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Access to genetic resources and protection of traditional knowledge in the territories of indigenous peoples

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Abstract

It is estimated that between 25 000 and 75 000 plant species are used for traditional medicine. Only 1% is known by scientists and accepted for commercial purposes. Part of the modern pharmaceutical industry is developed on the basis of plants discovered and use by indigenous peoples and local communities, even though the economic benefits are not equitably shared. The Convention on Biological Diversity, 1992 (CBD) mandates that contracting Parties, to preserve and maintain knowledge, innovations and practices of indigenous peoples 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, innovation and practices and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices. Traditional Knowledge in the fields of medicine, healing, and biodiversity conservation are well known and the need for protection of this traditional knowledge is a cross-cutting issue at the moment involved in discussions from different institutions, with different approaches. The Intellectual Property Rights mechanisms are not able at the moment to protect those forms of traditional knowledge and indigenous peoples and local communities believe that they are subject of biopiracy which is the unauthorized use of traditional knowledge or biological resources. It is neccesary to work with indigenous peoples and local communities to provide legal tools, and various forms of proteccion of traditional knowledge and to achieve international consensus on the solutions obtained.

1. Introduction

A great part of the modern pharmaceutical industry has been developed on the basis of medicinal plants[1] discovered by indigenous[2] peoples and local communities, nevertheless the economic benefits[3] that these medicines give remain in the companies, without any type of recognition or compensation for those who created this knowledge[4]. Additionally, with the loss of biodiversity[5] through human depredations, many traditionally utilized medicinal plants have disappeared, pre-

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[1] According to 1990 experts meeting, pharmacologists draw 7000 medical compounds — from aspirin to birth control pills — from plants. The estimated annual world market value for these medicines is between $35 and $47 billion.

[2] According to the United Nations Commission On Human Rights, about 300 million people can be considered to be indigenous under the United Nations International Labor Organization Convention on Indigenous and Tribal Peoples (1989) definition, spread among 70 countries around the world.

[3] According to Farnsworth (1993), it is estimated that between 75 000 and 25 000 plant species exist that have been employed in the traditional medicines of the world, of which only 1% is considered acceptably known through scientific studies that demonstrate their therapeutic value when administered to human beings.

[4] Historically genetic resources and traditional knowledge have been utilized and commercialized with any payment to the countries or communities that originally proved them. For example, Europeans fund plants such a quinine, rubber, and potato in the new world, but they never made payments to the peoples on whose ancestral lands these plants were grown or in whose cultures their uses were first discovered. This attitude is now changing in part with the ratification of the Convention on Biological Diversity, 1992.

[5] Unfortunately, experience shows us how humanity is losing this biological diversity without even knowing it, reducing the opportunities that it could provide. By 1992, Agenda 21 was already expressing this preoccupation by citing 'the current impoverishment of biodiversity is in large part the result of human activity and constitutes a grave threat to human development' (UNEP Report of Panel I. Priorities of Action for Conservation and Sustainable Use of Biological Diversity, 1993).

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venting their use by those who discovered them, as well as by the rest of humanity.

The objective of this paper is to present the legal framework for fair and equitable distribution of benefits that are arising out of the utilization of genetic resources and traditional knowledge of indigenous peoples. It seeks for the need of legal protection of the intellectual efforts reflected in traditional knowledge by the intellectual property rights system. Looks into Convention on Biological Diversity as key element to achieve the rights of indigenous peoples over their knowledge and resources.

2. Antecedents

Biodiversity is an expression that has become relevant not only inside the natural sciences, but also in the economic and social sphere[6]. The possible practical uses and the value of Biological Diversity are at the moment largely unknown. It suffices to mention that according to the United Nations Environmental Programme the foods, fibers, ornamental plants and raw material of biological origin constitutes almost half of the world economy (UNEP, 1993). Thus it is understood that biological resources are a form of capital with great economic potential. It has been assessed that over 95% of the world's genetic resources originate and are concentrated in developing countries (Friends of the Earth, 1995, p. 4).

In order that these resources have a commercial value, it is in some cases necessary to associate them with a biotechnology, defined by Agenda 21 as a set of techniques that permit the achievement of concrete introduced changes by humans in the *Deoxyribonucleic Acid (DNA)*, that is in the genetic material of plants, animals and microbial systems, in order to create useful products and technologies.[7] Article II of the Convention on Biological Diversity (CBD) defines Biotechnology as any technological application that uses biological systems and living organisms, or derivatives thereof, to make modify products or processes for specific use.

Indeed, the negotiations of the CBD where based around and explicit exchange of resources between developed and developing countries[8]. Biodiversity-rich countries mainly developing countries would provide international access to genetic resources in return for financial and technological resources[9] from developed countries (Stokes and Mugabe, 1999). Biotechnology has been understood by many as referring exclusively to Modern Biotechnology, and often only to that which is in the hands of the developed countries, that promise a contribution to human development.[10] However, there exists another type of biotechnology that I would like to call Traditional Biotechnology,[11] including conventional techniques and the knowledge transmitted from generation to generation that has already given the world multiple benefits.

The owners of Modern Biotechnology have not been required to share the benefits derived from genetic resources obtained through the traditional knowledge of other countries, communities or indigenous peoples. At the moment, this issue is being discussed principally in developing countries that find themselves structuring national legislation as a mechanism for implementing the Convention on Biological Diversity and the Agree-

[6] The Food and Agriculture Organization of the United Nations (FAO) adopted by resolution 7/93 the adaptation of the International Undertaking in harmony with CBD which 'recognize the enormous contribution that farmers of all regions of the world, particularly those in the centers of origin and crop diversity, have made and continue to make for the conservation and development of plant genetic resources.' The Working Group on Indigenous Peoples, as subsidiary organ of the UN sub-Commission on Prevention of Discrimination and Protection of Minorities, developed the United Nations Declaration on the Indigenous Peoples which states in article 29 'Indigenous peoples are entitled to the recognition of the ownership, control and protection of their cultural and Intellectual Property.' Other relevant institutions who are working in issues related with the protection of traditional knowledge are: The open-ended ad hoc Intergovernmental Panel on Forest; United Nations Development Program; The United Nations Conference on Trade and Development (UNTAC), The International Labor Organization (ILO), The United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Environment Program; The World Health Organization; The World Trade Organization (WTO), The World Intellectual Property Organization (WIPO).

[7] According to Glowka (1998) within the new techniques are found the cultivation of tissues, cellular fusion, the transference of embryos, techniques for recombining DNA and new processes for bioprocessing and storing of genetic material.

[8] Article 16 of the CBD states: Each Contracting Party, recognizing that technology includes biotechnology, and that both access to and transfer of technology among Contracting Parties are essential elements for the attainment of the objectives of this Convention, undertakes subject to the provisions of this article to provide and/or facilitate access for and transfer to other Contracting Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment.

[9] The Convention has not clearly resulted in a trade off-between access to genetic resources and access to technology. However, it has established a clear link between the supply of genetic resources and access to technologies that make use of those resources. This link can be exploited to the benefit of both gene-rich countries and technology rich ones.

[10] Some modern technologies are currently used to help conserve biological diversity and sustainably utilize its components, in particular genetic resources (Glowka, 1998).

[11] The traditional techniques differ from the modern ones in regard to their sophistication and magnitude. Examples of them are the production of soy, bread, wine, cheese, beer, medicinal compounds, chicha (a corn beer).

ment on Trade Related Aspects of Intellectual Property Rights (TRIPs)[12].

3. Principal actors

It is important to determine who are the principal actors in the negotiations to access genetic resources, use traditional knowledge and the sharing of their benefits. Some affirm (Glowka, 1998) that the two principal actors are the States that have the genetic resources in situ and the States that have the modern technology required in order for these resources to have commercial value. For others, there are three principal actors: The States that have the technology, the States that have the resources (countries of origin of the genetic resources), and the local communities and indigenous peoples that have the traditional knowledge associated with the genetic resources. Another possibility also exists for the case of Autonomous Territories such as those of Indigenous Peoples with rights over resources and knowledge, in which the actors are the Indigenous Communities and those who possess the technology can be broadly defined to include corporations as well as States[13].

Most of the times the exchange of genetic resources and traditional knowledge is not limited to the simple relation of two or three parts. This relation could involve as many parts as needed. For example two pharmaceutical companies and one botanical garden could do the biodiversity prospecting as recipients[14] and the State and indigenous peoples as a providers of genetic resources and traditional knowledge. It could also include more that two countries depending on the origin of the pharmaceutical companies and the botanical garden.

With regard to this approach, we want to make clear that the possibilities of analysis can be various, depending on the existing national legislation at the moment of negotiation. This approach also finds support in Article 2 of the CBD that, equally with the Estocolmo Declaration, recognizes the sovereign rights of States to exploit their resources according to their own political structure.

What is still not clear at present in many countries is which are the rules that ought to be applied in this situation. Generally, it is true that the only two parties that count are the State that has the genetic resources and the State that controls the Technology, ignoring the third and fundamental part of any negotiation, 'local communities and indigenous peoples'. But very often the negotiations occur with the understanding that to talk about the State in the general sense involves the society (the inhabitants of the country), a concept that belongs to the definition, attempting thus to include the role of other actors by means of national legislation.

The problem arises when national legislation does not distinguish or is not clear concerning who is the owner of traditional knowledge, who is the owner of the genetic resources, who is the owner of the land and what are the rules which pharmaceutical companies and botanical gardens or other institutions need to comply in order to access resources and traditional knowledge. Thus the extension of obligations and rights between the different actors is not very clear. One thus puts every type of negotiation in the same bag, which makes difficult an equitable distribution of benefits.

Not having clear rules, the historical practice with few exceptions has been that the countries and indigenous peoples that possess the genetic resources and the associated traditional knowledge do not obtain direct economic benefits. These points bring us to affirm that the developing countries have to work in the manner of protectors and guardians of biodiversity, when these genetic resources are found in their lands. They also need to work at creating 'tools' that will permit them to define the rights and obligations of the different actors involved, when access to genetic resources and associated traditional knowledge are at issue.

This set of rules clear, simple and responding to the special needs of each country could involve sustainable use and equitable distribution of the benefits generated by the genetic resources and traditional knowledge —

[12] TRIPs provide for private ownership of living matter through the granting of patents. According to article 7 of TRIPS one of the objectives of the agreement is 'the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to mutual advantage of producers and users of knowledge and in a manner conductive to social and economic welfare an to a balance of rights and obligations'. At the same time, signatories to the World Trade Agreement are compelled to implement the minimum stands of IPR laid out in TRIPS, even where these might conflict with their national interests (Stokes and Mugabe, 1999, pp. 13,14).

[13] This is possible for example in know-how licenses or contracts regarding the utilization of traditional knowledge. In the case of access to genetic resources, some of the more recent legislation (Costa Rica, Comunidad Andina, Nicaragua) indicate that once the indigenous people had given their prior informed consent, the intervention of the State is needed in order to give the final authorization for the access.

[14] Many botanical gardens of the developed countries work with networks of institutional collaborators in developing countries. For example The New York Botanical Garden work between others in collaboration with the Botanical Garden of Dominica, IX-Chel Center for Tropical Research, the Belize Association of traditional Healers. The Missouri Botanical Garden works between others with the botanical garden of Madagascar, Regional Center of Nuclear Studies of Kinshasa, Zaire. Botanical Park and Zoo of Tsimbazaza (Laird et al., 1994, pp. 124,125).

just as they contribute globally to the search to improve health and increase food security. Clear and simple legislation that responds to the needs of each country is one of the key elements to ensure fare and equitable distribution of benefits.

4. The Convention on Biological Diversity

The Convention on Biological Diversity establishes the first principles for negotiation and the creation of legal solutions at a national level. According to Glowka 'the Convention provides general guidelines for a new relation. But the details of implementation ought to be defined primarily at the national and subnational level by means of the creation or adaptation of legislation, administrative procedures and institutions' (Glowka, 1998, p. 1).

The difficulty of an equitable distribution of benefits is apparent when the local communities and indigenous peoples are present. However, some efforts have been made and the most relevant of them is expressed in Article 8J of this document of international law stating:

> (Article 8) Each Contracting Party, shall as far as possible and as appropriate:
>
> (J) subject to its 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

While the knowledge of local communities and indigenous peoples and the necessity of equitable distribution of benefits are here fully recognized as having value, it must be said that this article is weak. The phrase *"as far as possible"* frees the States from what is properly called an obligation, that is to say it leaves a window open to comply — or not — with this guideline without it being required that all parties do so. On the other hand, it delegates to the national legislation the responsibilities to respect, preserve, and maintain this knowledge, and to provide for the equitable distribution of benefits. In cases where the State has not national legislation that could implement this article, it comes to be understood as a gesture of goodwill with no possible application.

There are also those (Wolfrum and Stoll (1996) and Chandler cited in Glowka (1998, p. 15) who argue that this article (8J) was written in order to improve the relation of States with local communities and indigenous peoples, within the same State. This view, by our criteria, is minimal in its interpretation and is tightly bound to the definition of 'the State' to which it refers.

Unfortunately the CBD does not contain a definition of the State. However, seen as a political organization that oversees the interests of its citizens, the State should regulate all the activities inside its territory, whether those of nationals or foreigners. Under this concept, if one of the objectives of the CBD is the equitable distribution of benefits obtained through access to genetic resources and associated knowledge, then the State necessarily looking for the protection of citizens' interests will need to create the mechanisms for which the genetic resources and traditional knowledge will be protected and recognized as a product with value even to the level of relation with others states.

Even if we use a wider concept beneath which all members of a society (private corporations, communities, inhabitants) constitute or form the State, all these parts of the State and the States themselves ought to try to fulfill their obligations in accord with the objectives of the CBD, among which is found the equitable distribution of benefits.

Even if the article is truly subject to an effective national legislation, this does not imply that no responsibility exists between States to respect the principle of equitable distribution of benefits and of paying attention to the importance of recognizing traditional knowledge. In any case, the distribution of benefits will be realized in conditions mutually agreed, which implies a negotiation of each particular case (Convention on Biological Diversity, 1998). The national legislation could give the frame in which such negotiations are going to be developed helping the parties involved to define what is just and equitable.

In spite of the weaknesses of the CBD, it gives a special place to the protection of traditional knowledge associated with genetic resources, if we see the latter from the perspective that pursues an equitable distribution of benefits (Art. 1).

- The commercial use of genetic resources (Art. 2 and 15)
- The commercial use of the knowledge, innovations, and practices of the indigenous and local communities (Art. 8J).

The CBD applies to Contracting Parties, that is to say to States — because that is in effect what is involved when the Parties realize a transaction in which access to genetic resources is negotiated. However, these States also ought to negotiate (with previous consent of the communities or indigenous peoples) the use of traditional knowledge associated with these re-

sources, assuring that the benefits obtained should be equitably divided. In other words, Article 8j and other previously cited passages related to equitable distribution were not written only so that local communities and indigenous peoples might feel entitled to demand recognition and benefits but also in order that the States should take their obligations into consideration in future negotiations.

We do not leave out the fact that indigenous peoples do pursue their own self-determination, which implies that they themselves, under their own laws, will be the negotiators of any arrangements related to the destiny of their resources and their indigenous knowledge. However, in the majority of the cases it appears that their right to self-determination in the national arena is relegated to the level of recognition in politics and legislation.

5. Concerns of indigenous peoples

I have to make clear that the concerns are abundant and vary in priority, depending on the specific peoples and the region or continent of which we are speaking. That which is presented in this section is a summary of some information obtained from organized indigenous groups and in no manner should be regarded as the only perspective on the situation.

According to the bulletin of the Working Group on Rights over Traditional Resources (No. 3, 1996), the principle demands of the indigenous peoples can be summarized as follows:

- Self-determination, including demands related to property rights over land and resources.
- Prior Informed Consent in relation to the protection of traditional knowledge and plant medicines and the right to determine measures for their development.
- Human Rights that include rights to life and liberty and to freedom from discrimination and oppression.
- Cultural Rights that include the right to express and maintain different cultures, the right to religion, language, access to sacred sites and religious practices.
- Treaties as laws governing the relations between colonial systems and indigenous peoples and the renegotiations of said treaties.

Of these demands the most important identified in the positions taken by 63 Indigenous organizations around the world were Self-determination and Territory (Posey, 1996).

The principle rights claimed by Indigenous Peoples around the theme of access to natural resources and protection of traditional knowledge are (Swedish Scientific Council on Biological Diversity, 1999):

- Rights to communal property in lands and territories.
- Rights to self-determination
- The right to be represented legally and politically by their own institutions.
- The right to control the traditional knowledge as property.

All these rights are interconnected and play an important role in access to genetic resources and protection of traditional knowledge. Thus, for example, in a great number of cases, the recognition of rights to self-determination will include the possibility of not only exercising control over their traditional knowledge but also over the genetic resources that are found within their territories.

Common property standards are going to help define how to equitably divide the benefits generated by the utilization of genetic resources and the traditional knowledge internally associated with the Indigenous People concerned.

If one exercises a right of customary law as part of the legal reality of a State (and this is respected and implemented) then traditional knowledge will be protected in those cases in which it is part of the shared practices of customary law.

Being represented politically and legally by its own institutions will give an indigenous community (or nation) [the necessary] standing as a 'legal entity' to make their own contracts for access to genetic resources and the associated traditional knowledge.

At this point we want to clarify that these claimed rights have an undeniable link at the time they are put into practice. One cannot talk about protection of traditional knowledge associated with access to genetic resources as something separate or unassociated with the rest of the rights that the indigenous peoples have pursued and continue demanding.

6. Rights to property and equitable distribution of benefits

The heart of the discussion over equitable distribution of those benefits derived from traditional knowledge in association with access to genetic resources itself is rooted in the question of who is the owner of these resources. It is here that one should distinguish different types of property:

- Property rights in land/territory
- Property rights in genetic resources
- Property rights in traditional knowledge, innovations and practices.

7. Property rights in lands/territories

The relevance of the relation between territories, ownership of land, and access to natural resources to the discussion of property rights is indisputable. This can be documented through the history of colonial times, when ancient indigenous dominions were divided into administrative parcels and differences in their treatment made it possible to maintain submission for more than three centuries.

The concept 'ownership of the land' has been given widely varying definitions, oscillating (in the case of Latin America) between two great groups, those who put emphasis in the aspects of land distribution between the different rural social actors and the relations that are generated between them and those who put the focus on the forms of and rights to ownership, including access to and use of resources. Schweigert (1989) points out that a practical definition of land ownership ought to integrate aspects, the distribution of property and the rights in property.

Local communities and indigenous peoples live a complex legal reality with respect to property, ownership and use of or access to resources that are derived from their ancestral lands. Some communities do not have property titles, others only have rights to possess, then there are those who are not even aware of the complex issues of legal rights and find themselves losing lands after many years of possession. There are communities that have divided their lands into individual plots and others that maintain systems of common property — the range of situations is various and at times described only roughly.

The area of natural resource use is even more complicated, there are countries that recognize property rights over land, but not over the subsoil, that is not over minerals. For example, if petroleum is found, this would be the property of the State and not of the owners of the land. It can be said that property in land includes the property rights to biological resources (plants, animals, and other organisms). There are countries in which property in land does not guarantee property rights over biological resources. Some declare that natural resources are in the public domain, that is to say that they belong to everyone and not to the owner(s) of the land, a position maintained in discussions over access to genetic resources. In addition, there are the protected areas that in some cases have been given higher priority than these communities, denying or ignoring their rights. This gamut of situations confronts those communities that depend on and live from the land.

But there are also positive spaces, it seems there is beginning recognition that culturally diverse communities and peoples exist and that they are different from the rest of society and that they want and feel a need to maintain this difference.

On the other side, the theme of land is closely tied and inseparable from fights for territorial autonomy, through self-government to rights to preferred diets and cultural preservation and to rights to recognition of traditional knowledge and the management of natural resources. The land and access to its resources involves the lives of those who inhabit it. Thus ours is a theme that can be subdivided into innumerable aspects of the everyday life of local communities and indigenous peoples.

International Labor Organization (ILO) Convention 169. Concerning Indigenous Peoples and Tribes in Independent Countries that have wanted to establish obligations relative to the theme of property rights. Although this Convention has been considered as a weak instrument, it does provide some important measures for the protection of Indigenous Rights and particularly for the recognition of lands, territories and use of natural resources.

With regard to the Convention in its Part II under the title Lands, it states an obligation to recognize the rights of peoples to property and possession of the lands that they have traditionally occupied. Furthermore, the governments ought to take the necessary measures to guarantee the protection of these rights to property and possession.

In as much as access to natural resources it is stated that rights should be protected to those natural resources that are in their lands, including the right to participate in the use, administration, and conservation of said resources. At the same time, it is pointed out that governments have the obligation to consult with interested Peoples concerning prospecting or exploration for minerals or other resources in the subsoil that belong to the State but that are found in the lands of the interested Peoples.

The majority of all these compromises ratified by governments suffer from problems of implementation. The proof of this is the innumerable quantity of legal actions that are aired in justice tribunals over problems of property, individual and communal. One example is the struggle of the Gnobe-Bugle General Congress of Panama,[15] that has fought for an autonomous indigenous *Comarca* (ancestral lands or territories) for more than 20 years, and that demands elimination of the exploration contract issued by the Government's agency of mines to a transnational company in the Cerro Colorado. It is sufficient to point out here that

[15] In Reyes, (1997), the indigenous groups have met with 11 Ministers of the Government and of the Judicial System in order to discuss determination of the legal boundaries of their Comarca (territory), however no definition of these boundaries has been achieved. Governments come and Governments go and the interests of the transnational companies and of the great foreign landowners seem to be above that of the people who have always lived in these lands.

grievances by local communities are not limited only to the usurpation of lands that have historically belonged to them, but also concern the negative effects on the environment that can be produced by certain works. Examples of the latter would include petroleum explorations conducted without environmental protection, the felling of timber, the contamination of water, among others.

A noteworthy example is the work done in 1993 by the United Nations Working Group on Indigenous Peoples, which resulted in a draft called The Declaration on the Rights of Indigenous Peoples. This document is still officially only a draft, although it constitutes a work fundamental to the discussion about indigenous peoples and the recognition of their rights. It considers the right of these peoples to include control over access to natural resources and ownership of plants, animals, and minerals that are vital for their cultures.

Also it considers their right to ownership, development, control, and use of their lands and territories, including their total environment: land, air, water, coastal zones, flora, fauna, and other resources that they have traditionally possessed, occupied or used. It further considers the right to maintain special procedures to control, develop and protect their sciences, technologies and cultural manifestations, including human resources and other genetic resources, seeds, medicines, knowledge of the properties of flora and fauna, etc. Precisely the lack of recognition of these demands on the part of governments is what has necessitated that the theme of rights over lands, territories and access to resources is increasingly, day by day, a priority.

Indigenous peoples know what they want and had expressed.[16] Different legal and political instruments recognize that indigenous peoples have a special link to natural resources,[17] however the lack of recognition on the part of governments is latent. It is worthwhile that efforts be direct toward defining and implementing indigenous rights.

Reality is that conflicts exist in the ownership of land, in over-exploitation of natural resources and piration of traditional knowledge associated with those resources. Cultural survival[18] of many local communities depends directly on how they manage natural resources, and the loss of those resources causes a profound impact on those cultures. This is not a trivial problem, 'it tends to destroy those cultures that have (previously) shown how to live with their natural resources' (WCED, 1987).

8. Ownership of genetic resources

Article 15 of the Convention on Biological Diversity recognizes 'the sovereign right of the States over their natural resources, the capacity to regulate access to genetic resources resides in national governments and is subject to national legislation.' The manner in which it is written would seem to suggest that the States are the owners of the genetic resources in their territories. Interpretations that have been given to this article are generally[19] that the State has sole and exclusive authority to regulate access to genetic resources. Thus the responsibility to exercise this authority is delegated to the national arena.

It is also necessary to differentiate between 'common heritage' of biological resources, an idea that was rejected, and 'common interests' of humankind, an idea that continues recognizing international interests above conservation of biological diversity.

While the regulation of genetic resources depends on a national legal framework, there are examples of countries where the genetic resources belong to the owner of the land. In others (as is the case in Costa Rica and a large number of developing countries) the State is the owner of the genetic resources, even though some of the land is private property.

In Costa Rica, the Law of Biodiversity of Costa Rica[20] points out that the State exercises complete and exclusive sovereignty over the various elements of biodiversity, including biochemical and genetic properties of wild species and domesticated ones that are in the public domain. Thus the Law of Wildlife had already

[16] See Community Intellectual Rights Act. Third World Network. 1994. Mataatua Declaration on the intellectual and cultural rights of indigenous peoples (New Zealand, 1993). Declaration of the II Mesoamerican and the Caribbean Forum (1998). Kari-Oca Declaration (1992). Declaration of Santa Cruz de la Sierra on Intellectual Property of Indigenous peoples (1994). The Draft Declaration on the Rights of Indigenous peoples (United Nations).

[17] See ILO Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries (1989). Río Declaration on Environment and Development (1992). Convention on Biological Diversity (1992). Agenda 21, Chapter 26 (1992). Convention Concerns the Protection of the World Cultural and Natural Heritage (1972).

[18] The over-exploitation of natural resources can be expected in times of rapid cultural change since traditional controls are broken and humans learn to exploit natural resources in new ways. The movement of Europeans to the Americas is only the most dramatic example of this process. (McNeely and Keeton, 1995).

[19] The authority of the governments for determining access to genetic resources is confirmed, in accord with national legislation, and it is recognized that this authority derives from the sovereign rights of States over their natural resources (Glowka et al., 1996). See also Swedish Scientific Council on Biological Diversity (1999). If the genetic resources are included in *national property rights* (derecho real de propiedad) then it is a matter of national jurisdiction.

[20] See articles 2 and 6.

established that wild flora and the development of wild genetic resources that constitute genetic reserves are of Public Interest. Thus, in this particular case, the resources do not exclusively belong to those who hold property rights in the land.

For this type of situation, the Law of Biodiversity in Costa Rica has determined that the Technical Office will need to inform interested persons that apply for different types of access to elements of biodiversity, they will need to include Prior Informed Consent (PIC) from the owner of the land where they wish to develop their activities, or from the representatives of an indigenous community for activities in its territories, and/or from the Director of a Protected Area.

It is recognized the rights of local communities and indigenous peoples to deny access to resources and associated knowledge for reasons that are cultural, spiritual, social, economic or of other types. Within the basic requirements for access terms for transferring technology and equitable distribution of benefits are also found, when they have been created. These are subject to agreements in the permissions, conventions and concessions, as is the type of protection for associated knowledge demanded by the representatives of the place where access occurs.

There is a delicate line differentiating the concepts of property rights in lands/territories and genetic resources and that of property rights over traditional knowledge. The latter belongs exclusively to the communities and therefore they are who can make decisions concerning their future. The government could only authorize the access to genetic resources if the indigenous peoples who own the land give their PIC[21] (depending of the national legislation). Nevertheless it is a matter for discussion since the State always would have the power to give permission for acess to genetic resources whenever it alleges a use is in the Public Interest. That is to say that the interest of the community would be considered less than that of the nation and therefore permission would be granted. This is what happens for example with explorations for petroleum exploitation, or dam constructions on indigenous territories.

Also one can see that the distinction is important above all in Indigenous Territories over which has fallen categorization as Protected Areas or National Parks, such as for example The Amistad International Park in Costa Rica. It will not be long before the discussion emerges over who gives PIC on this situation, the State in this type of Protected Area, or the Indigenous Peoples to whom the territory belongs (with or without legal title). Some will say that both, but the reality is that these two actors cannot be always in agreement.

The Law of Biodiversity in Costa Rica[22] was one of the firsts in the world; many of these concepts are still subject to discussion within local communities and indigenous peoples. The practical reality in some cases is different than the letter of the law. Until clarity concerning this point exists it will be difficult to determine what road will be necessary to secure the protection of indigenous rights over traditional knowledge and genetic resources on their territories.

In principle we should say that the States sovereign rights over their own biological resources, give them the freedon to choose the apropiate regime to regulate the access to genetic resources within the limits of their national jurisdiction, and those regulations could respect the rights of indigenous peoples over their territories or traditional knowledge associated to genetic resources, including the right to self-determination[23].

Ownership of biological resources means also rights and obligations, is a concept that is not static, especially when it is described as public domain which the States regulate. Given the cultural and ecological diversities in the world, and different social, political and economic realities there is a rich variety of ownership and administration of biological resources.

Also it is of interest that within the proposals of Colombia (1994) for a Common Rule for Access to Genetic Resources in the countries of the Andean *Pact* different rules are proposed for systems of knowledge and for rules of access. However, the common rule for protection and access to genetic resources is based on recognition of the inseparable connection between genetic resources and associated knowledge. For this reason, the individual or collective nature of this knowledge requires two different rules, clearly differentiated. In the cases in which the knowledge is individual, the system for patents or that for plant collectors, both of which confer private property rights. In the case of local knowledge that constitutes an integral part of the collective patrimony, the protection of the knowledge escapes that logic and requires systems adapted to traditional and collective uses and customs

The common rule for access to genetic resources for the countries in the Andean Pact[24] was adopted in 1996. One of its principles is that member countries

[21] Many legal systems vest ownership of natural resources in the state so that the government controls the granting of authorizations or permits for the utilization of natural resources. In such case, indigenous peoples should be compensated for the resources taken (See Martínez Cobo, 1986).

[22] Article 65 and following.

[23] According to Posey. The key to effective implementation of the CDB, according to indigenous peoples, is for the nation states to re-define the concept of 'national sovereignty' to accommodate indigenous selfdetermination, that is full rights and control over their lands, territories and resources.

[24] Decision 391, adopted the 2nd of July of 1996 and published the 17 of July of 1996 in the Gaceta Oficial del Acuerdo de Cartagena (Official Gazette of the Cartagena Accords) Appendix XII, No. 213.

should recognize the rights and capacity for decision-making of indigenous, African-American ones and other local communities. This should include decision-making concerning their knowledge, innovations, and the traditional practices associated with genetic resources and derived products.

9. A property right in traditional knowledge

It is difficult to separate access to genetic resources and knowledge, particularly because access to genetic resources very often coincides with knowledge of indigenous peoples and local communities. A property right in traditional knowledge belongs to whoever possesses the knowledge and as such this right can be the subject of negotiation. Some jurists find this stand to be the most unacceptable part of the argument because they believe that this local knowledge is an intangible good and therefore is difficult to defend. However, we can provide a simple example: when a consultant is contracted as an 'expert' in a certain area, this person enjoys a contract and is paid to give his or her knowledge to whoever contracts her or him. This knowledge is also intangible in the moment of contracting; nevertheless it becomes concrete when the product is delivered.

In this sense, traditional knowledge ought to be seen as a good subject for legal protection, one in which parties can have rights and which therefore can be subject to negotiations, claims, and indemnification. If traditional knowledge is seen as a good in which a person invests once, that is to say that the knowledge is acquired for a sum or specific compensation and this cannot be renegotiated later nor used by its original owner, then it would be a good subject to loss. However, this is precisely the position that must not be permitted; moreover traditional knowledge ought to be interpreted as a good that can be protected if a property right in it remains with the original owner, even though the knowledge can be transferred on the basis of legally acceptable negotiations. This knowledge will be giving fruits and benefits continually if, through it, some commercial product is discovered.

For the above reasons, we should not think about negotiating compensation in terms of a good that can be lost, but rather in permanent compensations that can be given as a percentage of the earning of the discovered commercial product. Also one should maintain property in this knowledge while permitting its transmission (without commercial ends) to other communities and future generations. We also should be able to plan a marketing strategy in which at the moment of purchase the user will pay a price that includes the cost of the traditional knowledge associated with the genetic resources that made possible the creation of a pharmaceutical product.

This point is polemic and disputable, there are those who opine that it is not fair for the buyer, nevertheless the problem is rooted in the fact that this cost never has been contemplated inside the rubric of profits of the pharmaceutical companies. Few are the users that question the costs of production and the earnings of the pharmaceutical companies. We do not wish to say here that the pharmaceutical companies ought not to make profits, but rather that everyone should benefit in accord with their contributions. If one charges for the cost of technology used, then one may also charge for the cost of traditional knowledge used.

The idea that traditional knowledge ought to be put to the service of humanity is accepted. However, putting traditional knowledge to the service of humanity does not signify that these have to be handed over free of charge and without any recognition whatsoever. Dutfield pointed out (as cited by Bystrom in Swedish Scientific Council on Biological Diversity, 1999) 'at least the owner of this knowledge will have been remembered... to give it, document it or disseminate the use of that knowledge constitutes a clear violation of the CBD'.[25] It is clear that the objective of the CBD to achieve equitable distribution of benefits remains totally annulled if we begin with the concept that traditional knowledge is to be freely used by outsiders.

On the other side, there has been discussion of traditional knowledge as belonging within the public domain and there are those who do not contemplate any protection of knowledge that is in the public domain.[26] There are a significant number of publications, which contain indigenous knowledge information related to biodiversity. But how to ensure that commercialization of products obtained with the aid of this information is carried out with the approbation and consent of the original holder of this knowledge? How to ensure an equitable and fair sharing of the benefits that are derived from this use? Nevertheless one ought to understand that these knowledge always have their source of origin and that source does not disappear in the case of those elements which have been placed in the public domain.

[25] He also points out that the initiative to establish a Global Diversity Informatics Facility includes plans to put traditional knowledge on the Internet without authorization by the legitimate owners of that knowledge. This plan ought to be carefully examined.

[26] In Costa Rica, according to the Law of Biodiversity, Article 78 the State does not offer any form of protection for inventions essentially derived from knowledge associated with traditional biological practices or cultures that are in the public domain.

The Decision 391 on a Common Regime on Access to Genetic Resources in the Andean Pact[27] a treaty formed by Venezuela, Colombia, Ecuador, Perú and Bolivia, states that member States should recognize the rights and capacity for decision-making of indigenous, African-American ones and other local communities. This should include decision-making concerning their knowledge, innovations, and the traditional practices associated with genetic resources and derived products. In its eight transitory disposition calls for members States to develop and harmonized regulation to protect the knowledge, innovations and practices of indigenous peoples.

10. Protection of traditional knowledge

Knowledge itself would not have to be considered intellectual property although it could be but could constitute cultural property or simply be an intangible asset of the community under costumary or state law (Shelton, 1995, p. 98). But there is a very important conecction between the proteccion of traditional knowledge and the Intellectual property sytems, because IPRS are about recognition of and respect for the contributions of human creativity believing that Intellectual efforts should be protected. Indigenous peoples and local communities have begun to claim intellectual property protection for traditional knowledge. From this perspective, Intellectual Property has a very important role to play in protecting the rights of holders of traditional knowledge, by recognizing legal property rights in relation to such knowledge, and giving those holders a degree of control of it use by others.

Unfortunately IPRs do not require the holder to share benefits, with the provider of genetic resources and/or traditional knowledge or to recognize any contribution of indigenous peoples and local communities. That is why know how, traditional knowledge can be legally protected and has become one of the most intellectual property interest debates. In fact many recent international and national laws address this concern[28].

The systems of Intellectual Property Rights[29] (IPR) and of patents are discussed in the light of commercial transactions with possibilities for exploitation at a commercial level. That is to say these two systems have not emerged to protect for the sake of protection but rather within the sphere of economics. At the moment, the IPR systems are not appropriate for protection of traditional knowledge because they cannot fully respond to the characteristics of certain forms of traditional knowledge like collective ownership, oral transmission, public domain (some cases), communal origination, collective management and ownership of information and knowledge.

This situation leads to a misappropriation of traditional knowledge, without the prior informed consent of the holders of knowledge. In short the system carries proof of not having been designed for indigenous peoples or local communities but for the industry sector. For example, how could the intellectual property of knowledge be given to an indigenous person if it to qualify for a patent, the process or product is required to be an innovation, and it must have industrial applicability? Traditional knowledge is acquired over decades and is generally collective. One example of this is that cited by Bytrom, Einarsson and others.[30] The patent on the plant *ayahusca* (*Banisteriopsis caapi*) that the indigenous peoples of the Amazon use regularly for medicinal curing and religious purposes was patented en the US in 1986. The response of the company (Plant Medicine Corporation) was that it had discovered the medicinal properties of the plant for the first time. From that moment one encounters complaints from indigenous organizations of the Amazon. One of the problems is based in the fact that many of these companies take traditional knowledge and in some cases they amplify it and claim a patent based on a novelty or a discovery, without any recognition of the source of origin of this knowledge (see Genetic Resources Action International (GRAIN), 1999, p. 32).

Others (e.g. Shiva and Holla-Bhar, 1993) simply patent what indigenous peoples, who clearly do not have access to the means to protect their legal rights, already know. As long as the source of this knowledge is officially unknown, one cannot contemplate an equitable distribution of benefits. The effects of these situa-

[27] Decision 391, adopted the 2nd of July of 1996 and published the 17th of July of 1996 in the Gaceta Oficial del Acuerdo de Cartagena (Official Gazette of the Cartagena Accords) Appendix XII, No. 213.

[28] Biodiversity Law of Costa Rica (1998); The Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples (1993); Decision 391 of the Andean Pact on an Common Regime on Access to Genetic Resources (1996); Decision 486. Common Regime on Intellectual Property. Andean Community Commission (2000). Convention on Biological Diversity (1992). Earth Chapter (1992).

[29] Historically, the concept of Intellectual Property Rights was developed in industrialized societies to protect the products of human creativity so as to provide an economic incentive to those engaged in such creation. The products of such creations were recognized as property (Mugabe et al., 1997).

[30] They also cite the case of the plant Curcuma Longa, known in India for its medicinal power and patented in the US in 1995. In 1996 the government of India presented a complaint in the Office of Patents, based on the argument that there was no evidence that anything new had been added.

tions are detrimental to the indigenous communities in that they have not been compensated and even in some cases have been robbed. Even more critical, the use of a plant could be restricted once it is patented, and then the traditional community of origin would be unable to use it for their own commercial ends.

For the moment we have to affirm that the system of Intellectual Property Rights is not adapted to the necessities of indigenous peoples for various reasons, within which the following are distinctive:

- The cost of registering Intellectual Property Rights is not accessible to indigenous peoples.
- The criteria for obtaining patents, such as novelty, invention, capacity for reproducing results and industrial application are not relevant for the protection of traditional knowledge.
- The possibility of collective or communal rights is not contemplated, including those of past or future generations.
- They do not take into account the customary property laws already in existence in relation to property rights of indigenous peoples and local communities.

Nevertheless there exist other systems of innovation outside those of the laboratories, and that is the communal system of innovation. With respect to it, Shiva points out 'the system of communal innovation is more informal, it is through it that Third World agriculturists produce, select and improve their cultigens. The seeds of these agriculturists reflect the intelligence, inventiveness and genius of a people.' This same inventiveness is that which indigenous communities utilize when they use one plant to cure an illness, and when they mix various plant extracts to alleviate a disease. In effect, we are accepting that the only valid knowledge is that generated in laboratories and susceptible to patenting.

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) which is enforced through the World Trade Organization, defines minimum standards of protection for intellectual property rights. In section 5, devoted to patents, states that inventions in every field of technology should be patentable, including life forms. This matter of Intellectual property rights over life forms is particularly controversial. In 1992, in Río de Janeiro, the Latin American NGOs met in parallel with the Intergovernmental Committee of the CBD. They declared: 'It is necessary to effect a critical revision of the systems of intellectual property and oppose the international currents that propose the establishment of patents over forms of life.' The extension of intellectual property rights to life forms has direct consequences[31] for the distribution of benefits from genetic resources uses[32].

[31] Biodiversity and Medicinal Plants. 'The clauses on Intellectual Property Rights related to the commercial TRIPs, included in the Round of Uruguay of the GATT, signify de facto that they are permitting multinational corporations to appropriate the ancestral knowledge of our peoples' (Vicente, 1994).

The World Intellectual Property Organization (WIPO) opened a program called 'New Beneficiaries' that among other things involved a search for solutions and extended the system of intellectual property to protect the indigenous peoples, among other owners of traditional knowledge. Bystron stated, "Opponents to this idea have existed notably on the part of the USA, no doubt a long period of education and consciousness raising will be required.

11. A *sui generis* system

Today there exists a strong tendency to separate from the existing System of Intellectual Property and design a new *sui generis* system[33] to protect traditional knowledge associated with access to genetic resources. This would include, for example, rights over traditional resources or communal intellectual property. The *sui generis* system is contemplated within Article 27.3 of the TRIPs that would require it: 'the protection of varieties of plants by means of patents or through means of an effective system *sui generis* or through a combination of both.'

On this point, there are those who see this proposal as a true threat to the local community and indigenous peoples because it is going to monopolize common resources over which there are customs for sharing seeds and innovations (Posey, 1996). In addition, there is a failure to recognize the traditional forms of innovation. But this may also be considered as an opportunity to develop a *sui generis* system that would introduce the protection of traditional resources within the World Trade Organization (WTO) and from there it would be converted into a true focus of attention and action (Posey, 1996).

Some governments are exploring ways of using *sui generis* options to design legislation that may fulfil WTO requirements[34]. Some others point that there is a

[32] The treaty over TRIPs of the GATT could transform itself into the most powerful tool for final colonization of biodiversity and of the different systems of autonomous knowledge (Shiva and Holla-Bhar, 1993).

[33] The word *sui generis* is Latin for a singular or unique member of it class.

[34] It should be noted that it is not the members but the World Trade Organization, which will decide on the effectiveness of a sui generis system and possibility of that system to fulfill the TRIPs obligations. Up to the present time, it is unclear how much flexibility is provided by the term 'effective sui generis system', but a range of sui generis options should be identified from which countries could choose systems to adapt to their own particular circumstances (see Flitner; D, Leskein; D, Myers. *Review of National Actions on Access to Genetic Resources and IPRs in several developing countries*. World Wildlife Fund. Switzerland. 1995; Filtner et al., 1995.

conflict between their commitments under the Convention on Biological Diversity and under TRIPs since trips lacks reference to fair and equitable sharing of benefits (GAIA Foundation, 1998). The deadline to enforce TRIPs was 1 January 2000 for developing countries. Dispite the thread of possible trade sanctions, just a few countries managed to adopt such legislation in the final hour. In March 2000, only United States and the Republic of Korea explicate patent protection for plant varieties[35]. Most of the developing countries, which are members of WTO, have been approaching their obligation through a *sui generis* system.

Unless viable alternatives are sought for the protection of the rights of indigenous peoples and local communities for the conservation of biodiversity and traditional knowledge, they will surely continue as victims of piracy. It is urgent to establish recognition in terms of equal respect for the creativity of indigenous peoples. Shiva finds it necessary to have a system for the protection of intellectual property rights that recognizes native innovation although it differs from that which is verified by industrial systems, differing as much in its structure as in its process and motivation.

Intellectual property laws should be extended to traditional, collective knowledge. The use of a *sui generis* system is possible through the use of know-how licences, trade secrets, contracts as we discribed in the following section, but will not always fulfill the requirements of the WTO. Effective legislation is needed in order to control the collection of biological material and traditional knowledge. Model legislation could be drafted with the participation of indigenous peoples and local communities. It is time to respond to the local communities and indigenous peoples' claims for protection of intellectual property or any other legal protection for traditional knowledge and biological resources.

Also there is a need to take in consideration that the protection and compensation of indigenous people's traditional knowledge and resources is not only a legal matter; it also raises profound ethical questions. It is important that Intellectual Property rights protect traditional resources, but is even more significant if such legal instruments are relevant and useful (Posey, 1994, p. 74). A *sui generis* IPR regime requires a profound examination of the social, political and economic conditions of each particular country. There is not one single answer.

[35] See GAIA (1998).

12. Rights over traditional resources

This concept has been created in order to develop precisely the concept of a *sui generis* system. According to Posey, and based on human rights principles, this is both a process and a framework for the development of multiple appropriate local systems and solutions that reflect the diversity of content, making a *sui generis* system necessary. It is constructed around four processes:

- Identification of the legacy of Norms contained in moral and ethical principles.
- Recognition of principles, resolutions, and declarations (not obligatory) that contain Collective Rights universally accepted for continuing practice.
- Harmonizing of the International Conventions ratified by the States.
- Equity in providing marginalized communities (indigenous and local) with the conditions favorable for influencing all levels and aspects of the political processes for planning and implementation.

The Rights over traditional resources will serve as a base for the development of legislation and as a guide in the dialogue between local communities, indigenous peoples, States and Non-governmental Organizations.

13. Community property rights

According to Sing NiJar (as cited by Glowka) in 1994, the Third World Network proposed what is known as Community Intellectual Property Rights for protecting innovations and intellectual knowledge of local communities in relation to varieties of plants. They elaborated a document known as the Community Intellectual Property Rights Act, in which various issues are considered such as free trade between communities, a registry for each local community, a registry of innovations, the right to be co-owners, the right to monitor and do evaluations of an innovation.

In relation to use for commercial purposes it is reported that any physical or juridical person that is using any innovation or part of it for commercial purposes ought to pay the local community that is the owner or caretaker of that innovation a sum or percentage. The percentage of the gross sales should be no less than the percentage of whatever product or process is incorporated in that innovation. It is proposed that the payment might be non-monetary, but determined by the local community in accord with its customs and practices.

In addition, although there are several clear lines of argument, it is necessary to further explore others in the proposed articles. It is particularly interesting that the innovations or knowledge cannot be sold but remain in the community, what can be sold is the use of the

invention or knowledge. This means that the community continues being the owner and does not give away exclusive rights to the innovation or knowledge. This considers the right of future generations to make use of these innovations and continues to allow for intergenerational transfer of the knowledge. From here the door opens to another theme for discussion, how many times can this knowledge be sold? What would the clauses be in a possible contract with a specific company? In this respect we would have to say that the document lacks a distinction between transfer for commercial purposes and intra-community transfer without commercial purposes.

In Costa Rica the Law of Biodiversity[36] establishes an entitlement called 'The Community Intellectual Rights, *Sui Generis'* in which the State recognizes and expressly protects under the common name of 'Community Intellectual Rights, *Sui Generis*,' the knowledge, practices and innovations of the indigenous peoples and local communities, related to the employment of elements of biodiversity and associated knowledge. This right exists and is recognized legally by the mere existence of the cultural practice or knowledge related to the genetic and biochemical resources; it does not require any previous declaration, expressed recognition, or official registry; therefore, it can cover practices that might acquire such categorization in the future.

This recognition implies that no form of intellectual or industrial property rights protection regulated in special laws and in International Law should affect such historical practices.

In order to determine the reach and nature of *Sui Generis* Community Intellectual Rights, it is established that within eighteen months following the entrance into effect of the law, the Commission, by means of its Technical Office and in association with the Indigenous Panel (*Mesa Indígena*) and the Farmers Panel (*Mesa Campesina*), ought to define a participative process that includes the indigenous peoples and peasant communities 'to define the nature, range and requirements of Community Intellectual Rights, *Sui Generis*,'. For this purpose, the Commission and the organizations involved will design the form, methodology, and the basic elements of a participative process[37].

In the same way, inventories will be made of the specific *Sui Generis* Community Intellectual Rights in need of protection, according to requests by the communities. The possibility will be kept open that in the future other rights with the same characteristics may be added, or recognized. The recognition of those rights in the Registry of the Technical Office of the Commission, is voluntary and free; it ought to be officially done, or upon the request of interested persons, without the necessity of any formality.

The existence of such recognition in the Registry will oblige the Technical Office to answer negatively any request concerning recognition of intellectual or industrial rights over the same element or knowledge. This denial can also always be given on the basis of the same purpose, even when the *sui generis* right is weakly founded, or not yet registered.

In order to define the use of *Sui Generis* Community Intellectual Rights, it is stated that a participation process shall determine the form in which the *Sui Generis* Community Intellectual Rights will be used, and identify who will be the owner of these rights and who will be the recipients of the benefits obtained.

One would have to write another article just to analyze the possible consequences of these regulations. Nevertheless it is clear that there is a long road ahead and that the real challenge will be to create the by-laws that will reinforce the existing biodiversity law. These by-laws have not been defined, or the manner of distribution of benefits and above all the reach of 'rights and obligations' of the concept of community intellectual rights. That is to say that the basis or principles have been established for the development of a *sui generis* system, but this has not been accomplished as yet.

Also we have to go beyond the national level to the international one and recognize that it is essential to play where the standards are defined, and this is inside the WTO[38]. It is necessary to utilize Article 27.3 of the TRIPs and associate it with the obligations assumed by the countries signatory to the CDB in order to create an internationally recognized *sui generis* system for the protection of traditional knowledge. This should be the strategy for the fight, with which we must call the attention of the industrialized countries to justice in the protection of the rights of traditional knowledge associated with access to genetic resources. In the meantime, the accomplishment of this national goal can make contributions to other systems or instruments for the protection of this knowledge. Some of these instruments have been used in the Costa Rican legislation and in that of other developing countries, the following are some examples:

[36] Costa Rica Biodiversity Law. Law Number 7788, 1998. Articles 82, 83, 84, and 85.

[37] The law was approved in April of 1998 ***but as of the present the exact nature, range and requirements of* 'Community Intellectual Rights, *Sui Generis'* has not been designed.**

[38] The World Trade Organization was constituted at Marrakech in 1994 in order to supplant the General Agreement on Tariffs and Trade (GATT) The WTO constitutes a council for aspects related to the TRIPs and to monitor the accord negotiated in the Uruguay round.

14. Proposals for protection

14.1. Commercial (or industrial) secret

In Ecuador they are trying a mechanism for protecting traditional knowledge by converting it to a 'commercial secret,' a category that is already protected by the legislation of many countries. The project proposes that the traditional knowledge would be stored in confidential data banks and then access to it would be negotiated as a commercial secret.

Each community would have its own registry of knowledge and could not access the registers of other communities. A filter would exist inside the Bank that would identify those knowledge that are the same, also identifying which information is already in the public domain by means of a data base offered by the University of Illinois in Chicago.

14.2. Registry of community rights

In India a registry has been established known as the People's Biodiversity Registry, with the intention of decentralizing the mode of access to genetic resources and associated knowledge. According to Dutfield, by 1998 there were already 60 registries of this type developed and maintained at a local level.

Basically, three types of registries of knowledge have been found: (1) knowledge of species, their uses and related techniques; (2) knowledge concerning facts concerning nature; (3) traditional ecological knowledge (Glowka, 1998). An interesting difference exists in the mechanism that is being considered in Ecuador. Here classification as a commercial or industrial secret is not required, rather it is only necessary to give sufficient information in order to identify and proceed to a claim in case this knowledge is being used without recognition of its ownership, value and the corresponding distribution of benefits.

The Costa Rica Biodiversity Law establishes a Register of traditional knowledge[39] in which indigenous peoples could register their knowledge. It is optional and it does not constitute an obligation. If the knowledge is put in the register the government office could deny any other intellectual property right related to that knowledge that does not have the express consent of the holders of the traditional knowledge.

14.3. Databases or networks of traditional knowledge

Some Indigenous Peoples have access to and use of their knowledge through their own databases. An example of this is the Canadian Inuit of Nunavik whose database has served them in negotiations on equal terms with corporations and scientists. The Biodiversity Network of Indigenous Peoples has developed a network of organizations that work with biodiversity and protection of traditional knowledge and are developing a *sui generis* system of protection (Posey, 1996).

14.4. Contracts

Contracts are perhaps the oldest instrument for negotiation and imply the willingness of the interested parties. These negotiations, even though they are among contracting parties, ought to be developed within the framework of national and international legislation and that of the customary law of the community that is negotiating. This is not an easy task, above all for some indigenous people who will need assistance in order to become acquainted with the great range of relevant legislation, from that covering contracts (commercial and civil law) to the environmental laws of the country and beyond to international conventions, such as the CBD and ILO Convention 169, and the international norms concerning human rights.

These contracts[40] can include any clause mutually agreed to by the parties as long as it is consistent with the existing legal framework, both national and international. The duration of the contract can also be defined by the parties, for example a year, or 99 years. The benefits can be paid just once or through continual royalties over the years.

In real terms this means that in order for indigenous peoples to enter into this type of negotiation they have to count on legal assistance, negotiation skills, and clarity concerning the object of negotiation. Given this situation, the Global Coalition for Biological and Cultural Diversity developed a model Convention on Intellectual, Cultural and Scientific Property. This model contains among other measures, provision of a legal fund set up at the beginning of the negotiation to pay for legal assistance, independent monitoring to evaluate the contract, informed consent and joint planning, concern for the environment, equitable distribution and community improvement (Posey and Dutfield cited by Glowka, 1992).

Contracts are key instruments for regulated access to benefit sharing of genetic resources and traditional knowledge. There are different types of contractual arrangements like material transfer agreements, trust funds, bioprospecting agreements, clusters of agreements, and know-how licenses. The kinds of benefits negotiated in contracts could be monetary and non-

[39] See also Draft Biodiversity law of Nicaragua (2000). Proposal for a Regime for the Protection of the collective knowledge of indigenous peoples for the Andean Pact countries (2000).

[40] For Contracts also see Genetic Resources Action International (1994), Stittenfeld and Lovejoy (1994).

monetary. Contracts[41] are presented as a near and viable possibility, that can also include, if required or considered appropriate, measures such as registries of knowledge, licenses of knowledge[42], and commercial secrets. Each community will have to decide how to best provide for its interests while obtaining an effective protection of its rights.

Without a doubt, the design of diverse guidelines for — or models of — such contracts is required, and putting them to the test will be necessary for the evaluation of their effectiveness.

14.5. Knowledge (or know-how) licenses

This mechanism has been used in the Marañon region of Perú, particularly by the Aguaruna and Huambisa communities within a bioprospecting project sponsored by the government of the United States' International Cooperative Biodiversity Group Program with researchers from Washington University, two Peruvian Universities, and Searle and Co., a pharmaceutical division of Monsanto.

This type of license is based on the understanding that the resource does not have value by itself, but only when it is associated with traditional uses, therefore the indigenous communities ought to keep control over the use of such resources (Tobin, 1997). On the basis of this concept, a Knowledge License was created that would cover the use of that traditional knowledge associated with the goal of curing illness.

Perhaps the most relevant factor in this type of license (Ruiz, 1999) is that it does not matter if the knowledge is in the public domain because the community maintains the right of use even when licensing it to a company. The license does not affect the rights of the Aguaruna to use, share or sell plants or knowledge. The knowledge will be licensed even if it is in the public domain.

The license includes a series of clauses, the most notable include not allowing the patenting of life forms, the provisioning of software for local and national registries, and the construction of trusts to be administered by the Aguaruna and Huambisa peoples.

[41] A number of organizations have entered into contracts for the commercialization of genetic resources and associated knowledge. The National Cancer Institute of the United States has negotiated contracts for access to genetic resources in Zimbabwe, Madagascar, Tanzania, and Philippines. Biotics a British firm that matches sellers of genetic resources with buyers and provides some extraction and processing services has negotiated contracts with suppliers in Ghana, Malaysia, and New Zealand. The National Institute of Biodiversity of Costa Rica (INBIO) and Merck Company Simpson et al. (1992).

[42] For registries of knowledge also see Caillaux and Ruiz (1988) and Caillaux et al. (1999).

15. Conclusion

Indigenous peoples need to rely on novel instruments in order to protect their genetic resources (when it is necessary) and their traditional knowledge associated with such resources. Therefore a greater protection is needed with regard to the pirating of knowledge and the invasions of indigenous territories without any type of permission. Anthropologists, botanists, biologists, pharmaceutical companies and others need to recognize their responsibility to provide fair and equitable distribution of the benefits obtained from their research.

There is an urgent need for the development of a *sui generis* system tied to the framework given by the Convention on Biological Diversity and Article 27.3 of the TRIPs. It is in this manner that the attention of large pharmaceutical corporations, researchers, developed and developing countries have been drawn to the rights of indigenous peoples and local communities. The reason is simple: *these rights challenge the growing control of genetic and information resources by private commercial interests*.

National politics and effective legislation are the critical tools for realizing the objectives of the Convention on Biological Diversity and to control the collection and export of biological material and traditional knowledge. They are the keys for converting into reality the goal of equitable distribution of the benefits obtained from genetic resources and associated traditional knowledge.

National legislation ought to begin by recognizing the rights of Indigenous Peoples to sovereignty, self-determination, property rights in land and natural resources, and to hold their own norms as customary rights. All these concepts are inseparable from the protection of traditional knowledge.

Achievement of the objectives and fulfillment of the obligations established by the CBD and Convention 169 of the ILO will require new legal systems as well as modifications of existing legal frameworks. There are many ways to achieve this objective but one should keep in mind that there is an urgent need for an effective and transparent participation in the political decision-making process of the States.

Finally, the innovations based on genetic diversity, be they modern or traditional, achieved by indigenous peoples or pharmaceutical companies, necessarily depend on genetic materials. It has been demonstrated that the tropical forests and the biodiversity of the planet are disappearing at an accelerating pace, thus one of the first actions that we have to take is to establish mechanisms for stopping the depredation of resources.

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