

**(RE)DISCOVERING THE WEALTH OF
BIODIVERSITY, GENETIC RESOURCES, AND
THE NATIVE PEOPLES OF LATIN AMERICA**

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Introduction

Since colonization began, Latin America has provided cheap labor and natural resources for economically dominant countries outside the region. Indeed, the existent class and political systems of Latin America are built upon the colonialism that exploited these resources. Free access and uncontrolled exploitation of flora, fauna, mineral and water resources have remained critical to the perceived economic interests of Latin American countries.

During the last decades, however, a biodiversity conservation movement has swept Latin America--and the rest of the world. Increasingly, countries like Brazil, Costa Rica, Colombia, and Mexico have become aware of the economic interests Northern countries have in their biodiversity. Some countries, like Bolivia, Ecuador, and Peru had already benefited from debt-for-nature swaps, but the "green funds" that were being transferred from non-governmental organizations (NGOs) in the First World to NGOs within their Latin American borders defied governmental controls and led to suspicions that environmentalism was only a cover for foreign takeover of national lands and resources. Thus, biodiversity and environmental interests generally have been viewed with suspicion, or even as threats to national sovereignty.

Meanwhile, corporate interest in new products and genetic materials found in the *components* of biological diversity has led to a proliferation of “biodiversity prospecting”, which may be defined as the search for commercially valuable genetic and biochemical resources, with particular reference to the pharmaceutical, biotechnological and agricultural industries (Reid *et al*, 1993; Joyce, 1994; Chadwick & Marsh, 1994; Posey, 1995; Posey & Dutfield 1996). Table 1 gives a summary of past and present contributions of biodiversity-rich countries to humanity. It gives an indication of the tremendous value extracted over the years from tropical natural resources and indigenous knowledge, and suggests the possibility that many more valuable resources may also exist. Indeed, frequently cited figures indicating enormous market potential, such as US\$ 43 billion per year for sales of natural-product based pharmaceuticals (Principe, 1989), US\$ 50 billion per year for seeds derived from traditional crop varieties (RAFI, 1994: 19), and similar figures for other natural compounds, led Latin American countries to reconsider their attitudes toward the value of their flora, fauna, and natural resources. It seemed that the traditional governmental policies that provoked the unbridled environmental devastation of tropical ecosystems might, after all, be contrary to national interests for long term economic growth built upon biotechnology.

TABLE 1: Examples of the past and present contribution of biodiversity-rich countries to humanity

Pharmacy	Industry	Agriculture and food
<p>Anti-cancer drugs: <i>the vinca alkaloids</i></p> <p>Tranquilizers and heart drugs: <i>reserpine</i></p> <p>Birth control: <i>Dioscorea (source of many steroidal drugs)</i></p> <p>Anaesthetic and surgical aids: <i>cocaine, teterodoxin, d-tubocurarine, picrotoxin, madecassol, gum</i></p>	<p>“Wild” relatives of plantation and other species for “improvement”/ protection</p> <p>Exudates: <i>latexes, waxes, resins, tannins, dyes, insecticides (neem, pyrethrins, rotenone)</i></p> <p>Fibres and canes: <i>rattan, bamboos, jute, sisal, kapok</i></p> <p>Edible and industrial oils:</p>	<p>“Wild” relatives of crops for “improvement”/ protection</p> <p>Beverages, sugar, natural sweeteners: <i>coffee, tea, cocoa, sugar cane, thaumatin</i></p> <p>Beans</p> <p>Roots and tubers: <i>cassava, yam, sweet potato</i></p> <p>Fruits and Vegetables: <i>tomato,</i></p>

<i>gutta percha</i>	<i>palm oils, castor oil</i>	<i>avocado, sweet pepper, aubergine, cucumber, breadfruit, okra</i>
Ophthalmology and neurology: <i>physostigmine, pilocarpine, atropine, hyoscine</i>	Essential oils: <i>sandalwood, ylang ylang, sassafras, camphor, anise, nutmeg, vanilla, cinnamon, clove, patchouli, cassia</i>	Spices: <i>cloves, nutmeg, black pepper, allspice, cardamom, vanilla, cinnamon</i>
Respiratory disorders: <i>emetine, tolu balsam, benzoin tincture, l-dopa, sarsapogenine, catechin, camphor</i>	Energy plants/biomass conversion: <i>biomethanation, fermentation to produce ethanol, pyrolysis</i>	Nuts: <i>brazil, peanut, cashew, kola, sesame, macadamia</i>
		Animals: <i>chickens, wild pigs, water buffalo</i>

Dutfield, 1993 (Based on information in Friends of the Earth, 1992).

Furthermore, industry was not only interested in genetic resources, but also in traditional knowledge held by local communities on the utilization of flora and fauna (Gray, 1991; RAFI, 1994; Chadwick & Marsh, 1994; Posey & Dutfield, 1996; Balick *et al*, 1996).

It is well documented that throughout the history of Latin America, indigenous and traditional peoples (*campesinos, caboclos, peons, colonos, caicaras*, etc) have been treated--at best--with disdain by the ruling elite (Wolf & Hansen, 1972; Wolf, 1982). It was not until the 17th Century that "Indios" were even considered to be humans with souls; and most Western scientists still believe traditional knowledge is mere

folklore and, therefore, not scientific. In short, these “backward and primitive” peoples are seen as barriers to development, learning and civilization. Armed with those assumptions, governments--and even scientists and environmentalists--have found it easy to justify the dispossession of Indians and peasants from their land and resources in the name of development, conservation, and progress.¹

It is not surprising, therefore, that Latin American countries find it difficult to respond to the political and economic problems raised by the global biodiversity debate. In short, how can 500 years of policy to systematically “tame” and “civilize” (euphemisms for “destroy”) the environment and indigenous and traditional communities be reversed in time to protect flora, fauna and the peoples who know the “secrets” to these new sources of national wealth? In other words: how can environment and biodiversity--until recently considered subversive concepts--be embraced without undermining the power of the old land-based oligarchies and extractive industries whose survival depends on cheap natural and human resources?

As Latin American countries struggle with these questions, biodiversity prospectors invade the most remote corners of jungles, mountains, and coastal reefs--gleaning from them what they consider to be the *public domain* everything they can before national legislation can regulate access and transfer of genetic resources and traditional knowledge. By the time most Latin

¹ A publication of the World Rainforest Movement (Colchester & Watson, 1995) documents how the indigenous situation has rapidly deteriorated in Venezuela. Similarly, announcements in Brazil indicate that the Congress is about to “re-study” the existing indigenous reserves: an euphemism for reducing indigenous lands and territories to even smaller portions of the country than now exist.

American countries do get around to legislating on genetic resources and traditional knowledge, the more aspirant and persistent bioprospectors may feel they will have all they need for the development of new products for a long time to come. “What’s a *poor* country (as most Latin American countries claim they are), that suddenly realizes it is *rich* in biological and cultural diversity to do?” This question is central to the entire philosophy and political processes behind the Convention on Biological Diversity.

The convention on biological diversity and Intellectual property rights (IPRs)

The Convention on Biological Diversity (CBD) was opened for signature during the United Nations Conference on Conservation and Development (UNCED) in Rio de Janeiro in 1992. While the CBD has been welcomed by many indigenous peoples, they are nonetheless concerned that in practice it may turn out to represent a sovereignty grab by nation states over all biological and ecological resources *including their own*. This is despite the lofty Objectives proclaimed in Article 1:

[...] the conservation of biological diversity, the sustainable use of its components and the 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 technologies, and by appropriate funding.

While states have sovereign rights over resources, there is no mention of any rights that indigenous peoples might have. Similarly the beneficiaries of equitable sharing are apparently the contracting parties (i.e. the governments that ratify the CBD), not individuals or communities.

It is important to note, however, that “relevant technologies” can be interpreted to mean “indigenous and traditional technologies” (in reference to the language of Article 18.4 in the “Access to and Transfer of Technology” Section), or those based upon traditional “knowledge, innovations and practices”. Indeed, Article 8.j contains some interesting language. It states that each contracting party “*subject to national legislation*” shall:

[...] 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 the 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.

Unfortunately, these “commitments” are vague and do not seem to legally require governments to do anything. So while indigenous peoples might be flattered with the recognition of their relevance to *in situ* conservation, they are hardly convinced that the governments that have tried so hard to destroy them and their habitats are now suddenly going to zealously defend their rights. They are also not convinced that—given their disastrous experiences in the past--any “equitable sharing” will ever trickle down to the source of both the knowledge and resource, i.e., their communities. Indigenous leaders are both frustrated and angry that while Amazonian countries do little to protect their interests or guarantee even their most basic rights, they are nonetheless now anxious to claim sovereignty over even local knowledge systems.

And how would this protection of indigenous knowledge take place anyway? Intellectual property

rights (IPRs) are implicitly assumed by the CBD to be the principal mechanisms to provide “equitable sharing”. But IPRs are problematic for indigenous peoples for the following reasons:

(i) they are founded upon a conception of individual authorship that does not suit community innovation. Indigenous knowledge may, for example, be attributed to ancestor spirits, vision quests, or lineage groups, but rarely to individuals. A group of lawyers, academics and activists summed up the situation in a document known as the Bellagio Declaration:²

Contemporary intellectual property law is constructed around the notion of the author as an individual, solitary and original creator, and it is for this figure that its protections are reserved. Those who do not fit this model--custodians of tribal culture and medical knowledge, collectives practising traditional artistic and musical forms, or peasant cultivators of valuable seed varieties, for example--are denied intellectual property protection.

(ii) they are intended to benefit society through the granting of exclusive rights to individuals and juridical persons (i.e. corporate entities). Indigenous peoples and local communities do not usually have a legal personality and cannot easily claim legal rights as a group.

(iii) they cannot easily protect information not resulting from a specific historic act of “discovery”. Most indigenous knowledge is transgenerational, communally shared, and is usually considered to be in the public domain, and therefore unprotectable.

² In: Boyle, J. 1996 *Shamans, Software and Spleens: Law and the Construction of the Information Society*, Cambridge: Harvard University Press. Pp. 192-200.

(iv) they are likely to conflict with customary systems of ownership, tenure, and access.

(v) they help owners to capture the *market* value of knowledge, but fail to reflect spiritual, aesthetic, or cultural -- or even local economic -- values (see Posey, 1999). Information or objects may have their greatest value to indigenous peoples because of their ties with cultural identity and symbolic unity, not because money can be made from selling them. In fact, indigenous peoples may be concerned primarily to *prevent* commercialisation and to restrict use and distribution. As a 1994 COICA (Coordinating Group of the Indigenous Peoples of the Amazon Basin) statement puts it:

For members of indigenous peoples, knowledge and determination of the use of resources are collective and inter-generational. No indigenous population, whether of individuals or communities, nor the government, can sell or transfer ownership of resources which are the property of the people and which each generation has an obligation to safeguard for the next.

(vi) they are subject to manipulation by economic interests that wield the most political power. So while *sui generis* protection has been obtained for, say, semiconductor chips, indigenous peoples lack the legal means for protecting even their most sacred plants, places, songs, art, or artefacts.

(vii) most IPRs (especially patents) are expensive, complicated, and time-consuming to obtain, and even more difficult to defend.

There are good reasons why indigenous peoples are worried that intellectual property rights not only fail to protect their knowledge and resources but actually *encourage* theft and other violations of their basic rights. Take for example, the three patent applications

that were made for human cell lines developed from blood “donated” by indigenous peoples, including one from a member of a recently-contacted group of hunter-cultivators in New Guinea, another from the Solomon Islands, and a third from the Guaymi Indians of Panama (Posey & Dutfield, 1996: 25-27). The patent applicant in each case is the US National Institutes of Health, with the government scientists involved in the project named as *inventors*.

Another recent case of alleged biopiracy has led to something of a diplomatic scandal between Guyana and Great Britain. A British chemist, Conrad Gorinsky, is being sued in a British court over his patenting, without permission of either the country nor the Wapishana Indians who provided him information, a nut called *tipir* that stops hemorrhages, prevents infections, and is used as a contraceptive.

In fact, this is the second such patent held by Gorinsky. The other is on the Greenheart tree (*Ocotea rodiaei*), which produces tipir. According to his description, the active ingredient of the plant is an efficient antipyretic, capable of treating malaria, tumours and even the AIDS virus. Gorinsky names the substance *rupununine*, a reference to the region's main river. The other active ingredient registered by the chemist, *polyacetylene*, was obtained from the Cunani bush (*Clibadium sylvestre*). It is prescribed as a powerful stimulant of the central nervous system, as a neuromuscular agent capable of reverting cases of heart blockage.

Since these plants are also found in Brazil and used by indigenous peoples there, the Wapishana chiefs have appealed to Senadora Marina da Silva to prevent the recognition of Gorinsky's patents in Brazil. An ISTOÉ (Villamea & Pinto 2000) article reports that “At least one institution has already responded to this appeal: the Brazilian Bar Association (OAB), which was

represented by an environmental law specialist, who affirms that ‘This is a model case, because Gorinsky has stated in the text of both patents that the Wapishanas used those plants’”.

Gorinsky, according the ISTOÉ article, insisted that *rupununines* and *polyacetylenes* are his discoveries. "I have dedicated my life to this work. I have registered specific components that had not been decoded. I have made all the intellectual effort, and spent thousands of dollars from my own pocket. Would the Indians ever invest in this?" reacted the scientist, highlighting that the substances have not yet been marketed. "But no one can take a patent away from the inventor. We can't talk about how to share the pie if there's no pie," added Gorinsky (*ibid.*).

This is an interesting case for several reasons, not the least of which being that the legal proceedings were begun by the indigenous leaders from two different Latin American countries. Indigenous peoples in Latin America became acutely aware of how their plants were being patented when *ayahuasca*, a sacred, dream-inducing medicinal drink commonly used by Amazonian Peoples of Ecuador, Colombia, Peru and Brazil, was patented by a US scientist/entrepreneur. At the request of indigenous peoples from Ecuador and Colombia—and supported by incredible world-wide pressure--the United States Patents Office revoked the ayahuasca patent in November 1999.

A recent “international indigenous assembly” was convened in Roraima to discuss the case. A declaration of “repudiation” was proclaimed as a result.

In another strange case, a US-based company, POD-NERS, L.L.C, is suing Mexican bean exporters, charging that the Mexican beans (*Phaseolus vulgaris*) they are selling in the US infringe POD-NERS' US patent on a

yellow-colored bean variety. It's not surprising that the Mexican beans are strikingly similar to POD-NER's patented bean. That's because POD-NER's proprietary bean, "Enola" originates from the highly popular "Azufrado" or "Mayocoba" bean seeds the company's president acquired from Mexican peasant farmers in 1994. The Mexican yellow beans have been grown in Mexico for centuries, developed by generations of Mexican farmers and more recently by Mexican plant breeders.

These examples illustrate why indigenous communities are less than enthusiastic about and trustful of scientists. They also explain why patents (the focus of IPR debates) have become a new *war-cry* for indigenous rights.

In a now famous declaration from a UNDP (the United Nations Development Programme) *Consultation on the Protection and Conservation of Indigenous Knowledge* organized by indigenous groups from Bolivia and COICA at Santa Cruz de la Sierra in September, 1994, indigenous leaders declared a moratorium on all research and bioprospecting until appropriate protection measures are in place.³ The threat of a moratorium is unnerving, since scientists and research institutions are increasingly dependent upon the private sector for their livelihoods. This means the fruits of their labors are subject to commercial exploitation, or indeed, are now designed for that purpose (Posey, 1995). It is often hard for scientists themselves to know when they must wear the hat of their patrons *versus* the mantle of their scientific discipline. From the indigenous perspective, they (we) are all the same. This means that negotiating access by scientists to

³ The Statement is printed as Appendix 10, pp 219-222, in Posey & Dutfield, 1996.

indigenous and local communities--whether for bioprospecting or scientific purposes--may take considerable time and energy and has become a profoundly political act (Posey, Dutfield & Plenderleith, 1995).⁴

As eminent scientists, such as Drs. Brent and Elois Ann Berlin have found after years of work in Chiapas, Mexico, a paranoia has struck indigenous groups worldwide. This makes negotiating such things as “prior informed consent” and “benefit-sharing” one of the most challenging aspects of research with local peoples. It is difficult to carry out research—however beneficial it may be to the local communities and the nations—in climates of mistrust, mis- (or dis-) information, and lack of national laws.

The private sector and scientific interests are eager that the CBD resolve these dilemmas to become an international vehicle for clarifying the terms of access and transfer of genetic resources and appropriate technologies. Indeed, the CBD has advanced considerably towards the development of guidelines and principles for *sui generis* options to existing IPRs. The Third Conference of the Parties (COP III) of the CBD, held in Buenos Aires in 1996, discussed Article 8.j and Intellectual Property Rights and agreed to “develop national legislation and corresponding strategies for the implementation of Article 8.j in consultation with representatives of their indigenous and local communities” (Decision III/14). An inter-sessional *Workshop on Traditional Knowledge and Biodiversity*

⁴ Significantly, some indigenous groups already have their own policies and regulations addressing the need to control access to their territories, to monitor the activities of plant collectors and researchers, and to become beneficiaries of plant collections and research. Examples in Latin America are the Kuna of Panama and the Awa of Ecuador (see Posey & Dutfield, 1996).

was held in Madrid in November, 1997, and proposed to COP-IV that a “participatory mechanism” be established to review legal elements related to benefit-sharing and traditional cultural practices for conservation and sustainable use. COP-IV (Decision IV/8) agreed to establish a “regionally balanced panel of experts” to develop a “common understanding of basic concepts and to explore all options for access and benefit sharing on mutually agreed terms including principles, guidelines, and codes of best practices for access and benefit sharing arrangements”. Decision IV/9 on *Implementation of Article 8(j) and Related Provisions* specifically recognized the “importance of making intellectual property-related provisions of the Convention on Biological Diversity and provisions of international agreements relating to intellectual property mutually supportive, and the desirability of undertaking further cooperation and consultation with the World Intellectual Property Organization”. The decision also agreed to establish an “*ad hoc* open-ended inter-sessional working group” to address IPR and issues related to Article 8.j (Dutfield, 2000).

Whatever the CBD recommends, however, it is important to remember that states themselves are responsible for adequate national legislation to govern access to and transfer and use of their genetic resources and traditional technologies within their sovereign boundaries. The following section looks at some efforts by Latin American countries.

National and regional initiatives

A number of initiatives are underway in Latin American countries to find adequate protection of genetic resources and knowledge. The overall goal is to find legal ways of sustainably exploiting biodiversity in a

commercial, yet equitable manner. Most of what is happening has been guided by:

1. Costa Rica

Costa Rica has led the way in Latin America (and beyond) on issues of access and transfer legislation, equitable benefit-sharing, and protection of genetic resources. Perhaps the best known example of “equitable arrangements” is the Merck-INBio agreement from the early 1980’s. The National Biodiversity (INBio), an NGO closely linked with the government, was established to carry out a species inventory of the country and to explore the commercial potential of biological resources with corporations through Material Transfer Agreements (MTAs). According to Costa Rican law, the biological diversity of the country on public and private lands is national patrimony and the State has the exclusive right to grant permits to organizations such as INBio to investigate, collect and exploit the country’s biological resources within its Conservation Areas.⁵

The agreement between Merck and INBio provides the latter with an advanced payment of \$1 million and royalties in case a product is derived from any of the extracts, which INBio will transfer to Merck. 50% of the royalties are to be forwarded to the government’s National Parks Fund.

There were several problems with this initial approach:

i) The government claims sovereignty over the country’s biodiversity and did not recognize the territorial and

⁵ For greater detail, see Posey & Dutfield, 1996.

resources rights of indigenous peoples and local communities.

ii) INBio secured prospecting rights to lands, which according to national laws are under State ownership, permitting very little in the way of local control. In fact, the Director of INBio was unaware that there were indigenous peoples in the country--although the agreement was for collecting on national lands, including those of eight indigenous peoples.

iii) Although the agreement with Merck provided benefits for the government and for INBio, few benefits went to local communities except for the training of a small number of "para-taxonomists". Furthermore, INBio will not contribute at all to revitalising local knowledge traditions because it professes to have no interest at all in such knowledge.

iv) Although the advance payment by Merck seemed substantial at the time, it was hardly generous; neither was the agreed royalty percentage of between 3-4%.

v) There is no provision in the agreement for co-ownership of patents (Joyce, 1994: 126-127). Therefore, Merck retained exclusive intellectual property rights.

Since this historic agreement, INBio has made numerous other agreements with Merck and other pharmaceutical and natural product companies that have confronted some of these basic problems (Mateo, 1998). The Merck-INBio experience was instrumental in development of Costa Rica's new (April, 1998) *Ley de Biodiversidad*, which has become one of the "most ambitious and elaborate national laws" for Latin America (Dutfield, 2000).

The *Ley de Biodiversidad* seeks to implement the provisions of the CBD and to develop "a *sui generis*

system to protect the intellectual rights of indigenous peoples and local communities” (ibid). There are 13 overall objectives of the *Ley*, summarised below, and have been influential in guiding legislative activities in Latin American countries (as well as others around the world) attempting to control the loss of genetic and knowledge resources.

Principles and objectives of the *Ley de Biodiversidad*
(Costa Rica, 1998)

General principles

1. *Respect for all forms of life* – all living things have the right to life independent of their actual or potential value.
2. *The elements of biodiversity are meritorious* – they have decisive and strategic importance for the country's development and are essential for the domestic, social, cultural and aesthetic use of its inhabitants.
3. *Respect for cultural diversity* – the diversity of cultural practices and associated knowledge of biodiversity elements must be respected and promoted, in conformity with national and international juridical standards, particularly in the case of peasant communities, indigenous peoples and other cultural groups.
4. *Intra- and inter-generational equity* – the State and private individuals will ensure that biodiversity elements are utilised sustainably in such a way that the possibilities and opportunities from their use and the benefits are guaranteed in a just manner for all sectors of society and to satisfy the needs of future generations.

Objectives (selected)

1. To integrate conservation and sustainable use of biodiversity element into the development of socio-cultural, economic and environmental policies.
2. To promote active participation of all social sectors in conservation and ecologically sustainable use of biodiversity, in pursuit of social, economic and cultural sustainability.
3. To regulate access and facilitate equitable distribution of social, environmental and economic benefits for all sectors of society, with special attention to local communities and indigenous peoples.
4. To recognise and compensate the knowledge, innovations and practices of indigenous peoples and local communities for conservation and ecologically sustainable use of biodiversity elements.
5. To recognise rights arising from the contribution of scientific knowledge for conservation and ecologically

sustainable use of biodiversity elements.

6. To promote access to biodiversity elements of biodiversity and technology transfer.
7. To foster international and regional cooperation to achieve conservation, ecologically sustainable use and distribution of benefits derived from biodiversity, especially in frontier areas or shared resources.

From: G. Dutfield, 2000:111

2. The Andean Community

Some Latin American countries, for example the Andean Community countries, have responded with draft legislation intended to establish equitable terms for granting access to genetic resources and sharing benefits with indigenous peoples. The Andean Community *Common System on Access to Genetic Resources* was adopted by member states (Bolivia, Colombia, Ecuador, Peru and Venezuela) in 1996.

The basic terms of the Common System include:

- i) sharing of benefits between receivers of biological resources, member's states and providers, which may be legal entities, private individuals, or indigenous or local communities;
- ii) restrictions on transfer to third parties;
- iii) reporting on obligations on future uses;
- iv) obligations related to intellectual property;
- v) exclusivity and confidentiality;
- vi) recognition of the Member States or provider in the publication of research results.

Member States recognize the rights of indigenous and local communities over their knowledge, innovations and practices, and would concede to local communities the “authority to decide whether and how to share such knowledge, innovations and practices”.

Andean Community countries ascribe biodiversity to the national patrimony. However, it is unclear if States (governments) have the exclusive rights to determine access and set terms for transfer and benefit-sharing. It is equally unclear what authority local, state and regional governments have *vis a vis* national or federal governments. In the absence of clear laws on genetic resources, most countries find they are incapable of limiting access or even monitoring activities within their borders.

One very significant aspect of the Andean *Common System on Access to Genetic Resources* is that protection is extended to derivatives, which are defined as “a molecule or combination of mixture of natural molecules, including raw extracts of living or dead organisms of biological origin, derived from the metabolism of living organisms” (Dutfield, 2000). Although this does not cover synthetic products developed from artificial processes using genetic information or molecules, it does claim ownership over compounds that are isolated from nature, even if the laboratory work is done outside the Andean countries.

The *Common System* also recognizes “intangible components”, such as “knowledge, innovations, and practices” (individual or collective) that are of actual or potential value. These components--and their derivatives--are also protected and regulated by national laws, which require legally recognized licenses and contracts registered with the “Competent National Authority”. Any and all products, patents or claims that

do not have such a license are not protectable nor recognized by Andean countries.

In addition to the *Common System*, some Andean countries are attempting to protect indigenous knowledge through *existing* legal measures. For example, an experimental project based in Ecuador and supported by the InterAmerican Development Bank is trying to protect such knowledge under trade secrecy law (Dutfield, 2002; Vogel, 1997). An NGO called Ecociencia is documenting the botanical knowledge of the participating indigenous groups, and registering it in closed-access databases. Checks are made to see whether each entry is not already in the public domain and whether other communities have the same knowledge. If an entry is not in the public domain, the community or communities with the knowledge have a trade secret. The trade secret can then be disclosed to companies with benefit sharing guaranteed by a standardized contract. These benefits can then be distributed among the trade secret-holding communities and the Ecuadorian government. To date, the database contains 8,000 entries provided by six participating indigenous groups. Sixty percent of the uses appear so far not to have been disclosed through publications. Already, three companies have expressed interest in accessing the database.⁶ In Peru, the Aguaruna people have utilized *know-how* protection to successfully license their traditional knowledge for the use of genetic resources by an International Cooperative Biodiversity Group Program (ICBG) project with Washington University (USA), two Peruvian Universities and Searle & Co. pharmaceuticals, which is part of Monsanto (Tobin, 1996).

⁶ Information provided by Dr Rocio Alarcon of Ecociencia in seminar at Oxford University, 7 Feb. 2001.

3. Brazil

Concern over biopiracy is, as the Brazilian anthropologist Alcida Ramos explains (Ramos, 2000), “a rare case in which national and indigenous interests converge”. Official reactions against the unauthorized “poaching” of genetic resource and indigneous knowledge, “have reinforced the indigenous sense of indignation” (ibid).

Brazil and other nations have vehemently protested against biopiracy and have taken events such as the 1992 Rio Summit as opportunities to elicit more equitable commitments from the northern nations. One of the first and most historic Latin American attempts to implement the objectives of Article 8.j of the CBD occurred in Brazil with Proposed Law (PL 2057/91). The proposal was approved in 1994 by the Chamber of Deputies of the national legislature, but has never passed into the Senate and is still under consideration for its constitutionality. The proposed law is intended to protect and assure respect for indigenous peoples’ social organization, customs, languages, beliefs and traditions, and rights over their territories and possessions.

Articles 18-29 deal with the intellectual property of indigenous peoples. Among the important provisions of potential benefit to indigenous peoples are the following:

- the right to maintain the secrecy of traditional knowledge;
- the right to refuse access to traditional knowledge;
- the right to apply for IPR protection, which, in the case of collective knowledge will be granted in the name of the community or society;

- the right of prior informed consent (to be given in writing) for access to, use of and application of traditional knowledge;
- the right to co-ownership of research data, patents and products derived from the research but without the community having to pay patent fees;
- and, the right of communities to nullify patents illegally derived from their knowledge.

The Act would redefine patents and copyright by allowing community IPR to continue without time limit.

There is little surprise that such a revolutionary bill would have run into troubles in the Brazilian Congress, especially given the heavy and unrelenting pressures from industrial countries to implement a standard (U.S. style) IPR regime. Brazil has had patent law since 1887 and established a National Institute for Industrial Property (INPI) in 1971 to administer its “modern” Industrial Property Code (Law 5772/71). This law was replaced in May, 1997, by Law 9297 that “streamlines” industrial property protection and strengthens patents for industrial property⁷. There is no mention of collective property, community resources, or traditional technologies of indigenous and local peoples in the revised law.

During the past few years, however, Senadora Marina da Silva of Acre has sponsored public hearings throughout Brazil on legislation governing access to genetic resources. These hearing have led to a greater

⁷ A critique of this law and other implementing mechanisms (regulatory acts), as well as complete texts of the law in English, French and Portuguese, can be found on the INPI Web Site: <http://www.inpi.gov.br/>.

public understanding of “biopiracy” and “bioprospection”—and, along with it, a growing concern about how Brazil, and more specifically, Brazilians are being “ripped off”. The Senadora’s findings have been encompassed in Lei 306/95 governing “Acesso aos Recursos Biologicos e Geneticos”, which was approved by the Senate in June, 1998, is still being debated by the House of Deputies. There is a proposal by the *Casa Civil* to remove reference to community and property rights for indigenous and traditional communities, again, it is claimed, so as not to conflict with existing industrial property legislation⁸.

Under the Brazilian Constitution of 1988, federal States were granted greater autonomy in the Federal Union. The State of Acre, tired of awaiting national action, enacted its own *Lei de Acesso aos Recursos Geneticos* (Projeto de Lei No 15/97) in 1997. The law draws upon the Andean *Common System* and the PL 2057/91. It recognizes the collective rights of indigenous and local peoples over their genetic resources and traditional knowledge. It also regulates collection of genetic materials for “research, bioprospecting, conservation, industrial application, commercial use, and other purposes” and requires equitable and adequate benefit-sharing from such materials and collections. The *Secretaria de Estado de Ciencia, Tecnologia e Meio Ambiente* (SECTMA) do Acre becomes the body responsible for licensing, monitoring, and initiation of legal action, since one of the most interesting and historical aspects of the Lei is that infringements of the law carry *criminal penalties*.

In November, 1997, Deputada Socorro Gomes (Para) presided over the *Commissao Externa Criada para Apurar Denuncias de Exploracao e Comercializacao*

⁸ Personal communication, David Hathaway, 14 July, 1998.

Ilegal de Plantas e Material Genetico na Amazonia, which reports to a special *Commissao de Biopirataria*. The report calls for more rigorous laws to control “Biopiracy”, including expanded criminal charges for unauthorised collection, exploitation, and use of genetic resources and traditional knowledge about them.

As a result, in 1998, three Swiss scientists were arrested for attempting to transport medicinal plant samples out of Acre without the appropriate authorizations. In 2000, similar arrests were carried out at the Manaus airport when German arachnologists tried to smuggle specimens out of Brazil.

The idea that genetic resources and traditional ecological knowledge are valuable resources that must be protected is indeed a major change in the history of Brazil—and, indeed, of Latin America. Until very recently it would have been inconceivable that a Congressional Commission would be established to investigate illegal exploitation of plants or animals, let alone, traditional knowledge. It seems that times have indeed changed!

Conclusions

The political legacy in Latin America of ruthless exploitation of natural resources leading to ecological destruction--and the systematic annihilation and marginalization of indigenous, traditional and local communities—have left countries unprepared to deal with economic and political issues raised by globalization of markets and biotechnology based on biodiversity developments. Although governments have acted to declare sovereign rights over flora, fauna, and appropriate technologies for sustainable development and biodiversity conservation, legal structures and political institutions are inadequate or non-existent to

protect, monitor, or control access and transfer or benefit-sharing.

Some recent efforts by Costa Rica, Brazil and the Andean Community to establish regimes that control access and protect traditional resources are fundamentally radical in that they recognize the collective and community-based nature of *in situ* biodiversity conservation - which implies recognition of indigenous land, territorial, and resource rights. These rights are sometimes subsumed under the rubric of *self-determination*, historically seen by Latin American countries as a threat to their national sovereignty. However, with the rampant loss of genetic resources and traditional knowledge through biodiversity prospecting - by national, international, and multinational interests - Latin American countries will have to forge equitable partnerships with indigenous peoples in order to attain local access to knowledge, flora and fauna.

The growing political awareness and effective international organization of indigenous groups--combined with the ethical, moral and legal concerns of scientists co-opted by commercial concerns--means that actions to develop principles and guidelines for access, transfer and benefit-sharing will no longer await government paralysis. By the time Latin Amazonian governments actually do act to protect traditional resources, they may find their sovereign rights undermined by research moratoria, biopirate "witch-hunts", private corporations, government entrepreneurs, and extensive data banks of "national patrimony" being beamed around the planet on the Internet.

It is unclear how globalized biodiversity and biotechnology will influence economic development in Latin America--but it is certain that "business as usual"

will only lead to increased undermining of national sovereignty through unauthorized and uncontrolled exploitation of traditional resources. The recent flurry of activities, such as Costa Rica's *Proyecto de Lei* and similar efforts may indicate dramatic changes in how Latin American countries view their human and genetic resources, but it remains to be seen if the economic interests and public indignation over "biopiracy" translate into practical policies that improve the conditions of local, traditional, and indigenous peoples. One hopes that when the hype and hysteria is over, science, industry and research will be transformed into more responsible (and respectful) institutions because of the political and economic negotiations now necessary with indigenous and local communities. And hopefully, indigenous peoples may finally be recognized—after more than 500 years of oppression—as *valued* citizens who are critical to responsible and sustainable development in Latin America.

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