

Challenges for the Maintenance of Traditional Biodiversity Knowledge in Latin America

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INTRODUCTION

Terminological Issues

Indigenous knowledge, indigenous knowledge systems, local knowledge and traditional knowledge are some of the terms currently used to refer to bodies of knowledge that have a key element in common: they are “the different”, “the other” knowledge with respect to “Western science” and “Western knowledge”. Such terms are used variously and some times inter-changeably to refer to bodies of knowledge that communities have developed on the basis of their own cultures and interactions with their environments.

The Convention on Biological Diversity (CBD) has provided what is the most universally accepted statement of coverage of a term corresponding to such bodies of knowledge – or more precisely to a subset of them: traditional biodiversity-related knowledge, or “knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity”. The CBD has not provided a definition of terms, and has discussed the complexities and the difficulties of finding appropriate definitions¹.

Clearly framing the various concepts related to indigenous knowledge in a single, universally accepted definition is not currently possible, and it may not be even desirable. In any case, at least in Latin America, there is currently a wide agreement about focusing on the CBD concept of “knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity” – or traditional biodiversity knowledge for short. This concept is now included in national laws and policies of most countries of the region, and is the subject of discussions concerning approaches to its preservation, protection and use, following the CBD provisions and the most recent work from the World Intellectual Property Organization (WIPO).

Accordingly, this paper focuses on “knowledge,

innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity” in Latin America – or traditional knowledge of Latin America in abbreviated form, and addresses some issues and challenges that IUCN considers relevant for its own programme.

IUCN and Traditional Knowledge

IUCN is the International Union for Conservation of Nature and Natural Resources, or World Conservation Union. It is the world’s largest conservation network, bringing together 83 States, 110 government agencies and more than 850 non-governmental organizations as institutional members from 147 countries (as of December 2006), and nearly 10,000 scientists and experts from all over the world. It has a Secretariat with its Headquarters based in Gland, Switzerland, and offices in 52 countries, with about 1,100 staff members. It also has six Commissions of experts focusing on Species, Protected Areas, Environmental Law, Education and Communications, Ecosystem Management, and Socio-economic issues.

IUCN’s vision is “to achieve a just world that values and conserves nature”. According to its vision, the organization has been increasingly aligning its programme with concepts of social equity, and with the recognition of the many ways in which human lives and livelihoods, especially of the poor, depend on the sustainable management of natural resources.

Indigenous peoples and local communities are high in the IUCN’s agenda. The organization has advanced policies that promote the recognition of indigenous peoples’ rights, and which support conservation actions in favour of the interests and livelihoods of peoples and communities depending on biodiversity and natural resources. In this context, IUCN has been looking for some time at traditional knowledge from various perspectives: as a key component of cultures whose contributions to nature conservation are valuable; as part of the cultural rights of all

peoples; as useful tools to understand and manage ecosystems at the local level; as elements of an approach to social equity that integrates social, economic, cultural and gender issues, and which considers equity as essential for sustainability.

There are several aspects in IUCN's approach to traditional knowledge which I would like to highlight.

The first one is IUCN's interest in maintenance² of knowledge. There are two major foci in the current global policy discussions on traditional knowledge: the first, and predominant one, is legal protection in relation to commercial use; it has to do with intellectual property protection issues. The second is maintenance, and has largely a socio-cultural angle. Both approaches are extremely important, and both have become key areas of work in the CBD context.

For IUCN, however, the interest is mostly on maintenance, due to the fact that the disappearance of knowledge has implications on sustainable management of ecosystems, impacts on the cultural integrity and capacity to manage and adapt to ecological change, and creates additional stress on communities and their environments. Further, if maintained and appropriately encouraged and supported, traditional knowledge can become a very important tool for improved management of ecosystems in wider communities. This aspect of wider use of traditional knowledge has been little developed in the CBD work.

Another important element in IUCN's approach to traditional knowledge is its focus on equity. This is particularly important in the context of wider use of traditional knowledge: any use has to primarily benefit the holder communities, and within them, particular consideration should be given to vulnerable groups.

The maintenance of traditional knowledge is to a large extent an issue of rights. As per the International Covenant on Economic, Social and Cultural Rights, everyone has the right to participate in the cultural life of their community, and to benefit from it without discrimination; and states have the obligation to take the necessary measures for the conservation of communities' culture.

CHALLENGES TO THE MAINTENANCE OF TRADITIONAL KNOWLEDGE IN LATIN AMERICA: AN OVERVIEW

Traditional biodiversity-related knowledge in Latin America and the Caribbean is being rapidly

lost, and major efforts are needed for "halting the loss of and encouraging the retention and use of knowledge", as required by CBD Decision VII/16.

From a cognitive perspective, there are two concurrent processes determining the loss of traditional knowledge: a process affecting individuals from indigenous and local communities who drop elements of their own knowledge (as a net knowledge loss or as a replacement with foreign elements of knowledge) and stop using them in their daily lives; and a process affecting the family and the community environments, where individuals of parent and grandparent generations are no longer transmitting the knowledge (or elements of it) to the younger generations. As already discussed by many researchers and indigenous and community persons themselves, both processes (the individual's retention of knowledge and its transmission) are more drastically affected when the traditional knowledge is not registered or written, and therefore is only dependent on memory and oral transmission.

Looking at the problems of traditional knowledge survival in the long term, the essence of the retention of traditional knowledge is inter-generational transmission; the second major issue is the adaptation of traditional knowledge to socio-economic and cultural change, particularly in terms of maintenance of its functionality, and thus its dynamic connection with practices. As a rule, people do not make the effort of keeping knowledge which is dysfunctional to their needs or which is not perceived as useful for future generations; traditional knowledge therefore is kept alive in as much as it is functional to the needs of the individuals and the group.

The current state of processes of inter-generational transmission of knowledge has not been systematically studied in Latin America and the Caribbean, but there is ample evidence that such processes are under increasing pressure and are experiencing continuous erosion. Oral cultures are more at risk, in the sense of the fragility of their transmission processes, where a mere alteration in the relationship between mother and daughter, for example, can have lasting or definitive effects on the viability of the knowledge received by the daughter; but on the other hand, oral cultures in the region are generally more isolated from the sources of erosion of knowledge – schooling, mass media, interpersonal contact with other cultures, markets. At equal level of vitality of transmission mechanisms within the

community, the closer its relationship with such factors, the faster the knowledge loss, as Zent demonstrated in his studies with the Piaroa in Venezuela (Zent, 2001); at equal levels of cultural contact, the weaker the transmission mechanisms within the communities, the faster the knowledge loss, as evidenced in the case of indigenous communities with active contact with the dominant society but lacking tools to restore knowledge transmission, such as inter-cultural education. Clearly the worst situation in terms of knowledge loss is that of indigenous communities with active cultural contact with dominant cultures, and lacking such transmission mechanisms.

This discussion about the range of rates of knowledge loss and the functionality of the mechanisms for the transmission of traditional knowledge suggests the analytical usefulness of a typology of indigenous groups based on the degree of cultural change (Oviedo and Maffi, 2000):

1. Groups with vital traditions and environments living in isolation or relative isolation (e.g. about 64 groups living in "voluntary isolation" in the Amazon, plus others in the same region with limited contact with the national society). This type is the smallest in terms of number of peoples and number of populations, but represents the higher degree of retention of traditional knowledge-although in some cases they are considered highly endangered cultures due to the size of the groups and their fragility including low defences against diseases.
2. Groups with vital traditions and environments living in contact with non-traditional societies and the outside market. This type is represented by many indigenous peoples of the Amazon, and many other groups mostly in forest areas; although they are undergoing cultural change, their cultures are still vital and their knowledge is still largely transmitted and retained, and they have a fair degree of control of their cultural change. This type maybe the second largest in the region.
3. Groups simultaneously experiencing rapid cultural change and ecosystem degradation. This is the case of many indigenous communities in mountain areas where agricultural systems are in crisis or severely affected; poverty is a common denominator for such groups, and their traditional knowledge is experiencing rapid loss. Although indigenous

languages are still spoken, their transmission to children is increasingly difficult because of schooling, migration, market and media influence, and loss of traditional economies. This situation may affect the largest numbers of indigenous population in the region.

4. Groups (rural or urban) having undergone radical cultural and ecological change, but wanting to recover aspects of their ancestral traditions and resource management and use. Many groups in this type have lost their language and particularly the opportunities to transmit it to younger generations, but there are processes of cultural recovery that may help retain part of the traditional knowledge. This type includes significant numbers of indigenous people having migrated to cities.

Indigenous communities in each of the four types may need different approaches to addressing the cultural dimension of the loss and the retention of their traditional knowledge: from full and strict protection of territorial boundaries in the first group, including the total avoidance of cultural contact, to radical changes in the school curriculum and in informal communication channels to "devolve" elements of traditional knowledge in the fourth type. In the case of the first type, the assumption is that knowledge transmission will continue to happen under traditional ways and models if no cultural disruption occurs. In the fourth type, the assumption is that traditional transmission is no longer effective as it cannot compete with externally induced cultural processes (schooling, mass media, interpersonal intercultural contact, etc.), and also due to disappearing traditional, cultural institutional contexts, and that the only way to retain knowledge is by making externally induced cultural processes sensitive to the importance of traditional knowledge and turning them functional to the recuperation of disappearing knowledge.

Thus, for preserving traditional knowledge generally the region needs a combination of approaches ranging from defensive protection of cultures wanting to avoid cultural contact, to active recuperation of eroding knowledge through "modern" techniques for knowledge trans-mission.

A similar analysis can be made about non-indigenous communities of Latin America and the Caribbean. Local communities are also experiencing rapid cultural change, and although they do not suffer from the stress of losing languages,

the inter-generational transmission of knowledge is also breaking down in the face of similar factors – schooling, communications, increased labour mobility and migration, more dynamic interpersonal relationships, market and consumption patterns, etc. There are few non-indigenous communities in the region with a strong, distinct cultural identity; those remaining are almost exclusively of African descent, such as the cases of the Maroons of Suriname, the Garifunas of Central America, some communities in the Atlantic coast of Central America, and some on the Pacific coast of South America's tropical forest of Colombia and Ecuador. Many of these communities may correspond to type 2 in this typology, and maintenance of their knowledge may need the same kind of responses. For the rest of local communities, however, the responses would have to concentrate on channelling cultural change through active management of external cultural processes, as suggested for groups of type 4.

Generally speaking, preservation of traditional knowledge has to be addressed through two complementary approaches: management of cultural processes, primarily inter-generational transmission, and management of the major drivers of cultural change.

It has been stated that knowledge retention is the result of the social effort to keep alive an intellectual element that is vital for the material and cultural reproduction and survival of a group, and that therefore knowledge retention depends largely on the functionality of such knowledge. Now, functionality is, in the case of indigenous and local communities, mostly determined by factors external to them, not a result of their own choice. They are *de facto* immersed in a larger society, with much more power and capacity to drive their lives than themselves.

This paper looks primarily at such drivers, and concludes that the essence of the cultural change that leads to the loss and erosion of traditional knowledge lies on the social structures and processes at the national level. In rural areas, for indigenous peoples the fundamental links with their traditional territories is at the basis of the maintenance of their cultures and their knowledge, as they are basically “ecosystem peoples” to use Dassman's terminology. For local communities, land tenure security is also the cornerstone of their lifestyles, although their cultural patterns are closer to socio-economic models based on individual property of the land.

It is difficult to predict to what extent national drivers of cultural change and loss of traditional knowledge can be redirected, so as to ensure that they have less or no negative impacts on the retention of traditional knowledge. But at least some of the drivers seem feasible to handle, if the political will exists.

The second set of responses corresponds to specific actions and tools directed at enhancing the capacity of communities themselves to manage their own cultural change and their own processes of knowledge retention, transmission and change. Although this report examines some of such processes, it does not pretend to give a whole account of them, but rather to highlight experiences that provide useful lessons.

NATIONAL FACTORS THAT THREATEN THE MAINTENANCE OF TRADITIONAL KNOWLEDGE³

Demographic Factors

Although the demography of Latin America and Caribbean (LAC) region has changed significantly since the Spanish conquest, Latin America is still home to one of the largest indigenous populations in the world and, together with the Caribbean countries, shelter to an important number of Afro-Latin American and non-indigenous, rural local communities.

Precise numbers of such indigenous and local communities⁴ are difficult to obtain, since censuses are not accurate in this field or do not include ethnic identification or self-identification. In addition, there is a lack of adequate and unified criteria, some indigenous groups live in isolation, and there is no clear definition of local communities. Therefore, it is hard to find a national census that can define the characteristics and composition of communities, including sufficient disaggregation of data and access to basic service, schooling, and family income⁵. A study from Colombia (Sanchez and Arango, 2001) stressed the fact that before the 1970s there were no demographic studies that could give an accurate idea of the numbers of indigenous populations. This has improved little. Other difficulties are the lack of adequate methodologies for surveys and the absence of systematic information regarding number and location of settlements, particularly for more isolated ethnic groups (Sanchez and Arango, 2001).

Since the European conquest in the sixteenth century, indigenous peoples in Latin America and the Caribbean have been marginalized, discriminated, forced to assimilate and to abandon their cultural patterns and traditional territories. In about four centuries, indigenous peoples have gone from being two-thirds of the Latin American population to one-fifth today (Rama, 2001). This is still a high estimate, with a considerable proportion of the indigenous population living in urban areas. In countries like Uruguay and most of the Caribbean, indigenous peoples are almost extinct (Plant and Hvalkof, 2001).

Even though numbers vary from one source to another, estimates put figures at about 30 to 40 million indigenous people in Latin America and the Caribbean, accounting for 8% of the total population of the region. In Guatemala and Peru, indigenous people account for 30% to 50% of the national population, and in Bolivia between 50% and 70%. Estimates of indigenous population in Central America were 6.76 million people in 1992, or almost 20% of the total population of that region (UNDP, 2002).

From indigenous rural communities of the mountain areas of Mesoamerica and the Andes, to the indigenous communities living in the lowlands and the rainforest, there are least 400 different indigenous peoples in the region (Alwyn, 2001; Peredo Beltrán, 2004)⁶.

Indigenous peoples are more numerous in South America, which also has an important population of Afro descendants (particularly in Guyana, Suriname⁷, Brazil, Venezuela, Colombia, Ecuador, and Uruguay).

The demography is quite different in the Caribbean countries. Most indigenous population has disappeared and the major ethnic group is Afro descendant, with over 64% of the population being Afro-Latin American and only 1% being indigenous.⁸

In Mexico, we find 15% of all indigenous peoples of the region (Toledo, 1999), although they represent only 10% of the whole Mexican population. In five countries - Peru, Mexico, Guatemala, Bolivia, and Ecuador, live 90% of the indigenous population of the region, occupying mainly the mountainous areas of the Andes and Mesoamerica and the remote areas of tropical forest of the Amazon Basin (Deruyttere, 1997).

Afro descendants and the mestizo population account for 30% of the inhabitants of Latin America and the Caribbean (Peredo Beltrán, 2004).

Causes of demographic changes affecting

indigenous and local communities are mostly the result of insecurity of land tenure (e.g. occupation of their lands by other groups), changes in their natural environment, migratory processes, cultural erosion, and economic factors such as poverty.

Changes to their natural environment are the result of activities such as agriculture, tourism, logging, oil exploitation, and mining, thus activities often associated with occupation of their lands in different forms. New social groups linked to such activities invaded indigenous lands and eroded their cultures and environment with unsustainable practices and a different perception of development. Cultural exchange among indigenous peoples and newcomers has rarely occurred in harmony and with respect of traditional cultures. The permanent threat to the life and culture of isolated indigenous groups of the Amazon is an example of the consequences of these culturally insensitive contacts (Huertas, 2002; Zarzar, 2000).

In the case of Chile, it has been argued that the causes of decline of indigenous communities are the invasion of their traditional lands and the transformation of collective property into private property. Between 1884 and 1927, Mapuche people were confined to about 3000 reserves, of which in 1990 there were just over 600 - although the Mapuche continue to be one of the largest indigenous peoples of the Americas with almost a million members in Chile⁹.

The indigenous and Afro-Latin American population is not only a large sector of the population of the region, but also the poorest and most marginalized group (Peredo Beltran, 2004). Because of poverty, lack of opportunities and pressure on their lands, rural population is decreasing at an accelerated pace. Indigenous peoples have migrated from their own lands, due to occupation of colonists and displacement by development projects. The larger migratory processes occurred in the Twentieth century, when large portions of the indigenous population from the Andean region moved to the main cities in countries like Bolivia, Peru, and Ecuador. In Mexico and Central America, indigenous migration goes even beyond borders, to more prosperous neighbouring countries.

Diverse studies agree on the fact that systematic inequalities continue to affect indigenous peoples. Among those inequalities are lower life expectancy, a poor access to education, greater rates of school dropouts, mortality from preventable diseases, malnutrition, infant and

maternal mortality, and greater incidence of poverty than in any other population group (UNDP, 2002). In fact, mortality among indigenous children is significantly higher than in non-indigenous children. For instance, according to UNICEF, in 2001, 75 of 1000 indigenous children in Latin America did not reach the first year of life, while mortality rate for non-indigenous children was in the same year at 52 per 1000¹⁰.

Colonization policies are also a determining factor in the variation of demography in rural areas. For instance, in the early 1980s, the wrong conception of the Amazon Region as an empty space, with great agricultural potential, resulted in government-led colonization and construction of roads in the region, which was a cause of death, migration, and voluntary isolation of thousands of indigenous people (CADM, 1992).

Additionally, violent political conflicts have also been responsible of deaths, migration, and displacement of thousands of indigenous and local people in Peru, Colombia, Guatemala¹¹, El Salvador, and Honduras. In Peru, 79% of the victims during the 1980s and 1990s were indigenous people, and in Colombia, there is an important number of death and children and women refugees due to armed conflict¹². In the frontier between Colombia and Brazil, constant armed conflict has resulted in death, displacement, illness, prostitution and forced labour of the Maku people¹³. One-quarter of the remaining 450,000 indigenous people of Colombia have lost a great portion of their cultural heritage (Mittermeier et al., 1997).

The mentioned factors and new diseases brought by colonists, companies, religious groups, and drug dealers have resulted in the entire disappearance of many indigenous peoples, with all their cultural baggage and traditional knowledge. In Peru, 11 indigenous groups disappeared between 1950 and 1997, and 18 more are currently endangered (Zarzar, 2000).

In Brazil, estimates of the Amerindian population at the time of European Colonization in the early Sixteenth century range from 2 to 5 million, with as many as a thousand different indigenous peoples; now there are 230 groups that speak more than 90 languages and 300 dialects¹⁴.

The Ayoreo (Totobiegosode) people, inhabitants of the Chaco forest between Bolivia and Paraguay, have dramatically diminished due to the incursion of colonists in their lands, expansion of agricultural frontier, and harassment by religious

groups. Those contacts, initiated during the 50s, finally succeed in integrating the Ayoreo to national society, although a small group of them remains isolated, fearing extinction¹⁵.

The mentioned changes in the demography of indigenous and local communities have direct effect over the maintenance of their traditional land and resource use patterns and traditional knowledge, while outside influence and impacts over their natural environment provoke rapid changes in their lifestyles, leaving them without sufficient time to adapt to the new environment.

National Development Policies/Programmes

Assimilation, integrationist, and paternalist policies until the 1980s affected indigenous peoples' traditional systems, mostly through agrarian reforms and land policies. There is a poor understanding of the impacts of development activities on traditional knowledge and practices. In recent years, market oriented economic policies have intensified the negative impacts on the local environment of indigenous and local communities and their traditional agricultural practices.

Environment is still not a priority when dealing with difficult development decisions, and cultural factors are almost absent in the decision making process. There is very little research on the impact of extractive industry activities on traditional knowledge and practices of indigenous and local communities. Many in the indigenous and local community policy networks claim that transformation needs to happen in policymaking, by integrating all the different factors that account for sustainable development with equity and strengthening the value of participatory mechanisms.

Impact of Poverty on Traditional Knowledge

Indigenous peoples and local communities are the poorest and most marginalized group in Latin America and the Caribbean. Systematic inequality continues to affect indigenous and local communities, resulting in lower life expectancy, higher mortality rate (particularly of maternal - infant mortality), poverty, and under-nourishment.

Poverty threatens the maintenance and preservation of traditional knowledge in various ways, affecting the traditional economy, inducing stress on natural systems, altering family structures through migration.

Indigenous peoples' culture, spiritual values, and traditional knowledge are undervalued by "western" society, in spite of their contributions in the health, food and cosmetic sectors.

Considering that indigenous and local communities depend directly on natural resources for their health and food needs, the preservation and maintenance of their traditional knowledge and practices have an important role to play in the eradication of poverty and in achieving sustainable development with equity.

Education, Training and Employment Policies and Programmes

Education programmes have been one of the principal vehicles for the assimilation and integration of indigenous peoples into "western" culture.

New tendencies towards a multicultural approach have begun to be implemented in several countries of the region, but there is very little information about the efficacy of these programmes and their effects have scarcely felt beyond primary education.

There are still very few qualified indigenous professionals to support the implementation of multicultural bilingual education and, in most countries, the programmes have not received sufficient attention of the governments.

There are no specific employment policies or consideration for traditional knowledge and practices in national labour legislation, very little research has been done on the role of labour policies for strengthening traditional knowledge systems and culture.

National Modernization Programmes that Include the Development, Transfer, and Adaptation of New Technologies

There is insufficient evaluation of cultural impacts of extractive industries. Although policies have evolved on the recognition of the values of traditional forest-related knowledge, its application in sustainable forest management is still very limited outside community forestry.

Cultural and economic impacts of bioprospecting are not properly contemplated in the legislation, such as the disruption of cultural patterns, the absence of motivation to support and preserve traditional knowledge, and the

potential impacts of intellectual property regimes on the retention of traditional knowledge.

New technologies applied in modern agriculture have impacted indigenous and local communities and their natural environment, such as degradation of soil, ground, and water, forced migration, temporary agricultural work with unfair conditions (for women, in particular), the interruption of traditional agricultural systems, and loss of agricultural biodiversity and traditional practices. On the other hand, poor farmers have neither access to the new technologies nor adequate infrastructure to gain access to the markets.

Latin America and the Caribbean countries have made significant progress in developing legal and institutional frameworks for biosafety, particularly under the CBD Biosafety Protocol, but their technical and scientific capacity to identify and avoid the impacts of new biotechnologies is still very limited. The norms on biosafety adopted in the region do not incorporate generally considerations related to cultural impacts. In general, the region lacks effective measures to protect farmer's rights and precautionary measures for genetically modified seeds.

It is argued that the main threats of agricultural biotechnology to traditional agriculture and biodiversity are genetic erosion, privatisation of living organisms through patents and limitations for the local and traditional exchanges of seeds and living material among communities, all of which could impact on the conservation and use of agricultural biodiversity. However, this needs more research and there is not sufficient evidence for drawing firm conclusions.

Trade Related Policies

Trade policies in the region have generally not taken into consideration the interests and needs of indigenous and local communities. This is valid for bi and multinational trade agreements, some of which are said to impose a new ideological, legal, and political framework that will determine the relations between the transnational capital, the States, and the Latin-American peoples.

The complexity of the trade policies and agreements makes it difficult for indigenous and local communities to understand all their implications, which can go from unfair competition with subsidized agricultural products from developed countries, intensification of

natural resources exploitation, intellectual property rights over plants, to the loss of indigenous crops and biodiversity resulting from the intensification of agriculture and development of infrastructure in rural areas.

Agrarian Reforms and New Land Regimes

Generally, land security for indigenous peoples and rural communities has increased since the start of agrarian reforms several decades ago, but has not been achieved sufficiently in the region, and regularization and titling processes have not been completed. Conflicts over land tenure have not been properly attended to in many cases, and options to solve claims over traditional territories have not been properly discussed and analysed in all cases.

In most countries, national institutions have very little capacity to deal with and solve conflicts over land, and land issues are not treated as a trans-sectoral subject. The approach to land rights is too narrow and does not incorporate traditional knowledge issues into land policies and vice versa. The relation among land, culture, and traditional knowledge has not been clearly understood, nor explicitly addressed in national policies and legislation.

Oil and Mining

Extractive activities provide little direct benefits to indigenous and local communities. There are little standards or mechanisms for the evaluation of consultation processes and to guarantee the fairness of the agreements for the use of indigenous and community lands for industry developments. There are no specific considerations in environmental impact assessments regarding the potential impacts of these activities on traditional knowledge.

Forest Policies and Laws

Forest policies and legislation have been generally designed without, or with very little, participation of indigenous and local communities. Very few countries have included considerations regarding forest related traditional knowledge in their forest policies, and measures to promote the use of traditional knowledge and practices as a technical component of forest management plans are in their infancy.

National forest legislation is concentrated principally on commercial logging by the private sector. Regulations related with forest activities inside indigenous territories refer mostly to subsistence activities, and there are very few regulations that support indigenous peoples' traditional forest management.

There are critical problems of overlapping of logging concessions with traditional territories, as well as problems of illegal logging in indigenous and local communities' lands.

Biodiversity Conservation and Protected Areas

Difficult relationships between communities and protected areas still exists in most countries of the region, due to the limitations imposed by protected areas to the use of resources, and to the lack of formal recognition of land and resource rights within such areas.

However, this is changing. Some laws at the national level start to recognize such rights, as well as the role of indigenous and local communities in the conservation of biodiversity and protected areas management. Experiences of co-management of protected areas are still limited, but are growing rapidly; some experiences of self-management by indigenous and local communities are also registered. Although formal mechanisms in the legislation that incorporate traditional knowledge as a tool in the management of protected areas are still rare, in the field there is a growing tendency to include it.

Access Laws and Regulations to Protect Traditional Knowledge

There are very little advances in implementation of the process for granting prior informed consent and determining equitable benefit-sharing of bioprospecting activities. However, some countries have advanced framework legislation and consultation processes.

Current discussions on the protection and use of traditional knowledge focus primarily on measures for the legal protection and for benefit sharing in the context of commercial application of traditional knowledge, but little attention is paid to preservation of such knowledge and for its application to biodiversity conservation, outside commercial activities.

Legal frameworks for access to genetic resour-

ces and its relation with traditional knowledge are still incomplete, and main issues remain unsolved, such as the role of registers, procedures to grant PIC and benefit-sharing.

Intellectual Property Rights Laws

Intellectual property rights regimes are still not able to transform its nature in order to grant traditional knowledge the same level of protection given to the innovations and inventions produced by the non-indigenous society.

Intellectual property rights associated with crop and seed variety are of particular concern to indigenous and local communities, due to their implications for food security and their impacts on traditional agricultural practices.

Participation, Consultation and Prior Informed Consent

In most countries, there has been progress in establishing participatory processes for indigenous and local communities on biodiversity matters; however, effective legal frameworks do not yet exist, and related mechanisms are often weak. Most problems related with participation and consultation processes are linked to inadequate timeframes, unclear possibilities to influence the outcomes, and lack of adequate information.

PROCESSES AT THE COMMUNITY LEVEL THAT THREATEN THE MAINTENANCE OF TRADITIONAL KNOWLEDGE

Territorial Factors and Factors Affecting Communal Lands

The main problems affecting traditional territories and communal lands at the local level are rooted in colonial history, and republican processes have not managed yet to come up with agrarian structures that fully respect rights and meet the needs of indigenous and local communities. Problems refer mainly to, *inter alia*:

- Inadequate national legal frameworks that resulted in the disruption of traditional land tenure and use patterns and the fragmentation and loss of traditional land, as well as changes in settlement patterns of indigenous communities;
- Lack of recognition of land and territorial rights, insufficient land allocation, extremely asymmetric land tenure;

- Degradation of land and/or resources because of pressure over natural resources by colonists, extractive industries, changes in traditional uses, limited availability of land;
- Modernization of agriculture, with the intensification of the use of modern technology, pesticides, large areas of monocultivars;
- Lack of effective mechanisms for conflict resolution on land tenure;
- Inefficient land registers and difficult procedures for land demarcation and titling.

Cultural Factors

Cultural erosion in indigenous and local communities, including loss of traditional knowledge, happens as a result of socio-economic drivers as described above, which impact at the community level on the mechanisms of transmission of traditional knowledge. Further, decades of policies and legislation oriented towards the reduction of cultural diversity and promoting homogeneity, has had impacts on cultural patterns and has resulted in the disappearance of entire ethnic groups, the loss of languages, and changes in the transmission of traditional knowledge to younger generations. National educational policies have often caused the abandonment of the indigenous language by the children and young people.

Traditional cultures and lifestyles are not sufficiently appreciated by the national society, and indigenous and local communities continue being the subject of marginalization and discrimination. This creates stress within many communities, particularly in the sense of the younger generations wanting to change identity to avoid discrimination.

There are constraints on the exercise of customary laws relevant to the management, conservation, and sustainable use of biological diversity, due to the lack of specific legislation.

Economic Factors

National economic policies have affected traditional economies of indigenous and local communities, and mechanisms do not exist to facilitate their entry into the market in culturally appropriate conditions. Market rules are altering social structures of the communities including at the family level.

Social Factors

Migratory processes in many rural areas affect family structures, with changes in the labour patterns and in the role of women and age groups. Young people from rural areas are increasingly migrating to urban areas and to other countries.

Lack of Capacity to Manage Contemporary Threats to Biological Diversity

Changes in the demand of natural resources, alterations in the traditional use of natural resources, and insufficient land and resources for satisfying communities' needs, are causing often the degradation of communities' lands and territories.

The rapid changes in natural resource use at the community level affect traditional practices and cultural patterns, reducing the aptitude of traditional systems to adapt. There are insufficient opportunities available to communities to enhance their capacity to deal with such changes.

Impact of Health Care Policies on the Maintenance of Traditional Knowledge Systems

Some studies have identified that one of the causes of poor healthcare for indigenous people is the imposition of "western" medicine and its idea of illness and cure, instead of incorporating the holistic approach of traditional medicine.

Traditional medicine has been largely ignored by national health policies and authorities, although there are new proposals and attempts to incorporate elements of traditional medicine into national health policies.

Impact of Organized Religions on Traditional Knowledge and Practices

The imposition and influence from religious groups is one of the most dramatic factors of culture and knowledge loss. Having started in colonial times, it remains in different forms one of the most difficult problems for indigenous and local communities all over Latin America and the Caribbean. However, governments have generally not established specific measures and policies to solve this problem, and churches and religious groups continue to put pressure on indigenous and local communities to force them to abandon their traditional spirituality and knowledge and embrace foreign religions.

SUMMARY AND RECOMMENDATIONS

Solve Land and Resource Claims from Indigenous Peoples and Local Communities, Provide Them with Land Tenure Security, and Address Land Tenure Inequities

Land rights should be legally recognized and respected, and land security should be guaranteed. Look for solutions to indigenous peoples' and local communities' claims on traditional territories and lands, and establish simpler procedures to identify land rights, demarcate areas, grant titles, and solve conflicts over land and natural resources. The search for solutions should involve negotiation processes with indigenous peoples and local communities, governments and other interested actors.

Ensure that policies and legislation related with access to natural resources respect rights and livelihoods of indigenous and local communities (e.g. water management, land markets, logging activities, extractive industry concessions, etc.). The rights of indigenous people and local communities over natural resources located in their traditional territories and lands should be clearly defined, in order to guarantee full access to them as they are the basis for their subsistence and traditional practices.

Revise national policies and legislation regarding natural resources in order to guarantee the maintenance and preservation of traditional knowledge and practices in line with the provisions and the spirit of CBD Convention and ILO Convention 169.

Consider the Rights, Interests and Needs of Indigenous and Local Communities When Designing Legislation, Policy and Administrative Procedures

Take measures as a priority, including national regulations when necessary, to effectively implement and enforce ILO Convention 169.

Accordingly, integrate consideration of indigenous rights and traditional knowledge into national development policies.

Undertake research on the cultural and social role of water before defining water market policies and granting private rights over this resource.

Incorporate equity and cultural issues in national legislation regarding water, forests, wetlands, coastal areas and other ecosystems

whenever they may affect indigenous and local communities.

Incorporate mechanisms for indigenous peoples' participation in the management of protected areas, and recognize and respect their rights and traditional uses of natural resources within protected areas inhabited by them.

Design Development Policies and Plans More Suited to the Environmental, Social and Cultural Characteristics of Rural Areas

Redefine the development approach in rural areas, adopting policies and programmes more suited to the environmental, cultural, and social characteristics of these areas and to the inhabiting indigenous and local communities. Ensure proper involvement of such communities in relevant processes.

Undertake studies and analyses relevant for the maintenance of traditional knowledge. This will help policy-makers better understand the links and interdependency between culture, land, and biodiversity.

Assess environmental, social and cultural impacts of national economic policies and actions, and when appropriate, implement also mitigation measures to avoid cultural and environmental erosion. Proactively make use of the *Akwé: Kon / Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities*.

Include a similar approach to social and cultural impact assessment, integrated with environmental impact assessment, as a formal requirement for development or environmental projects and actions and with the participation of indigenous and local communities of the area of influence of the project or activity. Indigenous and local communities should also participate in the implementation of the management plans for those activities.

Ensure access to ecosystem goods and services needed for communities' livelihoods, particularly in forests and other areas where there might be high competition for resource use.

Take measures to safeguard food security of indigenous and local communities, by strengthening their agricultural systems, guaranteeing

land security, facilitating access to markets and technology as needed, and protecting their rights as farmers.

Address Poverty, Migration, Armed Conflict and Natural Resource Degradation as Drivers of Cultural Change and Knowledge Loss of Indigenous and Local Communities

Acknowledge the links between ethnicity, rurality and poverty, and take measures to eliminate all forms of economic and social discrimination.

Revamp the Millennium Development Goals agenda at the national and regional levels, with particular regard to indigenous peoples' and local communities' needs and situation, and with their direct involvement.

Carry out research on how development policies affect traditional economy and family structures, and take appropriate measures to avoid those impacts.

Pay closer attention to the impacts of armed conflicts on indigenous and local communities, take measures to avoid and mitigate negative impacts, and prevent forced displacement of communities from their lands and territories.

Develop National Legal Frameworks and Specific Policies for the Preservation and Maintenance of Traditional Knowledge and Practices

Recognise unequivocally indigenous peoples' and local communities' property rights over their traditional knowledge and practices, and the collective nature of these rights.

Define, together with indigenous and local communities, the elements of a regime for the protection, preservation, and maintenance of their traditional knowledge and practices.

Define the national legislation regarding access to genetic resources, in harmony with the national legislation on traditional knowledge.

Undertake consultation and negotiation processes for the definition of the main elements of a *sui generis* regime and specific procedures for defining, *inter alia*:

- Who should grant prior informed consent and mechanisms for it
- Level of participation in the benefits and the distributional mechanisms between communities

- Role of the registers and the mechanisms for guaranteeing that they do not turn into an instrument that facilitates biopiracy

Pay greater attention to the implications of genetically modified organisms for food security for the poor rural population. The full recognition and enforcement of farmers' rights as well as a precautionary approach for the implementation of GM technology in the region seems in this sense an urgent task.

Implement safety measures at the national level to avoid environmental, health, social, economic, and cultural impacts of GM crops on indigenous and local communities' livelihoods.

Put in place measures to implement Article 9.1 of the FAO International Treaty on Plant Genetic Resources for Food and Agriculture, about indigenous and local farmer communities' rights to continue using and improving crops and seeds, and to guarantee the equitable sharing of the benefits derived thereof.

Strengthen Institutional Capacity, Decentralization, Access to Justice, Access to Information, and Conflict Resolution Mechanisms for Indigenous and Local Communities

Strengthen the capacity of national institutions involved in natural resource management, indigenous peoples' affairs, intellectual property rights and others, to deal with issues related with traditional knowledge of indigenous and local communities. Define coordination mechanisms among those institutions and with organizations representing indigenous peoples and local communities and NGOs.

Strengthen the role of local authorities in the conservation of traditional knowledge and practices, to support decision-making through participatory processes at the local level.

Define and implement regulations to guarantee that indigenous peoples and local communities have access to the relevant and appropriate information, such as policies, legislative proposals, actions, activities, and any other measure that may affect their life, culture, and natural environment.

Guarantee indigenous and local communities' access to justice, defining mechanisms that link national justice systems with indigenous justice systems based on their customary laws.

Implement more efficient conflict resolution mechanisms, appropriate to the cultural charac-

teristics of indigenous and local communities.

Provide capacity building for indigenous and local communities' organizations, and define mechanisms to facilitate communication and information exchange from the national level down to the local level, with communication flowing in both directions.

Include Participatory and Consultation Procedures for Indigenous Peoples and Local Communities, in Accordance with ILO Convention 169, as a Formal Procedure in All Activities Affecting Their Lands and Resources

Recognise the importance of building intercultural dialogue of the national society with indigenous peoples and local communities, and take measures to guarantee that national regulations regarding communities' participation in decision making processes are properly framed in a concept of intercultural dialogue.

Develop, in consultation with indigenous and local communities, participatory procedures for the definition of policies, legislation, and project implementation measures that take cultural differences into account.

Support indigenous peoples and local communities to define their own procedures for granting prior informed consent under their customary laws.

Implement culturally sensitive consultation processes with indigenous peoples and local communities regarding trade agreements, in order to identify their main concerns and allow sufficient time for presenting proposals.

Support indigenous-led initiatives, e.g. for intercultural education, preservation of traditional knowledge and natural resource management.

Define criteria for negotiation processes with indigenous and local communities, establishing, when appropriate, especial measures to reduce inequalities among parties involved in negotiations. Create multi-sectoral advisory committees to review the equity and fairness of agreements with indigenous and local communities.

Enhance Accountability of the Private Sector in Relation to the Potential Cultural and Social Impacts of Their Activities on Indigenous and Local Communities

Take measures to enhance transparency and accountability of the private sector in relation to

the potential cultural and social impacts of their activities. This includes measures, in consultation with indigenous peoples and local communities, on social plans or development programmes when the magnitude of the activities so requires. Strive to ensure that the impacts are prevented, mitigated, and managed, and that the benefits of the activities reach the communities.

Facilitate dialogue and consultation process between companies, indigenous peoples and local communities whenever a project is planned for implementation in or near the community lands.

Develop Indicators and Monitoring Schemes, in Cooperation with Indigenous Peoples and Local Communities, for Development and Environmental Actions

Develop indicators and monitoring schemes, in cooperation with the concerned communities, in order to reinforce the evaluation of the social and cultural impacts of development activities on traditional knowledge and practices.

Actively involve indigenous and local communities in the monitoring of projects and programmes carried out on their lands or in areas used for their subsistence and traditional activities.

Expand Research and Foster Recognition of the Value of Customary Laws for the Preservation of Indigenous Cultures and Traditional Knowledge and Practices

Carry out further research on the impacts of the loss of customary law on the preservation and maintenance of traditional knowledge and practices.

Recognize and enforce the use of customary law of indigenous peoples within their traditional territories, and develop mechanisms to strengthen and support the use of customary laws.

Establish mechanisms to link customary law with national legislation. Case studies on linking both legal systems would be useful.

Enhance Multicultural, Bilingual Education

Traditional knowledge issues should be incorporated into the school curricula for indigenous and non-indigenous students, at all levels.

Dedicate more human and economic resources to design and implement multicultural educational programmes.

Evaluate and measure the effectiveness of

existing multicultural bilingual education programmes and identify areas that need improvement.

Support the capacity building of indigenous organizations and programmes at higher levels aimed at indigenous youth, including for the recuperation of lost or eroded indigenous languages.

Increase Public Awareness of the Importance of Indigenous Peoples' and Local Communities' Traditional Knowledge and Practices

Develop awareness campaigns and training programme for authorities, congressional representatives, and judges on the importance of traditional knowledge.

Define labour policies and legislation oriented towards indigenous peoples and local communities, using intercultural approaches. Communities should enjoy the same labour benefits as other sectors of national society.

Respect and Integrate Traditional Medicine with "Western" Medicine Systems to Meet Indigenous Peoples' and Local Communities' Health Care Needs

Recognize the value of traditional medicine, and design and implement special policies regarding indigenous peoples' health care. Develop projects that complement traditional medicine with "western" medicine, in order to improve the effectiveness of health care at the local level for indigenous and local communities. Provide further training on traditional medicine, culture and knowledge to all health care personnel that work with indigenous and local communities.

Develop contingency plans to predict, prevent and manage health emergencies affecting remote indigenous and local communities, particularly of isolated or semi-isolated indigenous groups.

Undertake studies on the impact of HIV/AIDS on indigenous and local communities, particularly in exposed areas such as those with tourism visitation.

Implement programmes, together with indigenous and local communities, for training of young indigenous people in traditional medicine.

Recognize, Support and Reward the Role of Women in Biodiversity Conservation, Food Production, Health Care, and Transmission of Traditional Knowledge

Enhance the role of women in biodiversity conservation, food production, health care, and

transmission of traditional knowledge, through improved gender policies and with a special focus on the education of indigenous girls.

Develop studies on the role of women in the preservation of traditional knowledge and practices, to develop better programmes that support intergenerational transmission of traditional knowledge.

Assess the Impacts of Foreign Religions on Traditional Knowledge of Indigenous and Local Communities, and Take Measures to Avoid Further Impacts

Recognize religious imposition and proselytism as an important threat to traditional knowledge, and take measures to prevent further negative impacts, particularly on isolated indigenous groups.

Promote interfaith dialogues and respect for traditional spirituality.

Undertake further research on the impacts of religious sects on traditional culture, knowledge and practices, especially in the case of isolated or semi-isolated indigenous groups.

Protect the Life, Culture and Territories of Remaining Isolated or Semi-isolated Indigenous Peoples

Systematize information regarding isolated indigenous peoples of the Amazon and Chaco, their traditional territories and their needs for protection.

Take urgent actions to safeguard human and cultural integrity and traditional territories of the remaining isolated or semi-isolated indigenous peoples.

Take measures at a regional level to foster collaboration among countries for the protection of isolated indigenous peoples, taking into consideration that most of these indigenous groups inhabit border areas.

Guarantee the Necessary Funding for Implementing Measures to Preserve Indigenous Peoples Culture and Traditional Knowledge

Define financial mechanisms and allocate economic resources to adopt the necessary legal, political, and administrative measures for the preservation and maintenance of traditional knowledge.

Allocate funding in particular for implementing, evaluating, and monitoring multicultural, bilingual education programmes, culturally sensitive health programmes, and public awareness campaigns and training for public servants and judges on the importance of these issues.

Create special funds for supporting indigenous and local communities, using examples such as Honduras' Social Investment Fund.

NOTES

- 1 See UNEP/CBD/WG8J/3/4. 2003. "Executive Summary - Report on the first phase of the composite report on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities relevant to the conservation and sustainable use of biological diversity".
- 2 Preservation, maintenance, conservation, retention, are used as synonymous in this paper, to mean the continued existence of traditional knowledge as a living, dynamic element of the cultures of indigenous and local communities, and its long-term survival.
- 3 This and the next two sections of this paper rely largely on research from the authors for the CBD Secretariat's Composite Report on the Status and Trends Regarding the Knowledge, Innovations and Practices of Indigenous and Local Communities, Relevant to the Conservation and Sustainable Use of Biodiversity and Elements for a Plan of Action for the Retention of Such Knowledge, Innovations and Practices, UNEP/CBD/WG8J/4/INF/5 and UNEP/CBD/WG8J/4/4, December 2005.
- 4 In this report, "local communities" is shorthand for "local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity". "Traditional knowledge" is shorthand for "knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity".
- 5 UNICEF, Fundación Rigoberta Menchu and Flacso Ecuador (2001) Encuentro Sub-regional sobre niñez y juventud indígenas. Memoria del Evento.
- 6 Estimates for the number of indigenous peoples are equally difficult and varying. They largely depend of the ethno-linguistic criteria utilized – e.g. criteria defining distinct languages and corresponding distinct peoples.
- 7 The Maroons from Suriname are people with African ancestors, who were brought to the country in the 17th and 18th centuries as slaves and escaped to the interior. They represent about 10% of the country population. <http://www.geographic.org/>
- 8 Composite Report, Regional Report Caribbean, UNEP/CBD/WG8J/3/INF/5.
- 9 See <http://www.xs4all.nl/~rehue/art/calb1a.html>
- 10 UNICEF, http://www.unicef.org/spanish/media/media_22899.html
- 11 www.acnur.org/
- 12 UNICEF, http://www.unicef.org/spanish/media/media_22899.html.

- 13 <http://survival-international.org/tribes>
 14 http://www.photius.com/countries/brazil/society/brazil_society_amerindians.html
 15 <http://www.survival-international.org/ayoreo.htm>

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KEYWORDS Traditional knowledge; biodiversity; Latin America

ABSTRACT This paper discusses the maintenance of "knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity" in Latin America – or traditional knowledge of Latin America in abbreviated form. It addresses some issues and challenges that IUCN considers relevant for its own programme. For IUCN, the interest in the maintenance of traditional knowledge is linked to the implications of the loss of traditional knowledge for sustainable management of ecosystems, and the impacts of such loss on the cultural integrity of communities and on their capacity to manage and adapt to ecological change. If maintained and appropriately encouraged and supported, traditional knowledge can become a very important tool for improved management of ecosystems more widely. Other important elements of the approach to traditional knowledge maintenance are equity, with particular consideration to vulnerable groups, and cultural rights. The paper examines national and community factors that threaten the maintenance of traditional knowledge in Latin America, such as demographic changes, national development policies, poverty, education, trade, land tenure, cultural policies, and others. It provides recommendations to address such factors and to counter the loss of traditional knowledge.

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