SEARCHING FOR A CURE: PROTECTING THE INTELLECTUAL PROPERTY RIGHTS OF INDIGENOUS PEOPLES

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The global movement to conserve the Earth's threatened environment has opened the door to a plethora of new industrial, economic, social, and technological opportunities. One of the more recent trends is termed biotechnology, whereby pharmaceutical companies prospect in biologically rich and diverse areas for flora and fauna that may be useful in the development of drugs to cure various diseases. Biotechnological activities occur primarily in less developed countries and in areas that have remained virtually undisturbed by population growth or modern technology. These areas are also home to indigenous societies who have maintained a degree of cultural autonomy. Unfortunately, the intellectual property rights of indigenous peoples are often violated when foreign pharmaceutical companies utilize their land for biotechnological purposes. The foci of this paper are the definition of biotechnology, an analysis of a select group of working models used by organizations in bioprospecting agreements, and the roles that various non-governmental organizations play in protecting intellectual property rights. The paper will illustrate that protecting indigenous peoples' intellectual property rights, like protecting the environment, is a global effort.

Among an ever expanding environmental vocabulary is the term "biotechnology," which refers to "the application of biological systems and organisms to scientific, industrial, agricultural, and environmental processes."[1] In this discussion, biotechnology refers to pharmaceutical use--the utilization of biological resources in drug development. The focus of this research concerns biotechnological activities in nonindustrialized, Third World countries and the issue of intellectual property rights. It is in these Third World areas that whole societies still live according to their traditional cultural standards. These are societies of indigenous people who have remained independent of modern development and who still live off of the land.

Pharmaceutical companies, in an endless search for cures to some of the world's most deadly diseases, including cancer and AIDS, have turned to a new laboratory of sorts: the environment. Years ago, scientists began studying plants and other biological resources for the pharmaceutical elements that they may possess. It has long been recognized that folk societies used plants and animals to cure a variety of ailments from mild headaches to digestive disorders. Indigenous groups are firm believers in the spiritual elements of nature. This coupled with their socio-economic limitations and their religious beliefs has enabled them to continue practicing what is termed ethnomedicine. Geographer Charles Anyinam defines ethnomedicine as "the totality of health, knowledge, values, beliefs, skills, and practices of members of a society including all the clinical and nonclinical activities that relate to their

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1 Patricia W. Birnie and Alan E. Boyle, *International Law and the Environment* (Oxford: Clarendon Press, 1992): 484,

health needs."[2] The knowledge that these indigenous groups possess concerning the use of biological elements for medicinal purposes, is what most interests pharmaceutical companies.

It has been realized that as the environment slips away, so too do the peoples and culture that live as part of it. It is estimated that "one-third of the Amazonian tribes known to exist in 1900 are now said to be extinct."[3] What concerns scientists and environmentalists alike is that the "knowledge of the use of plants is disappearing faster than the plants themselves."[4] Thus, one notion behind a joint effort between pharmaceutical companies and indigenous societies is that those companies will help to foster conservation efforts in indigenous territories. This argument will be further developed later. What must be noted at this point however, is that a conflict of interests most certainly exists between foreign companies and indigenous societies over the utilization of indigenous knowledge.

There are a number of pharmaceutical companies from all over the world taking part in biodiversity prospecting activities defined as "the exploration of biodiversity for commercially valuable genetic and biochemical resources."[5] Among these are top US companies such as Merck & Co., Inc., Glaxo Group Research, Bristol-Myers Squibb, Smith Kline Beecham, and UpJohn Co. (See Table 1). Eli Lilly, another world renowned, US-based company, is recognized for its discovery of anti-cancer agents in the Madagascar rosy periwinkle. Their research prompted the National Cancer Institute (NCI) to initiate its own plant study programs. One of the newest players in the field is Shaman Pharmaceuticals, who is committed to ensuring just compensation and protection of intellectual property rights for indigenous people.

(Table 1) International Companies Active in Plant and Other Natural Product Collection and Screening

Company	Cancer	Treatment AIDS	Sought Inflammation	For: Cardiovascular	Gastro-intestinal
Bristol-Myers Squibb	•				
Eli Lilly	•			•	
Glaxo Group Research	•		•	•	•
Merck and Company	•		•	•	•
National Cancer Institute	•				•
Shaman Pharmaceuticals					
SmithKline Beecham			•	•	•
UpJohn Company	•	•		•	

Source: *World Resources 1994-1995* (World Resources Institute, Washington, DC, 1994), p. 159

2 Charles Anyiman, "Ecology and Ethnomedicine: Exploring Links Between Current Environmental Crisis and Indigenous Medical Practices" *Social Science and Medicine*, 40 (3 1993): 321-329.

3 *Ibid.*, 323.

4 *Ibid.*, 323.

5 Walter Reid et al., "A New Lease on Life" In *Biodiversity Prospecting* (Washington, DC: World Resources Institute, 1993): 1.

Each of the aforementioned organizations and others in their field have developed their own methods for biodiversity prospecting. Each also maintains individual policies concerning compensation to indigenous societies for their knowledge. With the exception of Shaman Pharmaceuticals, most of the organizations do not work directly with indigenous groups. NCI uses the Missouri Botanical Gardens, the New York Botanical Gardens, and the University of Illinois at Chicago. Merck uses Costa Rica's National Biodiversity Institute (INBio). Third parties, like the botanical gardens and INBio, often are more knowledgeable about biological extracts and indigenous societies and serve as a storehouse of information. There are also interrelationships among some companies. Eli Lilly, for example, "committed $4 million to Shaman and collaborates in developing drugs for fungal infections."[6] Merck has also joined forces with Shaman to research medicines for diabetes.

While no one is disputing the noble goals of pharmaceutical companies to beat and find cures for the world's diseases, what is of concern to many groups is whether the indigenous people who are sharing their knowledge are being justly compensated. Because the field of biodiversity prospecting is so new, there are no laws and few models that exist related to compensation for indigenous knowledge. In order to be compensated for "private" knowledge, indigenous people must claim some kind of rights over that knowledge. This is the idea behind intellectual property rights (IPR). Though IPR may have many varying definitions, this paper will refer to it as defined by anthropologist Tom Greaves: "the rights claimed by indigenous people over their traditional cultural knowledge."[7]

There are four primary vehicles for intellectual property rights that have been used in Western law. These are copyrights, patents, trademarks, and trade secrets. Copyrights originated in eighteenth-century Europe to encourage the development of new ideas in the arts and sciences. Someone who invented a new product or came up with a new idea could copyright that idea. A copyright would protect the original inventor from anyone else claiming the rights to his/her product from the time of the copyright. The notion behind the copyright was that during the time it was in effect, other people would be working to come up with something even better. The copyright was designed to encourage progress.

Patents, like copyrights, are also for a limited time. A utility patent "conveys from the government to an inventor the right ... to exclude others from making, using, or selling the invention in that particular country."[8] Patents, however, must be purchased for a much higher price than copyrights and have stricter standards for approval. Restrictions stipulate that an invention must be useful, novel, and non-obvious, and there are also restrictions on subject matter. In fact, many countries, such as Brazil, Chile, Colombia, India, Mexico, South Africa, and Thailand (many hotspots for biodiversity prospecting), have "subject matter restrictions [that] preclude or restrict patents on inventions relevant to biodiversity prospecting, including ... pharmaceutical technologies."[9]

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6 Thomas A. Carr, Heather L. Pedersen, and Sunder Ramaswamy, "Rainforest Entrepreneurs: Cashing in on Conservation" *Environment* (September 1993): 12-38.

7 Tom Greaves, ed., *Intellectual Property Rights for Indigenous People; A Sourcebook* (Oklahoma City: Society for Applied Anthropology, 1994): ix.

8 Michael A. Gollin, "An Intellectual Property Rights Framework Biodiversity Prospecting" In *Biodiversity Prospecting* (Washington, DC: World Resources Institute, 1993): 165.

9 *Ibid.*, 168.

Trademarks are symbols used to identify the origin of a product. Trademark laws protect those owners from false copycats or impersonators of a similar product by stating that new trademarks cannot in any way look like already existing trademarks. Finally, trade secrets entitle the owner to "license, disclose, or assign the right to use the trade secret, subject to an agreement to hold the information in confidence."[10]

There are numerous problems that arise from trying to apply any of the vehicles for intellectual property rights to indigenous societies. The fundamental error is based on what was stated at the beginning of this discussion; IPR is rooted in Western law and does not necessarily apply to indigenous people living as separate entities in less-developed countries. First of all, many of their rights would have to be purchased according to these vehicles. Indigenous societies are being exploited already in many cases, and certainly do not have the financial support to purchase rights to their traditional knowledge.

Second, the tenets that copyrights and patents are based upon are not applicable to protecting traditional knowledge. Both copyrights and patents which are for new knowledge, not knowledge that already exists, are conferred upon whole societies, not individuals; and are supposed to confer only temporary rights."[11] Copyrights, as previously mentioned, are designed with the idea of progress in mind. This would be of little interest or applicability to indigenous societies trying to protect traditional knowledge.

Aside from the problems with the vehicles themselves, the idea of designating the rights of certain biological extracts or knowledge of their pharmaceutical uses to certain groups raises some controversy. There is speculation that this would create increased competition and "arbitrarily benefit certain groups and disenfranchise others."[12] The issue has also been raised that the cost of foods and drugs would go up as indigenous groups and those who support them pay for property rights.

There are numerous other obstacles to IPRs in the global environment. These include determining who to compensate out of a collective indigenous group, how much to provide, the value of the contribution made by indigenous groups versus the value of the pharmaceutical company's final product, and when to provide compensation. The issue of whom to compensate is raised because many indigenous societies have a recognized medicine man or traditional healer. This medicine man passes his knowledge onto an apprentice and so on down the line. Thus, knowledge about biomedicinal plants is not necessarily shared by a collective society and, therefore, makes it unclear as to who deserves compensation.

A final obstacle to IPR, though probably the most important is that many indigenous societies have "special or unclear legal status under national laws, making contracts more complicated and difficult to create and enforce."[13] The remainder of this paper will focus on the different approaches taken to protecting intellectual property rights and providing just compensation. Models for those different ap-

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10 *Ibid.*, 164.

11 Tom Greaves, ed., *Intellectual Property Rights for Indigenous People; A Sourcebook* (Oklahoma City: Society for Applied Anthropology, 1994): 8.

12 Stephen B. Brush, "Indigenous Knqwledge of Biological Resources and Intellectual Property Rights: The Role of Anthropology" *American Anthropologist* 95 (3 1993): 653-686.

13 Janet McGowen and Iroka Udeinya, "Collecting Traditional Medicines in Nigeria: A Proposal for IPR Compensation" In *Intellectual Property Rights for Indigenous Peoples; A Sourcebook*, Tom Greaves, ed., (Oklahoma City: Society for Applied Anthropology, 1994): 64.

proaches are Shaman Pharmaceuticals, the National Cancer Institute, and the Kuna Indians in Panama.

Shaman Pharmaceuticals, named for the traditional "medicine man," was organized on the foundation of channeling "benefits from drugs derived from ethnobotanical leads back to the Indian communities from which they came."[14] Shaman, like many of the other companies, sees the economic benefits of tapping already existing sources--the Indian Shamans--but in no way tries to exploit them. As part of their attempts to assure the fairest methods of compensation possible, Shaman created a nonprofit conservation organization called the Healing Forest Conservancy. A board of advisors organized by the conservancy works together to develop policies for the "appropriate distribution of the resources to the communities and government organizations."[15] Shaman's model for reciprocity has two primary tenants:

> 1) to return benefits from any product to all of the groups and countries with whom they have worked in any geographic region -- not just a single group or country; and,
> 2) to return benefits immediately to any group with which they work, for development times may be extensive for pharmaceutical products.[16]

Always keeping the best interests of the indigenous groups in mind, Shaman allows them to determine what needs and "reciprocal benefits" they most require. Examples of some of the requests have included "quarterly or semi-annual visits of a culturally sensitive physician and dentist," a large cow to provide food for the community, and an expanded airstrip.[17] One Amazonian community asked that Shaman provide a stipend pay to the Shaman's apprentice so that he would no longer have to leave the village on occasion to earn extra money to care for his family. Shaman has fulfilled all of these requests and continues to serve the community.

The pharmaceutical company published a book that they distributed to all of the families in the communities that detailed the uses of the plant species indigenous to their area. Shaman also provides a "modest supply of ... over-the-counter medications to treat minor ailments."[18] Shaman also works with in-country collaborators to assure that all reciprocal benefits are continually provided.

Of course, Shaman also requests from the communities that they will "initiate and conduct the proper reforestation and management activities reflecting the current state of knowledge about [the] species being utilized."[19] The company continually provides the most up-to-date information and technical data to ensure that the best conservation management methods are used.

The second model for reciprocity is the National Cancer Institute. As previously mentioned, NCI does not collect their own specimens, instead they use those of the Missouri and New York Botanical Garden and the University of Illinois at Chicago. The policies followed by the institution regarding IPR and compensation are detailed in the NCI Letter of Collection (LOC). There are three major provisions made by the LOC:

> 1) to provide the results of any testing done on plant species for anticancer or anti-AIDS components to the

14 Christopher Joyce, "Prospectors for Tropical Medicine" *New Scientist* (October 19, 1991): 36-40.
15 Steven R. King, "Establishing Reciprocity. Biodiversity, Conservation, and New Models for Cooperation Between Forest-Dwelling Peoples and the Pharmaceutical Industry" In *Intellectual Property Rights for Indigenous Peoples; A Sourcebook*, Tom Greaves, ed., (Oklahoma City: Society for Applied Anthropology, 1994): 72.
16 *Ibid.*, 74.
17 *Ibid.*, 75.
18 *Ibid.*
19 *Ibid.*

relevant source country organizations and/or peoples;
2) to invite suitably qualified scientists, nominated by the source country organization or its peoples to visit the NCI to collaborate in the discovery and development of novel drugs from their organisms; and,
3) to make the best effort to ensure that royalties and other forms of compensation are provided to the source country organization and to individuals of that country.[20]

The eventual "terms of compensation" provided to the indigenous group are based not on the plant itself, but on the biological extract taken from that plant and the natural drug derived from it. Thus, if labs in the United States alter the element greatly from its original structure, little compensation may be provided. In terms of intellectual property rights, NCI always seeks the permission of the traditional healer before any information is published regarding their knowledge. When and if published "acknowledgment will be made of their [the shaman's] contribution."[21] However,

... by U.S. law, the NCI cannot be obligated to a given level of royalties in the LOC or any other agreement based thereon, because, as a U.S. government agency, it is not authorized to promise or encumber future intellectual property (patent) rights to any invention of the NCI except under the terms of a cooperative research development agreement.[22]

This is yet another roadblock to just IPR and compensation. A final note about the NCI: the institute does provide any extracted resources that they were unable to use to other health organizations who must agree to use them according to LOC standards.

The final model is quite unique unto itself, for it is one of the few, if not the only example of an indigenous society setting their own terms for biodiversity prospecting. In 1988 the Kuna Indians of Panama published a set of rules entitled "Research Program: Scientific Monitoring and Cooperation". The program was designed to ensure that Kuna intellectual property is protected. According to the program rules, any non-indigenous scientists must be accompanied in the field by an indigenous assistant who knows more about how the resources may be used for technological purposes. Any and all reports made by non-indigenous scientists on the resources must be presented to the Kuna, in Spanish. The program specifically states that "any information about plant breeds and associated farming techniques learned by outside scientists from the Kuna are properly intellectual property of the Kuna and the Kuna should be justly compensated for the use and development of this information".[23] Photographic materials, extracted specimens, and training and employment for Kuna researchers are also required.

Stephen Brush (1993), an expert on the subject of IPR for indigenous peoples, categorized the various approaches to just compensation as "top-down" (Shaman Pharmaceuticals), "middle-ground" (the NCI), and "bottom-up" (the Kuna Indians). What is needed is more bottom-up approaches to IPR. The problem is that indigenous groups often lack the knowledge necessary to protect themselves. This is why the

20 Gordon M. Cragg, Michael R. Boyd, Michael R. Grever, and Saul A. Shepartz, "Policies for International Collaboration and Compensation in Drug Discovery and Development at the United States National Cancer Institute, The NCI Letter of Collection" In *Intellectual Property Rights for Indigenous Peoples; A Sourcebook*, Tom Greaves, ed., (Oklahoma City: Society for Applied Anthropology, 1994): 89.

21 *Ibid.*, 89.

22 *Ibid.*, 93.

23 David J. Stephenson, Jr., "A Legal Paradigm for Protecting Traditional Knowledge" In *Intellectual Property Rights for Indigenous Peoples; A Sourcebook* Tom Greaves, ed., (Oklahoma City: Society for Applied Anthropology, 1994): 184.

role of non-governmental organizations (NGOs) is so important to protecting indigenous intellectual property rights.

There are many different kinds of NGOs; those designed specifically to serve the needs of indigenous people are "adept at gaining access to sources of information on such topics as international agreements, property rights law, and the activities of transnational corporations."[24] Access is what is most important to indigenous groups. Access to financial resources, technical and research assistance, and networking allow indigenous people to take a stronger position in protecting their own rights. Cultural Survival, Genetic Resources Action International (GRAIN), Native Seeds/SEARCH, and Rainforest Alliance are all examples of NGOs who work diligently to protect the rights of indigenous communities.

The United Nations is, of course, a significant player in indigenous IPR. Under the UN umbrella are the World Intellectual Property Organization (WIPO), the UN Working Group on Indigenous Populations, and the UN Conference on Environment and Development (UNCED). The WIPO is the UN agency that protects patents. This organization, however, does not recognize the standing of indigenous peoples. In a letter to the UN Human Rights Centre, the Director General of the WIPO wrote that "intellectual property is distinguished by the type of intellectual creation and not by the groups responsible for its creation."[25]

Contrary to the near anti-indigenous sentiment of the WIPO is the UN Working Group. The Working Group, comprised of a five-member expert panel, serves as a forum for indigenous people to "present information about specific instances where the actions of national governments and transnational corporations have come into conflict with [their] rights and interests."[26] Organized to review the human rights of indigenous people and to develop standards to protect their rights, the Working Group has written a Draft Declaration of the Rights of Indigenous People. Article 29 of the Declaration states that indigenous people have "the right to the restitution of cultural, intellectual, religious, and spiritual property taken without their free and informed consent or in violation of their laws, traditions, and customs."[27] Article 12 outlines indigenous peoples' right to dual ownership, control, and protection of resources used for biotechnology. When accepted, this Declaration will represent a giant step for indigenous IPR.

The UNCED met in Rio de Janeiro, Brazil in 1992 to develop new policies and a greener future for the environment. Chapter twenty-six of the report that resulted from this meeting deals with strengthening the role of indigenous groups. However, gaps still remain, as every right guaranteed to native peoples is qualified by the term "subject to" the policies of the countries in which they reside.

There are still giant steps to be taken in protecting indigenous peoples intellectual property rights and providing just compensation. Traditional western forms of

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24 Jack Kloppenburg, Jr., and Tirso Gonzales, "Between State and Capital: NGOs as Allies of Indigenous Peoples" In *Intellectual Property Rights for Indigenous Peoples; A Sourcebook* Tom Greaves, ed., (Oklahoma City: Society for Applied Anthropology, 1994): 169.

25 Audrey R. Chapman, "Human Rights Implications of Indigenous Peoples Intellectual Property Rights for Indigenous Peoples: A Sourcebook,

26 Dean B. Suagee, "Human Rights and Cultural Heritage, Developments in the United Nations Working Group on Indigenous Populations" In *Intellectual Property Rights for Indigenous Peoples; A Sourcebook*, Tom Greaves, ed., (Oklahoma City: Society for Applied Anthropology, 1994): 197.

27 *Ibid.*, 199.

protecting IPR are not necessarily suitable for protecting the rights of indigenous people. Newer forms of IPR protection are needed, but more importantly, indigenous people need to be made aware of the rights that they have and the options available to them. Model organizations such as Shaman Pharmaceuticals and the National Cancer Institute have developed their own methods of compensation for knowledge, but the Kuna Indians of Panama have developed a model that is more in line with the direction that societies need to go. A variety of non-governmental organizations, including the United Nations, are working to educate and support indigenous societies in their fight for just compensation for intellectual property. Unfortunately, there are still many cases in which the intellectual property rights of indigenous people are violated by foreign pharmaceutical companies utilizing indigenous lands for biodiversity prospecting. Fortunately, though, the future does look much greener for indigenous societies.