intellectual and Cultural Property Claim."¹³⁵

The claim alleged that under a treaty between the Government and the Maori people, Maoris were granted full sovereignty over all "treasured possessions,"¹³⁶ including traditional knowledge. In a broad, representative move, the New Zealand legislature, responding to Maori concerns about intellectual property, enacted a draft Trade Marks Bill that would control and even prohibit the use of certain Maori words and designs as trademarks.¹³⁷ This was pursuant to the wishes of a Maori

¹³⁵ Austin, Graeme W., *The Role of National Courts Valuing: Domestic Self-Determination in International Intellectual Property Jurisprudence*, 77 *Chi.-Kent. Law Review*, 1155

¹³⁶ *Id* at 228.

¹³⁷ *Id* at 230.

advisory body, established to advise the New Zealand Intellectual Property Office as to the cultural appropriateness of trademarks.¹³⁸

The Maori example demonstrates the ability of indigenous people to take action against Governments and to cooperate with their Governments to influence change in the area of intellectual property rights within a sovereignty-based system.

2. The San

While organizations are regionalizing at global levels, they are also organizing themselves at indigenous levels to gain strength in numbers. The San of South Africa¹³⁹, known as one of the world's "first peoples," have been decimated over the years to the point of near extinction. Within the past decade, they have organized their remaining numbers into a regional organization known as "WIMSA" or the Working Group of Indigenous Minorities in Southern Africa, in order to articulate and protect their rights and interests. Apart from the right to land and resources, WIMSA is now aiming to protect the value of their traditional knowledge. The protection of traditional knowledge became apparent to the San, once again, through a notorious biopiracy case of one of their traditional plants "Hoodia."¹⁴⁰

Patent P57 on Hoodia, a plant that has been used by the San for thousands of years to reduce hunger and thirst in difficult times, was granted to the South African CSIR (Council for Scientific and Industrial Research).¹⁴¹ The rights to further research and commercialize the patent for the potentially "blockbuster drug" were

¹³⁸ Id at 232.

¹³⁹ Chelles, Roger, "Ethics and Practice in Ethnobiology and Prior Informed Consent with Indigenous Peoples," p.1-3(Submitted to conference at Washington University School of Law, in St. Louis, "Biodiversity, Biotechnology & Traditional Knowledge," April 4-6). * The San number approximately 100 000 in the Southern African countries of Angola, Botswana, Namibia and South Africa

¹⁴⁰ Id.

¹⁴¹ Id at 9.

licensed by CSIR to UK-based Phytopharm and Pfizer Inc in the USA.¹⁴² Little to no consultation with the San took place during this process.

WISMA organized itself into a San-wide organization in order to gain a higher bargaining position against CSIR. With the help of lawyer Roger Chelles and local NGOs, WISMA just recently (on March 24, 2003) succeeded in negotiating a “San Hoodia Benefit-Sharing Trust” that granted them 8% of all milestone payments paid to the CSIR over three years and 6% of all royalty payments received by CSIR for the duration of the patents.¹⁴³ While the agreement came post-patent, WISMA’s effort is still significant in that it managed to get a good benefit-sharing agreement.

3. Indigenous Protests and Public Organizing

Other ways in which indigenous peoples can influence biopiracy and the protection of the traditional knowledge is through protests and public organizing. For example, the Shiseido Corporation of Japan, a multinational cosmetic and skincare company had previously patented eleven indigenous, traditional Indonesian healing herbs. Indigenous groups and civil society groups helped to organize public protests against Shiseido, succeeding in canceling the patents it had over the Indonesian spices. Shiseido continues to be faced with NGOs and civil society organizations criticizing their alleged biopiracy and unlawful patenting.¹⁴⁴

¹⁴² Id.

¹⁴³ Id at 10.

¹⁴⁴ Kalpavriksh and *Grain*, “Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection,” October 2002, note 14 available at <http://www.grain.org/publications/tk-asia-2002-en.cfm>

IX.) Controversy Surrounding Protection Methods of Traditional Knowledge

Two extremely important areas of traditional knowledge protection concern databases and the bilateral contract system. There is much debate regarding the success or failure of these two mechanisms.

a. Databases as a form of Protection?

Concern over the loss of traditional knowledge has resulted in a brisk and systematic effort to collect and catalog traditional data, specimens and formulas. This work is often referred to as “salvage ethnobotany,” which has been a primary vehicle for the preservation of information for years.¹⁴⁵

The main argument in favor of databases and inventories is that they will create a collection of inventions in which to prior art searches and prevent false patenting. Many countries have bought into this ideology, including Peru, who is now creating traditional knowledge registries.

Adrian Otto, Director of the Intellectual Property Division of the WTO, adds that the adequacy of information on prior art and its availability to patent examiners to acknowledge previous inventions is critical. Even so, while documenting may serve to save traditional knowledge, it may not, prevent misappropriation.

Michael Balick of the Institute of Economic Botany, New York Botanical Garden, claims that while they are effective tools to document information and collect data, databases are not necessarily effective for long-term preservation of traditional knowledge, since it only constitutes a “snapshot” of a collection of parts.

¹⁴⁵ Balick, Michael, “Traditional Knowledge: Lessons from the Past, Lessons for the Future,” p. 3, paper presented at conference, “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003

Balick adds that this is compounded by the fact that many traditional knowledge protection projects are based in academic settings, and an important requirement for funding natural and social science research projects is use of the scientific method, where hypotheses are tested as a major component of the project.¹⁴⁶ Hypotheses involve data gathering, reducing holistic traditional knowledge to mere data points. Once entered into a database, knowledge is analyzed and evaluated, publications are written, web sites produced and research completed. The logic behind this process is that through reduction of parts using science, the parts can be configured to better understand the whole.¹⁴⁷ However, this still does not solve the protection problem.

At a WIPO “ICGRTKF” meeting in June 2002, representatives of indigenous organizations asked whether the current traditional knowledge on the WIPO website was compiled with the prior informed consent of TK holders. WIPO answered that for many of the inventory entries, it was “difficult to ascertain” whether the original traditional knowledge-holders have given their prior informed consent. This implies that potentially already pirated knowledge may become available through a global database designed to protect traditional knowledge! NGOs representing indigenous peoples at the meeting were concerned that there had not been enough consultation with indigenous groups in creating the inventory and in addition, Peru was concerned that inventory language was not simple for local and indigenous communities to understand.¹⁴⁸

¹⁴⁶ Id. at 20

¹⁴⁷ Balick at 20.

¹⁴⁸ Goel, Malini, “Report on the Third Session of the WIPO Intergovernmental Committee on Genetic Resources, TK, Folklore,” Center for International Environmental Law, June 13th-21st2002, Geneva

Databases at the national level are also sparking controversy. For example, opponents allege that India's new Traditional Knowledge Digital Library (TKDL), a classification of nearly 4,500 medicinal plants and 35,000 Ayurvedic formulas, may just simply be an easy navigation tool for biopirates who want to gain access to India's ancient indigenous herbs and their uses.¹⁴⁹

According to biotechnology expert Devinder Sharma of the Forum for Biotechnology and Food Security, claims, "What better way to do it than to make the developing countries themselves do the research and documentation and hand it all over on a readily-accessible digital platter?"¹⁵⁰

Ragunath Mashelkar on the other hand, who, along with Vandana Shiva, succeeded in getting the turmeric patent overturned by painfully and expensively going through ancient Sanskrit Ayurveda texts to disprove novelty, argues that the TKDL, which will record all traditional knowledge, will proactively prevent false patenting and misappropriation¹⁵¹

Other important issues concern ownership and access to the databases and type of data to be collected; whether it should be run by an international institution such as WIPO, nationally owned institutions or indigenous ones.

The database issue has not yet been resolved. Some argue that they facilitate biopiracy. Others argue that they will act as a preventive measure against biopiracy. This is yet to be seen as traditional knowledge continues to be documented.

¹⁴⁹ Devraj, Ranjit, "India's Digital Library Aids Biopirates," Norfolk Genetic Information Network, New Delhi, India, July 4, 2002 available at: <http://ngin.tripod.com/040702b.htm>

¹⁵⁰ Id.

¹⁵¹ Indian Intellectual Property Law Resources, available at: <http://www.iprlawindia.org/iprlaw/resourceList.asp?DType=2&ChannelID=68>

b. Bilateral Contracts. Successful?

There are many proponents of the view that if done right, fair and equitable contracts are the best way for indigenous peoples to protect their intellectual property rights and maintain control over their biodiversity and traditional knowledge. While bilateral contracts and bioprospecting agreements claim to solve many of the deficiencies of the imperfect legal systems that allow biopiracy, they too do not always work. Looking into history, it is clear that indigenous peoples have had poor experiences with contracts and treaties, which often give them little protection. Not only can they be unconscionable, they are also hard to enforce.¹⁵²

1. INBIO-MERCK Costa Rica

The world renowned Instituto Nacional de Biodiversidad (INBio) bioprospecting agreement with Merck & Co., Ltd., the world's largest pharmaceutical firm, was designed to promote conservation in Costa Rica. INBio's "stated aim" through the project is conserving biodiversity, although much of its primary work is in bioprospecting.¹⁵³ To date, INBIO has signed more than 20 agreements with companies, academic research institutions and industries, with an investment of US\$.5 million per year for bioprospecting activities and US\$.5 M per year for capacity building, tech transfer and local institutional empowerment.¹⁵⁴

¹⁵² Harry, Debra, Northern Paiute Nation, "Patenting Of Life and Its Implications For Indigenous Peoples," Nevada January 1995, available at:

<http://www.mtholyoke.edu/courses/jgrossho/archives/intell-prop-7.html>

¹⁵³ INBIO Annul Report

¹⁵⁴ Gamez, Rodrigo, "The Link Between Biodiversity and Sustainable Development Lessons from Inbio's Bioprospecting Program in Costa Rica, Instituto Nacional de Biodiversidad, p. 6

On paper, the terms of the INBIO-Merck Agreement seems fair, allowing for milestone payments, equitable benefit-sharing, fair participation, tech transfer and capacity building.¹⁵⁵ Rodrigo Gamez, Director General of INBIO, Cost Rica, states that the INBIO-Merck Agreement has already achieved two of its desired goals: 1) increasing scientific and participation of the institution in the development of products and 2) sharing of benefits (monetary and non monetary) with local people.¹⁵⁶ It should be noted that the majority of the Costa Rican indigenous population (1% of the total) live in reserves comprising 6% of the national territory and posses their own rules and regulations. INBio's policy is not to operate in these areas.¹⁵⁷ INBIO also does not run into the social problems that other prospectors worldwide run into when dealing with indigenous populations. In any case, the following chart explains the benefits:

Monetary and non-monetary benefits derived by INBio from bioprospecting

Monetary Benefits

- 1. Totally funded local research budgets**
- 2. Technology transfer and infrastructure**
- 3. Up front payments for conservation**
- 4. Strengthening of research capacity of local institutions**
- 5. Milestone and royalty payments shared with MINAE**

Non-Monetary Benefits

- 1. Training of human resources**
- 2. Empowerment of human resource**
- 3. Technology transfer**

¹⁵⁵ Id at 6.

¹⁵⁶ Id at 8.

¹⁵⁷ Id at 7.

- 4. Shared research results and information**
- 5. Negotiations expertise developed**
- 6. Market Information**
- 7. Improvement of local legislation on conservation**

*Modified from Tamayo *et al.*, 2003¹⁵⁸

Unfortunately, the benefits displayed above mean little unless they are clearly defined and strongly defended by local and national governments. Since such clarity and support are often absent, the above benefits are not always maximized. Another criticism is that contracts like the one between Merck and INBIO are private and not open to public inspection. A Multi-Stakeholder Agreement could help in this regard, as will be discussed in the recommendations.

2. MAYA-ICBG (1998-2001)

While some bilateral agreements are in a trial-by-error process such as INBIO-Merck, others such agreements, like the Maya-ICBG (1998-2001) agreement have failed, revealing the difficulty of contracts and adding to the debate of whether or not there such agreements will succeed in protecting biodiversity and related traditional knowledge.

According to Joshua Rosenthal, Program Officer at the International Cooperative Biodiversity Groups (ICBG), Fogarty International Center, who recently spoke at Washington University School of Law about the MAYA ICBG,¹⁵⁹ few commercial drugs were found under the \$2.5 million dollar project, entitled

¹⁵⁸ Id at 11.

¹⁵⁹ Rosenthal presentation at conference, “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University School of Law, St. Louis, April 4-6, 2003).

"Drug Discovery and Biodiversity among the Maya in Mexico," funded by the US government and started in 1998.¹⁶⁰

Rosenthal's talk revealed the structural problems of indigenous representation in the process. He explained that when they started the project, there were 8,000 different Mayan communities, four or five language groups and no representative umbrella organization. They had to go around Mexico and get acceptance from 46 Mayan communities or 30,000 people, even though this was only a fraction. For one and a half years, ICBG communicated its intentions through plays in 47 villages so the villagers could understand the project.

Rosenthal described the absence of a central representative centralized indigenous organization as most difficult. (Clearly the indigenous populations did not have a centralized government because their societies have traditionally been collective, with no centralized local government.

After trying to get Mayan approval, ICBG then set up a draft 'trust' to run and fund the project. The board members included Mexican scientists, prominent ethnobiologists, the former head of the National University and former director of ECOSUR (the Chiapan university). The plan was to *introduce Mayan* members to the board gradually, as they were identified in communities, finding the ones with leadership potential. Again, there was no real participation of indigenous peoples in the process and the project was driven by US interests.

As a result, there was indigenous backlash. Despite all the provisions for prior informed consent and equitable benefit-sharing, it took two years for the

¹⁶⁰ Shand, Hope, "Chiapas ICBG Project Cancelled," ETC group News Release, 9 November 2001, at: <http://csf.colorado.edu/forums/elan/2001/msg00605.html>

indigenous peoples of Chiapas to convince the ICBG-Maya that were not welcome. After two years of opposition from indigenous peoples' organizations in Mexico, the ICBG-Maya bioprospecting project was finally and definitively cancelled.¹⁶¹

In short, bilateral contracts and bioprospecting agreements, while they may keep biopirates at bay, are not without problems. They represent a “Top-Down” approach to protection, conservation, management and exploitation of biodiversity and traditional knowledge and often fail to cater to the needs of indigenous peoples. A “Bottoms-Up” approach would be better suited, as will be discussed shortly.

X). Synthesizing Current Strategies & Creating a New TK Protection Regime

a. Reconciling Western Patent System & Indigenous Frameworks

In order to genuinely make a difference in reconciling the clash of regimes between Western intellectual property frameworks and indigenous systems, there must be in-depth reform of the international intellectual property protection system, and recognition of the rights of indigenous peoples, as described in many international, regional and local platforms and instruments described in this paper.¹⁶²

At present, Western patent laws allow the unofficial ‘pirating’ of indigenous knowledge. Current US Patent Law allows the United States to take knowledge from other countries, patent it, and then claim it as their own intellectual property. TRIPS creates complicated loopholes, advantages for biotechnologically modified

¹⁶¹ Shand, Hope, “Chiapas ICBG Project Cancelled,” ETC group News Release, 9 November 2001, at: <http://csf.colorado.edu/forums/elan/2001/msg00605.html>

¹⁶² Kalpavriksh and *Grain*, “Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection,” October 2002, at <http://www.grain.org/publications/tk-asia-2002-en.cfm>

inventions and clashes with elements of the CBD. WIPO has a monopoly on international intellectual property process and policy and has access to an extensive database. Indigenous participation in all processes is minimal.

In order to stop biopiracy, global and U.S. patent laws must change. US law must be redrafted to recognize prior art in other countries.¹⁶³ The concepts of novelty and invention must be modified to include traditional and collective knowledge, not simply “technically-modified” knowledge. TRIPS assumes that Western-style IPR systems are appropriate and that they should be implemented worldwide. The current regime denies the contribution of knowledge and innovations of the Third World and indigenous societies¹⁶⁴ by not recognizing traditional “inventions,” geographical indicators where necessary, and other important aspects of intellectual property. Amending “TRIPS” and U.S. patent law is necessary.

Indigenous societies will have to build their capacity to confront a biased IPR system through working within the law to protect their traditional knowledge (perhaps documenting their knowledge in their own databases to ensure their knowledge is considered prior art and does not get misappropriated) and through challenging the law either individually, collectively or through the use of agents, advocates and attorneys. In order to effect change, indigenous groups and advocates need to enter intellectual property negotiations and reform efforts, at all levels. They need to educate themselves in the area of the law and effect change

¹⁶³ Shiva, Vandana, “The US Patent System Legalizes Theft and Biopiracy,” THE HINDU, July 28, 1999, available at: <http://www.organicconsumers.org/Patent/uspatsys.cfm>

¹⁶⁴ Id.

within the legal system. They need to consult, negotiate with and convince national governments to include “collective knowledge” within national laws, as Peru has demonstrated. There should also be recognition and strengthening of customary laws, which are currently largely being ignored.

Advocacy, lobbying and negotiating at the international level in bodies such as WIPO, the WTO and the CBD can also combine to create a cumulative force against existing intellectual property regimes and start the ball rolling for protection of traditional knowledge that is in the best interest of indigenous people.

b. “Bottoms Up” Approach: Indigenous IP Focal Point Network

Any meaningful reform of the system will require indigenous self-determination and leadership initiatives to participate in negotiations with stakeholders at multiple levels in the IPR process. As recognized in the Cusco Declaration, a mechanism for cooperation and exchange of information among countries and the *development of a body that can consolidate legal regimes, protect property rights of traditional knowledge and promote capacity building in protecting their traditional knowledge* also needs to be established.

The fact that countries and companies often override indigenous policies and platforms demonstrates the need for *indigenous-run* bodies in each country to address the issues. Such national centers or focal points could be places where an indigenous advisory council (such as the Maori Advisory Council) could operate to confront and address issues that relate to traditional knowledge. The creation of

national, indigenous-run intellectual property focal point offices could be instrumental in turning the tides of injustice against indigenous peoples in the IPR arena. Unlike bioprospecting agreements, which are driven by outside interests, an indigenous-run network of national IP offices could be a critical step in self-determination and turning the tides to a “Bottoms-Up” approach to protection of traditional knowledge.

Each focal point could be a part of an established environmental ministry or a national indigenous organization. The point, however, would be that it is indigenous-run and that there is a network and a system in place. The focal point would serve as a “one-stop” entry point into a country for any entity that wants to profit from traditional knowledge, whether that entity is a university, a corporation such as a pharmaceutical company or a sovereign government. The focal point would serve as a clearing-house, advisory body to national governments and screening mechanism for bilateral contract proposals.

The indigenous IP focal points would also collect and house information about indigenous communities in the country and whether they are open to wanting access contracts or not. Some communities may want to be left alone entirely; others may want to participate. In any case, these positions should be sought and documented by indigenous peoples themselves, not by, for example, ICBG. The offices could also house an indigenous-run and owned traditional knowledge database, with videos and other forms of information. (Although there are databases around the world such as the TKDL, the point of the database here would be that it is in indigenous hands and under their control.

The roles of various stakeholders might naturally be shifted in creating a network of indigenous-run national IP focal points, but this is what it would take to give power and control over traditional knowledge back to indigenous peoples.

National governments would also have to decide what role they would want to take in access agreements between indigenous parties and private or institutional parties.¹⁶⁵ A variety of roles are possible, from being a mandatory party to an agreement to being a passive enforcer of contracts.¹⁶⁶ National focal point offices would also be able address the lack of coordination between government, indigenous peoples and various ministries.¹⁶⁷

The national focal point IP offices could serve as the “representative” organizations that the likes of ICBG were unable to find in their project. Whether indigenous communities are represented at the IP focal point offices through advisory bodies, committees, or other ways of representation, they themselves should decide who represents them in the national focal point offices.¹⁶⁸ This should not be done by government appointment.

I envision the national centers being multi-functional umbrella organization, acting first and foremost, as a front-line of defense against unwanted outside

¹⁶⁵ Firestone, Laurel, “You Say Yes, I Say No; Defining Community Prior Informed Consent Under the CBD,” Harvard Law School, March 2003

¹⁶⁶ *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization*, Decision VI/24 Access and Benefit Sharing as Related to Genetic Resources, UNEP/CBD, *II. Roles and Responsibility in Access and Benefit Sharing Pursuant to Article 15 of the Convention on Biological Diversity*, 8-19 April 2002)
<http://www.biodiv.org/decisions/default.asp?m=cop-06&d=24>)

¹⁶⁷ *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization*, Decision VI/24 Access and Benefit Sharing as Related to Genetic Resources, UNEP/CBD, *II. Roles and Responsibility in Access and Benefit Sharing Pursuant to Article 15 of the Convention on Biological Diversity*, 8-19 April 2002)
<http://www.biodiv.org/decisions/default.asp?m=cop-06&d=24>);

¹⁶⁸ *See Participatory Mechanisms for Indigenous and Local Communities*, UNEP/CBD, Part II., WG8J/2/4 (27 Nov. 2001).

exploitation and as an ‘indigenous’ screening agent. Its functions would include among other things: unity and information-sharing among indigenous communities, an indigenous traditional knowledge data bank, an implementation plan for the guidelines set out in the Hague (or indigenous-drafted guidelines) and an office of indigenous lawyers to bring forth claims of biopiracy and related injustice to the Government, among other functions.

Michael Balick also suggests that indigenous communities could make lists of what traditional knowledge is most at risk in their communities and create workshops to start teaching this knowledge to the community to slow devolution.

The office could create its own guidelines for bioprospecting and benefit sharing. These guidelines could be created in consult with National Governments and then given to any companies that wish to profit from indigenous biodiversity-related traditional knowledge. Naturally, indigenous communities would have to *negotiate* for companies to go through the center first before entering into contracts with indigenous groups. This will require multi-level negotiations and cooperation with National Governments. However, the Maori case proves that this is possible.

The indigenous advisory councils could help in the creation of *sui generis* systems of intellectual property rights, as in the case of Panama.

Another unique aspect of the centers might be the creation of an indigenous IPR “bank.” For indigenous groups facing bioprospecting and biopiracy on the part of companies and others, the groups could acknowledge (through documentation and recognition of prior art) and legally establish their rights to their traditional knowledge, then sell their rights to the indigenous centers for negligible amounts (in

order to make an official contract), then have the center act as an indigenous IPR bank. Outside companies who want access and rights to traditional knowledge could then negotiate directly with the centers. Indigenous groups could use the bank to harbor their traditional knowledge and the rights to this traditional knowledge in one place. The indigenous-run organization could have 100% rights to the traditional knowledge, as per a legally binding contract. The center could then create pro-indigenous guidelines to be followed in any ensuing contracts.

To facilitate communication, a staff of indigenous community activists and lawyers could be employed. A team of tribal and indigenous IPR ambassadors could also be centered at the offices to work with international instruments in diffusing information on indigenous as opposed to only *national* interests.

Naturally all the above-recommendations would also require legal assistance. As many indigenous lawyers as possible could be recruited to work in the offices. In addition, public interest IP lawyers could assist the indigenous communities in their legal affairs worldwide. According to Michael Gollin, a Partner with Venerable Law Firm in Washington DC and Founder of Principal Investigator Public Interest Intellectual Property Lawyers, there are at least 100 lawyers who would be willing to devote their time to public interest clients. One option might be for these lawyers to work with indigenous people to help draft contracts that protect indigenous interests and traditional knowledge and help them to enforce these contracts.

An indigenous-run center could act as custodian, guardian, trustee and negotiator with the government and outside parties to ensure that guidelines are followed and the highest level of protection is afforded to traditional knowledge.

Ultimately, the goal of the indigenous IPR focal points would be to increase indigenous negotiating power in protecting traditional knowledge from current threats of biopiracy. I believe the centers could have an impact in doing so.

c. Mapping and Land-Based Solutions

According to Alejandro Argumedo, Executive Director, Asociacion of ANDES in Peru, any solution to the biopiracy problem must also be “land-based.” Over hundreds of years, indigenous peoples have been removed from their lands, their resources exploited. Now their biodiversity and their knowledge are at stake. Argumedo insists that if the land is given back to indigenous communities as sovereign indigenous territory, this will serve as a basis for solving the traditional knowledge problem. If indigenous peoples are seen as landowners with equal footing and land title, there may be less room for misappropriation and abuse. Secondly, if resources and land are returned to indigenous communities, this will help them rebuild their resources and societies, so that they can protect and practice their indigenous ways, prevent devolution, and keep traditional knowledge alive. “The most effective way of saving traditional knowledge as a dynamic, living and vital system is to keep it in practice—to encourage its practitioners, to give economic and other importance to its end products and to incorporate its ethical values into everyday lives.”¹⁶⁹

¹⁶⁹ Balick, Michael, “Traditional Knowledge: Lessons from the Past, Lessons for the Future,” p. 3, paper presented at conference, “Biodiversity, Biotechnology and the Protection of Traditional Knowledge,” Washington University in St. Louis School of Law, Conference, April 4-6, 2003

One method of preventing indigenous land from being concessioned off as “untitled areas” by governments in the first place is to demonstrate presence and attachment to the land. One way of doing this is through “ethnographic mapping.”

In 1995, the AmerIndian Peoples Association and NGOs “Forest Peoples Programme” and Local Earth Observation mapped indigenous territory in Guyana. Indigenous mappers were trained in Global Positioning System technology (GPS) and the whole territory was mapped in less than nine months, showing boundaries, settlements, natural resources, cultural sites using indigenous names in accordance with their language and traditions.¹⁷⁰ The final “community map” revealed extensive and multiple indigenous lands uses, burial grounds, hunting and fishing reserves and other important and indigenous places and practices.

It is, once again, important that the mapping be indigenous-run, else the agenda of non-indigenous mappers (government, corporations, universities) could be reflected. For example, in the “Biomaps” project at the University of Bonn in Germany, taxon richness, abundance structure, phylogentic and character diversity, level of endemism, share of diversity, ecosystem function and economic value are all taken into account.¹⁷¹ Nowhere is indigenous knowledge included.

Even if indigenous people create the maps, there is no guarantee it will be recognized. While the indigenous map of Guyana was been praised by Organization

¹⁷⁰ Griffiths, Tom, “Guyana: Empowerment of indigenous peoples through participatory mapping,” *Forest Peoples Programme*, World Rainforest Movement bulletin N° 62, Sep. 2002., <http://www.wrm.org.uy/bulletin/62/Guyana.html>

¹⁷¹ Botanical Institute, University of Bonn, p. 7 at <http://www.botanik.uni-bonn.de/system/biomaps>

of American States and the World Bank among others, the Government of Guyana has not yet recognized it.¹⁷²

Even so, while mapping is yet another form of “databasing,” it can still serve to give a heads-up to entities who think they are getting a blank concession from governments, when in reality, the lands in question are full of living peoples and cultures who rely on their resources and knowledge.

d. Creating a Multi-Stakeholder ‘NGI’ Agreement

Through negotiations carried out through indigenous-run national focal point offices, it could also eventually be possible to create a multi-stakeholder agreement between Indigenous Nations, pharmaceutical companies, corporate entities, patent offices and examiners, National Governments, international bodies, consumers and media and NGOs. Although an NGI Agreement would not be “legally binding” as per international law, it could still act as a quasi-contractual agreement between entities, demonstrating the signatories’ commitment to the issues and the Agreement, the text of which would reflect the issues that have been spelled out in this paper.

For example, the Agreement would aim to give adequate protection mechanisms for traditional knowledge, recognize the right and ability of indigenous tribes to create their own *sui generis* system of IPR protection, solicit respect and compliance with responsible guidelines from signatories, and solicit *commitment* to adequate benefit sharing arrangements with indigenous tribes for access and use of

¹⁷² Griffiths, Tom, “Guyana: Empowerment of indigenous peoples through participatory mapping,” *Forest Peoples Programme*, World Rainforest Movement bulletin N° 62, Sep. 2002., <http://www.wrm.org.uy/bulletin/62/Guyana.html>

their traditional knowledge. A breakdown of the stakeholder functions within the Multi-Stakeholder NGI Agreement might be categorized as follows:

STAKEHOLDERS	FUNCTIONS WITHIN THE AGREEMENT
Indigenous Staff of the National IPR Centers	Commitment to advise and negotiate with governments and outside parties in the interest of indigenous peoples. Act responsibly on behalf of indigenous peoples.
National Governments	To respect indigenous national focal point offices and consult with these offices at every step of IPS decision-making as it relates to traditional knowledge. Affirm commitment to sui generis IPR systems. Commit to endorsing the Agreement. Commit to reform national legislation to reflect indigenous priorities. ¹⁷³
Corporate Entities/	Agree to consult with indigenous-run I.P.R national focal

Pharmaceutical Cos./ Bioprospectors	point offices before bio-prospecting or related activities. Agree to follow and respect <i>indigenous</i> guidelines for protecting traditional knowledge and to benefit sharing. Should “rights” have been sold to center by indigenous groups, agree to negotiate solely with the center.
Patent Examiners	Agree to consult with indigenous IPR center during any “prior art” patent searches and acknowledge any traditional knowledge that the center has documented in the granting of patents.
International Bodies Dealing with IPR and Traditional Knowledge	Agree to consult indigenous-run national IPR focal points in any international negotiations that involved indigenous issues and traditional knowledge.
Consumers	Agree to purchase products that carry “certificate of origin,” a type of “eco-labeling,” that states where the traditional knowledge came from & what type of benefit-sharing arrangement was made with indigenous groups.
NGOs and Media	Agreement to cover and bring light to the Agreement in Media. NGO commitment to endorse and support the Agreement.

(Chart created by Malini Goel, Esq, Fletcher School, Tufts University)

While the creation of a multi-stakeholder agreement that addresses the protection of traditional knowledge will be difficult, it would help consolidate the multiple players in the process to commit to the protection of traditional knowledge and the responsible handling of issues that are involved in the process.

An NGI agreement could also serve as a forum for discussion to eliminate negotiation problem areas, some of which are described in the section on challenges.

As mentioned throughout this paper, there are ongoing efforts to address the protection of traditional knowledge. These efforts need to be strengthened at all levels. International and other UN bodies such as WIPO need to listen to indigenous groups more in their dealing and negotiations. Negotiating processes at all levels need to incorporate indigenous views into their deliberations.

At the corporate level, companies and shareholders need to be committed to responsible dealings with indigenous peoples. They should disclose their information through a “certificate of origin” process. They should deal primarily with the indigenous-run national focal point.

Communication between the indigenous national focal points and consumer groups could further a commitment from consumers to purchase products that have a “certificate of origin,” identifying the traditional knowledge and indigenous biodiversity.

XI.) Challenges to Achieving Progress

While there are numerous strategies currently in place that are designed to address the problems of biopiracy and the wrongful patenting of traditional biodiversity-related knowledge, these initiatives are presently insufficient. While the aforementioned existing strategies and proposed strategies are useful, they still allow many loopholes in the system, leaving significant challenges for indigenous people to adequately protect their traditional knowledge.

For example, the Convention on Biological Diversity is designed to help *governments* secure a share of profits from companies gathering material in their country to use in products or research. Indigenous groups in developing countries, whose biodiversity could harbor an unknown cure for cancer or AIDS, have long complained they receive little benefit from pharmaceutical firms, which are keen to protect the intellectual property rights to commercial drugs. Many national governments also keep profits from indigenous tribes in benefit-sharing arrangements with outside entities. Indigenous societies generally have little power

to challenge this, due to their status as internal groups, housed within a nation-state, who are subject to National laws.

With respect to the proposed Hague Guidelines, while they have set in motion the mechanism ‘for sharing benefits with countries of origin and with local indigenous communities,’ there is still room for abuse and uncompensated takings. Also, while filled with good intentions, the guidelines are not enforceable. This is where a multi-stakeholder agreement with signatories *might* make a difference, creating a semi-contractual framework and understanding.

At present, there is virtually no endeavor at the international level to explore *alternatives* to the IPR system as a means of protecting traditional knowledge. The “rush for green gold” from private companies,¹⁷⁴ along with the push by WIPO and Western countries to harmonize intellectual property laws, is accelerating the push towards a full-scale, ‘biased-against indigenous persons’ IPR system. Powerful international commercial organizations, such as the International Chamber of Commerce, are encouraging this system. The ICC has said that it is “*essential that any new system for protecting traditional knowledge be compatible with existing intellectual property rights, in particular patents*”.¹⁷⁵

Another challenge that indigenous peoples need to face is the use of bilateral agreements and political pressure between countries to adopt intellectual property rights for traditional knowledge. For example, in April 1997, the US State Department coerced the Thai government to change Thai draft legislation allowing

¹⁷⁴ Kalpavriksh and *Grain*, “Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection,” October 2002, end note 32, available at: <http://www.grain.org/publications/tk-asia-2002-en.cfm>.

¹⁷⁵ *Id.* endnote 33

Thai healers to register traditional medicines. The letter advised the Thai government, “*Washington believes that such a registration system could constitute a possible violation of “TRIPS” and hamper medical research into these compounds*”. The US letter incited public outrage and implied US government’s desire to protect the right of foreigners to patent Thai indigenous knowledge.¹⁷⁶

Another problem is that some indigenous communities do not want their knowledge to be put into the public domain at all, neither in publications or databases of any kind. They feel that secrecy is the best protection against misappropriation of their traditional knowledge. This poses a challenge since lack of documentation in an indigenous system means *nonexistence* in the Western patent system. If knowledge is not in the public domain, people can get false patents, as they have done before, on entities and knowledge that are thousands of years old and that have been passed on through oral tradition.

Regarding challenges to the *proposed* solutions, the proposals will naturally require immense amounts of funding and capacity building. When indigenous peoples have little power and can provide little in return to those who might assist, the likelihood of getting the needed assistance is minimal. Nonetheless, indigenous peoples will have to empower themselves and acquaint themselves with IPR systems so that they know their rights and create sui generis systems to protect traditional knowledge.

There will also naturally be difficulty in creating a workable, operational and effective multi-stakeholder agreement and commitment between so many entities. However, one must try. Partnerships have been created in other arenas, such as the

¹⁷⁶ Id. endnote 35

commitment (to reduce greenhouse gas emissions) between Greenpeace and the World Business Council on Sustainable Development at the World Summit on Sustainable Development in South Africa.

Complexities would also arise in the creation of a central indigenous bank where indigenous groups could document their traditional knowledge and sell their rights to this traditional knowledge if they wish. Indigenous people have been wronged time and again throughout the course of history and would likely be unwilling to give their rights away to *any* institutional body, even if it indigenous-run. Indigenous groups have faced corruption at the national, local and tribal level. Often times, corrupt tribal chairmen have created deals with the government and left indigenous persons and societal interests out of the bargain. It will therefore be difficult to gain the trust of indigenous groups to give away their rights, when they have had so much taken from them already. This system would be contrary to systems of sovereignty and self-determination of individual indigenous groups. It would also be difficult to ensure accountability, reliability, and accuracy within indigenous national focal point offices.

Lastly, it is also unclear as to what indigenous peoples have rights to or not under varying national laws. Some own land, others own their traditional knowledge. Others own nothing and lack the ability to initiate any kind of national office or any kind of multi-stakeholder agreement.

Even so, while these and other challenges remain, they must be addressed and indigenous peoples must move forward, in their fight to protect their traditional knowledge and heritage.

VII. Conclusion

It is clear that industry, with increased support from Government, is quickly establishing control over biological resources and traditional knowledge through bio-prospecting and the dominant use of the Western IPR system. Communities are increasingly losing control over their own resources and traditional knowledge to commercial exploitation by companies and other entities.

International instruments as well as regional, national and local efforts have to be strengthened and re-examined in order to turn the tides. Indigenous efforts have to become organized and centralized in order to effect change. There is an extreme amount of strategic work that needs to be done with the involvement of multiple stakeholders.

There needs to be significant patent law reform if change is to be real. The collective nature of innovation and traditional knowledge must be recognized¹⁷⁷ in national legislation and at international levels. A global commitment to sui generis systems and the infusion of indigenous positions into the system must be recognized. CBD components need to be made a reality.

Basic issues of self-determination, sovereignty and community definitions of their rights and traditional knowledge need to be recognized and infused into law and policy at the national level.¹⁷⁸

Traditional knowledge can be documented and harbored at indigenous-run national centers, but issues such as how to document the knowledge (out of fear of misuse against indigenous interests) needs to be resolved. The creation of

¹⁷⁷ Kalpavriksh and *Grain*, "Traditional knowledge of biodiversity in Asia-Pacific, Problems of Piracy & Protection," October 2002, at: <http://www.grain.org/publications/tk-asia-2002-en.cfm>

¹⁷⁸ Id.

indigenous-run national IPR focal point offices and a multi-stakeholder NGI agreement may serve to increase protection of traditional knowledge.

In addition to strengthening existing systems, reconciling indigenous and Western IPR systems, creating indigenous-run national IPR focal point offices, and creating a multi-stakeholder agreement of traditional knowledge, other innovative alternatives to present IPR systems must be explored. Only then might biopiracy be curbed and real protection of traditional knowledge achieved.

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