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Second meeting
Montreal, 30 April – 03 May 2007

COMPOSITE REPORT ON THE STATUS AND TRENDS REGARDING THE KNOWLEDGE, INNOVATIONS AND PRACTICES OF INDIGENOUS AND LOCAL COMMUNITIES

Regional report: Latin America, Central and the Caribbean

Note by the Executive Secretary

The Executive Secretary is circulating herewith, for the consideration of participants in the Second meeting of the Advisory Group on Article 8(j) and Related Provisions, the regional report for Latin America, Central and the Caribbean on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities, which will be used as input to further develop phase of the composite report on the same subject.

The report is being circulated in the form and language in which it was received by the Secretariat.

Secretariat of the Convention on Biological Diversity

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

Regional Report – Latin America and the Caribbean

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October 2005

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PRESENTATION

This document is the component for Latin America and the Caribbean of the Second 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 Biodiversity.

The topic of this report of the Second Phase is the factors, national and local, affecting the maintenance, preservation and application of traditional knowledge of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity in Latin America and the Caribbean. It is a vast and complex topic, having links to many aspects of the socio-economic, cultural and political context of the countries of the region, and to their colonial history. At the same time, the region itself is vast and diverse, with 34 countries speaking five official European languages (Spanish, English, French, Portuguese, Dutch) and several hundreds of other national and indigenous languages. In this context, one single, summary report cannot deal with such a complex issue in an exhaustive and sufficient manner.

The sources of information are also limited themselves. A key source of information used for the preparation of this document is National Reports submitted to the CBD Secretariat by National Governments; but National Reports contain very limited information on the issues researched. Other sources have been questionnaires and interviews with government officials, indigenous and local community organizations, non-governmental organizations, and independent experts; documents submitted by such organizations and experts, and relevant published and unpublished literature. Responses to questionnaires have been limited, and in sum, the sources of information have been also in quantity and quality, and national-level research was not possible.

Meetings organized by the CBD Secretariat with indigenous representatives from Latin America and the Caribbean (New York, 14-15 May 2005) and the Advisory Group on Article 8(j) and Related Provisions (Montreal, 11-14 July 2005) provided valuable information and insights for the preparation of the present document.

The instructions provided by the CBD Conference of the Parties for the preparation of the Second Phase of the Report have an important implication for the contents of the paper, as it needs to be geared towards the formulation of an action plan. Thus, more than an analytical study, the report intends to provide inputs for an action plan, of which the Conference of the Parties already provided a draft outline in Decision VII/16 E.

In terms of process, the preparation of this report has therefore included the review of national and other relevant reports as well as literature; a questionnaire sent to indigenous and community organizations and experts, public institutions, universities, other organizations and experts; the Regional workshop in New York; a review of the draft by the Secretariat of the CBD; a subsequent review of the draft by the Advisory Group on Article 8(j) and Related Provisions; and preparation of the final draft submitted to the CBD Secretariat.

The report structure follows the instructions provided by the Conference of the Parties in Decision VII/16, i.e.:

- Identification of national processes that may threaten the maintenance, preservation and application of traditional knowledge

- Identification of processes at the local community level that may threaten the maintenance, preservation, and application of traditional knowledge
- Conclusions and recommendations

The authors wish to thank the CBD Secretariat for having entrusted them with this work, the IUCN Headquarters and South America offices for their support, the members of the Advisory Group on Article 8(j) and Related Provisions, all national governments, indigenous and local community organizations, NGOs, research institutions and experts who contributed information. Although the substance of the report is based on such information, the authors are the sole responsible for its content.

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EXECUTIVE SUMMARY

Introduction

This document confirms findings from the First Phase of the Composite Report[3], as well as conclusions from previous studies, in two major aspects, namely: (i) the fact that traditional biodiversity-related knowledge of indigenous and local communities[4] of Latin America and the Caribbean is being rapidly lost, and (ii) the perception that major efforts of the whole society in each country are needed for "halting the loss of and encouraging the retention and use of knowledge", as required by CBD Decision VII/16.

From the perspective of traditional knowledge maintenance in the long term, the essential challenge is to ensure inter-generational transmission within indigenous and local communities; the second major challenge is to encourage and support the adaptation of traditional knowledge to socio-economic and cultural change, particularly in terms of maintaining its functionality and its dynamic connections with the practices of individuals and groups in their daily interactions with their surroundings.

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, than cultures with written languages; but on the other hand, many oral cultures in the region are generally more isolated from the sources of erosion of knowledge – schooling, mass media, interpersonal contact with other cultures, external markets.

It can be posed that at equal level of vitality of transmission mechanisms within any given community, the closer its relationship with such external factors, the faster the knowledge loss. 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.

The discussion about the varying 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

[3] UNEP/CBD/WG8J/3/4: 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.
UNEP/CBD/WG8J/3/INF/10: Composite Report on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities. Regional Report: South America.
UNEP/CBD/WG8J/3/INF/6: Composite Report on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities. Regional Report: Central America.
UNEP/CBD/WG8J/3/INF/5: Composite Report on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities. Regional Report: Caribbean.

[4] In this report, "indigenous and local communities" is shorthand for "indigenous and 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".

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groups based on the degree of cultural change (Oviedo and Maffi, 2000)[5] and therefore the degree or knowledge loss and erosion:

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);
2. Groups with vital traditions and environments living in contact with non-traditional societies and the outside market;
3. Groups simultaneously experiencing rapid cultural change and ecosystem degradation;
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.

Indigenous communities in each of the four types may need different approaches to 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.

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 language loss, the inter-generational transmission of their 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.

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, in other words addressing the underlying causes of knowledge loss and cultural erosion.

This report looks primarily at such drivers and underlying causes, and concludes that the essence of cultural change leading to the loss and erosion of traditional knowledge lies on the social structures and processes at the national level. 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 and seem more adaptable to market-driven changes.

It is difficult to predict to what extent national drivers of cultural change and loss of traditional knowledge can be redirected to have less or no negative impacts on the retention of traditional knowledge; some of

[5] This typology has analytical purposes only, and is not in any way an attempt to classify or qualify indigenous peoples and local communities.

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such drivers are deeply rooted in a centuries-old socio-economic structure. But at least some of the drivers seem feasible to handle, if the political will exists.

The second set of responses correspond 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; it has to do with specific tools to manage cultural change, such as educational systems. 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 can provide useful lessons.

Conclusions

A. National Processes that May Threaten the Maintenance, Preservation, and Application of Traditional Knowledge

There are several factors at the national level affecting the retention of traditional knowledge in Latin America and the Caribbean. These are of socio-economic, cultural, and political nature, and are interlinked and deeply rooted in history and social structures.

Demographic factors
Population dynamics influence the ability of indigenous and local communities to retain their traditional knowledge. The principal causes of demographic changes affecting indigenous and local communities are the result of the transformation of their natural environment, migratory processes, cultural erosion, poverty, and armed conflicts. Inflows of new social groups in rural areas affect the culture and the environment of the inhabiting indigenous and local communities, often bringing unsustainable practices and a different perception of development and the environment.

National development policies/programmes
Environment is still not a priority when dealing with difficult development decisions, and cultural factors are almost absent in most decision-making processes. There is a poor understanding of the impacts of development activities on traditional knowledge and practices. 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 maternal - infant mortality), poverty, and stunting.

Poverty threats the maintenance and preservation of traditional knowledge in various ways, affecting the traditional economy, diminishing the capabilities of individuals to perform their normal activities, altering family structures through migration, inducing stress on natural systems. Poverty and deprivation are incompatible with healthy cultures and healthy traditional knowledge.

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 since colonial times.

New tendencies towards a multicultural approach in education have been developing in several countries of the region, some with notable success; but there is very little information about the long-term efficacy of these programmes, and their effects have scarcely been felt beyond primary education.

There are still very few qualified indigenous professionals to take charge of 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 considerations 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; some argue that such impacts, especially indirect impacts, are of considerable magnitude. 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.

Potential cultural and economic impacts of bioprospecting are not yet 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. This is a pending issue in the negotiations on access to knowledge related to genetic resources.

New technologies applied in modern agriculture have impacted indigenous and local communities and their natural environment, producing degradation of soils and water, forced migration, temporary agricultural work with unfair conditions (for women, in particular), interruption of traditional agricultural systems, and loss of agricultural biodiversity and traditional practices. 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.

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 multi-national 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.

Agrarian reforms and new land regimes

Generally, land security for indigenous peoples and rural communities in the region has increased since the start of agrarian reforms several decades ago, but has not been fully achieved; ownership regularization and titling processes have not been completed in most countries. Conflicts over land tenure

have not been properly attended to in many cases, and options to solve claims over traditional territories have not been thoroughly 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 ad 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. 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 exist in all 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, and lessons are being learned and disseminated. The CBD Programme of Work on Protected Areas opens the opportunity to a new era in protected areas management from the perspective of indigenous and local communities.

Access laws and regulations to protect traditional knowledge
Some countries have advanced framework legislation and consultation processes for the protection of traditional knowledge. However, legal frameworks for access to genetic resources and its relation with traditional knowledge are still incomplete, and main issues remain unsolved, such as the role of registers, procedures to grant prior informed consent, and benefit-sharing.

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

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. There is a clear divide between the interests of indigenous and local communities, on

the one hand, and the views of corporations and governments, on the other, on matters related to intellectual property rights.

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 operational mechanisms are often weak. Most problems related with participation and consultation processes are linked to inadequate timeframes, unclear possibilities to influence the outcomes, lack of adequate information, and limited willingness in government agencies to open opportunities for real involvement in decision-making.

B. Identification of processes at the local community level that may threaten the maintenance, preservation, and application of traditional knowledge

Territorial factors and factors affecting communal lands

The main problems affecting traditional territories and communal lands at the local level are related with the legacy of a colonial system that deprived indigenous peoples and local communities from lands and resources. Inadequate national legal frameworks resulted in further disruption of traditional land tenure and use patterns, fragmentation and loss of traditional land, changes in settlement patterns of indigenous communities, privatization of communal lands, degradation of land and/or resources, lack of recognition of territorial rights, insufficient and inequitable land allocation, lack of effective mechanisms for conflict resolution, inefficient official land registers, and difficult procedures for land demarcation and titling. These factors have generated local tensions over land tenure, and a generalized situation of lack of access of important sectors of indigenous and local communities to productive lands, with consequences on economic and socio-cultural stability for such communities.

Cultural factors

Decades of policies and legislation oriented towards abolishing cultural diversity and promoting homogeneity, have had deep impacts on cultural patterns. The loss of language is directly related to the loss of culture and traditional knowledge. Traditional cultures and lifestyles are not sufficiently appreciated and valued by the national society, with some countries having serious problems of discrimination and racism still to confront.

Customary laws

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

The importance and role of customary laws in the definition of the mechanisms for the protection, preservation and suitable use of the traditional knowledge has not yet been translated into specific legislation and measures, despite progress in some field-level experiences including for the administration of intra-communal justice.

Economic factors

National economic policies do not consider in its implementation the impacts on the traditional indigenous economies, and mechanisms do not exist to facilitate a culturally appropriate entry of the communities into the market. Therefore, forced application of market rules is altering the balance between environment, access to natural resources, livelihoods, and social structures of the communities.

There is a strong evidence of the interrelation between poverty, ethnicity, and environmental degradation, with economic factors being determinant in such interrelation.

Social factors
Migratory processes in rural areas and extractive activities affect family structures, with changes in the labour patterns and in the role of women, and cause the migration of young people to urban areas. There is insufficient consideration of gender in natural resource conservation and use, in particular related to agricultural practices.

Lack of capacity to manage contemporary threats to biological diversity
Changes in the demand of natural resources, alterations in the traditional uses of natural resources and insufficient resources for satisfying community needs, are causing the degradation of communities' lands and territories. The conflicting encounter of indigenous and local management systems with market forces has created confusion and caused changes in traditional practices and cultural patterns.

Impact of HIV-AIDS on the maintenance of traditional knowledge systems
There are very few studies regarding the impact of HIV-AIDS in rural areas and indigenous peoples of the region. HIV is a major problem in the Caribbean countries, the second most affected region in the world. There are other types of illnesses, such as malaria, dengue, cholera, etc., many of them resulting from the incursion of foreigners into indigenous and local communities' lands, with strong impacts on communities.

Several studies have identified that one of the causes of poor healthcare for indigenous peoples is the imposition of "western" medicine and its idea of illness and cure, in replacement of the holistic approach of traditional medicine. Recently, some governments have introduced approaches that incorporate traditional medicine in national health policies.

Impact of outside religions on traditional knowledge and practices
The incidence of external religious groups on the loss of cultural values and traditional knowledge remains a serious problem in most Latin American and Caribbean countries. Governments have generally not established specific measures and policies to solve this problem, and most of them continue to support external religious institutions and sects in their disrespectful practices of religious imposition, violating the rights of indigenous and local communities to keep their own spirituality.

Recommendations

In Decision VII/16, CBD Parties suggested Elements of a Plan of Action for the Retention of Traditional Knowledge, Innovations and Practices of Indigenous and Local Communities Embodying Traditional Lifestyles Relevant for the Conservation and Sustainable Use of Biological Diversity. Identification of such elements was the result of consideration of the conclusions and recommendations of the first phase of the preparation of the Composite Report.

Suggested elements in Decision VII/16 are clustered in five headings:

A. Improved monitoring and reporting process
B. Indicators
C. Research ethics
D. Research on and implementation of mechanisms and measures to address the underlying causes of the decline of traditional knowledge, innovations, and practices
E. Capacity-building, education and training

The recommendations of the present report, based on the findings about national and community-level drivers of the loss and erosion of traditional knowledge, address needs for action under all the indicated headings. For reasons of logical flow from the analytical section of the paper, recommendations are however presented in a different order. In particular, the recommendations address firstly heading D on the underlying causes of the decline of traditional knowledge, innovations and practices, and are addressed primarily to governments because of their central role in managing development processes directly responsible for most of the underlying causes of knowledge loss.

The report considers that major efforts are needed in the region to:

- Solve land and resource claims from indigenous peoples and local communities, provide them with land tenure security, and address land tenure inequities
- Consider the rights, interests and needs of indigenous and local communities when designing legislation, policy and administrative procedures
- Design development policies and plans more suited to the environmental, social and cultural characteristics of rural areas
- Address poverty, migration, armed conflict and natural resource degradation as drivers of cultural change and knowledge loss of indigenous and local communities
- Develop national legal frameworks and specific policies for the preservation and maintenance of traditional knowledge and practices
- Strengthen institutional capacity, decentralization, access to justice, access to information, and conflict resolution mechanisms for indigenous and local communities
- 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
- Enhance accountability of the private sector in relation to the potential cultural and social impacts of their activities on indigenous and local communities
- Include social and cultural impact assessment, integrated with environmental impact assessment, as a formal requirement for development or environmental projects and actions
- Develop indicators and monitoring schemes, in cooperation with indigenous peoples and local communities, for development and environmental actions

- Expand research and foster recognition of the value of customary laws for the preservation of indigenous cultures and traditional knowledge and practices
- Enhance multicultural, bilingual education
- Increase public awareness of the importance of indigenous peoples' and local communities' traditional knowledge and practices
- Respect and integrate traditional medicine with "western" medicine systems to meet indigenous peoples' and local communities' health care needs
- Recognize, support and reward the role of women in biodiversity conservation, food production, health care, and 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
- Protect the life, culture and territories of remaining isolated or semi-isolated indigenous peoples
- Guarantee the necessary funding for implementing measures to preserve indigenous peoples' culture and traditional knowledge

A. IDENTIFICATION OF NATIONAL PROCESSES THAT MAY THREATEN THE MAINTENANCE, PRESERVATION, AND APPLICATION OF TRADITIONAL KNOWLEDGE

1. 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 communities[6] are difficult to obtain, since censuses are not accurate 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 income[7]. 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).

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[6] 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".

[7] UNICEF, Fundación Rigoberta Menchu and Flacso Ecuador (2001) Encuentro Sub-regional sobre niñez y juventud indígenas. Memoria del Evento.

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)[8].

Indigenous peoples are more numerous in South America, which also has an important population of Afro descendents (particularly in Guyana, Suriname[9], 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 descendent, with over 64% of the population being Afro-Latin American and only 1% being indigenous.[10]

In Mexico, we find a quarter of all indigenous peoples of the region, 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

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[8] 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.

[9] 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/

[10] Composite Report, Regional Report Caribbean, UNEP/CBD/WG8J/3/INF/5.

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 Chile[11].

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 1000[12].

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, Guatemala[13], 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 conflict[14]. In the frontier between Colombia and Brazil, constant armed conflict has resulted in death, displacement, illness, prostitution and forced labour of the Maku people[15]. 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

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[11] See http://www.xs4all.nl/~rehue/art/calb1a.html

[12] UNICEF, http://www.unicef.org/spanish/media/media_22899.html

[13] www.acnur.org/

[14] UNICEF, http://www.unicef.org/spanish/media/media_22899.html.

[15] http://survival-international.org/tribes

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 dialects[16].

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 extinction[17].

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.

2. National development policies and programmes

Latin American and the Caribbean development policies of the last 40 years have had a strong effect on indigenous and local communities' lifestyles and economic welfare, as well as over biodiversity conservation. It has been argued that those policies were designed and implemented with no consideration for indigenous peoples' needs, and are responsible for the loss of traditional cultural patterns, knowledge and practices of such communities (Peredo Beltran, 2004).

Former development policies were likely to neglect indigenous population as a group with particular characteristics, a significant point that should have been taken into consideration in the definition of rural development. Moreover, at that time, participation was not recognized as a basic policy tool. Cultural diversity and heterogeneity were considered as obstacles to development instead of an asset; and the assimilation of indigenous peoples to the national, dominant culture was considered necessary to achieve national development (Roldan, 2004; Aylwin, 2002). Policies, legislation, and education programmes were developed and implemented to attain this goal, with the spontaneous support of religion groups and colonists.

Assimilationist, integrationist, and paternalistic policies affected indigenous peoples' traditional systems heavily until the 1980s, mostly through agrarian reforms and land policies. Agrarian reforms were carried out in the region with the aim to end unfair land distribution and to modernize agricultural sector (especially in Bolivia, Colombia, Ecuador, Guatemala, Nicaragua, Mexico, and Peru). While these reforms benefited indigenous rural communities with the devolution of some of their traditional lands, especially in the highlands, they gave very little consideration to their traditional structures and authorities, and promoted individual land titles to the expense of collective tenure (Plant and Hvalkof, 2001).

Agrarian reform did not reach indigenous peoples from lowland rainforest, and instead indigenous communities had to deal with colonization programmes; in most countries of the region, their land rights

[16] http://www.photius.com/countries/brazil/society/brazil_society_amerindians.html

[17] http://www.survival-international.org/ayoreo.htm

in forests were not recognized until the end of the 1980s or even later; partial exceptions were Peru and Brazil. In 1974, Peru passed the first legislation in the region recognizing native communities' land rights in the Amazon. Brazil has a different approach to indigenous land rights: indigenous peoples have the right of usufruct but the land is owned by the State (Roldan, 2004).

Since the 1980s, the rural population was subjected to a new trend of development, focused on economic liberalization measures. These were based on the package of economic reforms required as part of the stabilization and adjustment programmes (the so-called Structural Adjustment Programmes, SAPs). These reforms involved macroeconomic adjustment measures in the short term, and policy reforms in the long run. The policy reforms involved institutional changes and reorientation of the agricultural production, including measures such as export liberalization, promotion of private investments, land reform, reduction of public expenditure, institutional reforms, and privatization of services.

As results of this new trend, by the middle of the 1990s, market-oriented measures were dominating national policies in all of the Latin America and the Caribbean region, a region rich in raw materials and agricultural products. Measures adopted in the region had a strong focus on private investment in natural resource exploitation and land privatization. In fact, several authors consider that those policies were responsible for the intensification of natural resource exploitation, the increase in migration to urban areas, and the decline in rural population, as well as the reduction of agricultural land and production[18]. Moreover, some specialists have pointed out that SAPs had a major impact on the poor, since they involved a deep and radical structural transformation in national institutions and legislative reforms of all sectors and at all levels (Redclift, 1995). Environmental, equity and cultural issues were largely ignored when designing and implementing development policies.

While most of the social phenomena like migration, declining rural population, poverty and concentration of lands, already existed before governments started to implement SAPs, their effects were magnified by structural reforms. The average rural population in Latin America and the Caribbean was around 35% in 1980; by 2002, it had come down to 24%[19]. The last two decades have witnessed a rise of poverty, including extreme poverty, in rural areas, as an expression of the gap between rich and poor in the region - the widest gap in the world (Peredo Beltran, 2004). A report from CEPAL (2004) stated that in 1980, 40.5% of total population in the region was poor. By 2002, the numbers had risen to 44%.

As part of liberalization policies, countries (e.g., Mexico, Peru, Colombia, Ecuador) adopted new land laws establishing the basis of a national land market, which in some cases entered into conflict with traditional land tenure systems. Mexico and Peru, two of the countries with the largest numbers of indigenous population, have been the most liberal in the implementation of land policies, allowing the sale and division of communal title lands into individual plots (Plant and Hvalkof, 2001).

The World Bank recognized the problems resulting from the implementation of SAPs, and in the middle 1990s it boosted its "Compensatory Social Programmes" and the "Programme for Poverty Reduction," to complement the SAPs and mitigate the effects of their measures on the poor.

At the national level, it is only in the last ten years that governments started to incorporate the relation between nature conservation and development into national policies and legal frameworks. Transformation took place in national environmental legislation, recognising important rights of

[18] See, Biodiversidad, Numero 39, enero 2004.

[19] http://www.worldbank.org/data/wdi2004/tables/table3-1.pdf

indigenous peoples (for instance, the Constitutions of Argentina 1994, Bolivia 1995, Brazil 1989, Ecuador 1998, Paraguay 1992, and Venezuela 1999). Today, at least as a policy formulation, most national governments acknowledge in their environmental policies the value of cultural diversity and its correlation with biological diversity, as well as the need to implement sustainable development with equity.

The debate on the impact of SAPs on the poor is ongoing, but it has been widely recognized that structural adjustments without an explicit focus on social outcomes will exacerbate poverty and inequality, since economic growth alone will not automatically eliminate poverty, as the poor will not have the capacity to benefit from growth opportunities (Melville, 2002).

Nevertheless, contradictory policies continue to create negative impacts on cultures, biodiversity, and traditional knowledge. Some economic policies dominating the agenda of governments of the region do not give the same weight to environmental and social issues as to economic issues. Only in recent years, more attention is being given to the need to incorporate social and poverty alleviation programmes into economic and institutional programmes, but without significant success. Additionally, the important role of traditional knowledge related to biodiversity conservation, food security and health care has not been translated yet into effective measures, and development policies generally do not consider traditional knowledge in their definition and implementation.

Furthermore, most of development activities implemented in and around areas occupied, or used by indigenous and local communities, have not generated benefit for them. For example, it has been argued that most economic policies are incompatible with sustainable development in the Amazon region because of the economic, environmental and social conditions of the region (TCA, 1995).

Trade liberalization increases the supply of natural and agricultural resources to the market, and in some cases pushes downwards the prices of agricultural commodities from developing countries. In order to maintain the same level of income, such countries intensify natural resource exploitation (Reed, 1996), increase agricultural production often with the use of unfriendly technologies, and concentrate their production in few valuable crops, thus affecting indigenous and local communities who are heavily dependent on natural resources for their basic food and health needs. Land is being degraded at an accelerating rate and agriculture based on traditional practices, such as diversification and natural control of diseases, no longer finds market for their products. The intensification of these activities also adds pressure over indigenous lands and resources. After more than two decades of reforms, rural development has neither been achieved, nor has it reached the poor indigenous and local communities. “Given the natural resources endowment and the importance of agriculture in most of the region’s economies, agricultural development is a precondition for economic growth, and it is called to play an important role in the future evolution of global food security” (Trigo et al, 2000: 4).

Aware of the impacts of economic, legislative, and institutional reforms of the last two decades, many indigenous and local community organizations have rejected regional trade agreements, such as the Free Trade Area of the Americas Agreement, because of the potential impacts of liberalization measures on their natural environments, cultural patterns, and traditional knowledge. These concerns have particular importance in relation with the agricultural, mining and energy sectors, as well as with the potential effects of wider intellectual property rights systems.

In spite of the advances and changes in the way of thinking of national authorities, multilateral agencies and large companies, environment is still not a priority when dealing with difficult development decisions, and cultural factors are almost absent in the decision making process. Several studies analyse the environmental and social impacts of oil and mining activities, but so far there is very little research on the impact of those activities over traditional knowledge and practices of indigenous and local

communities. Thus, for many in indigenous and local community policy networks, transformation still needs to happen in the way policymakers see development, by integrating all the different factors that account for sustainable development with equity and strengthening the value of participatory mechanisms. This transformation is crucial for re-evaluating the understanding of development in rural areas. Academics point to the fact that present trends of development have impact on the reduction of biological and cultural diversity (Zent and Zent, 2003); neoclassic economic trends see development as a function of economic growth, they argue, but although it is important for development, it alone cannot measure or achieve it (Redclift, 1987).

The concept of free, prior informed consent, considered by indigenous networks to be a basic tool for defining and implementing development models that are socially and culturally accountable, is still in its infancy. Recently, the World Bank finished the revision of its Operational Directive 4.20 on indigenous peoples, and recommended consultation, but it makes no mention of prior informed consent as a requirement for development projects. These issues are particularly sensitive for indigenous organizations when it comes to oil, mining and agricultural activities, with direct and indirect impacts over their cultures and traditional lifestyles.

The protection and preservation of traditional knowledge have not been actively integrated with other sectors or into the prevailing economic policy. Most of the experts consulted for this report acknowledge that there is a lot of work to be done to create awareness and better understanding among policymakers, public servants, and judges about the meaning of traditional knowledge and the importance of its preservation and maintenance.

3. Impacts of poverty on traditional knowledge

Of the total population of Latin American and the Caribbean, about 50 % is considered poor (in 1980 it was about 136 million and the numbers rose to 204 million in 1997). A third of the total population is extremely poor (Trigo et al, 2000). Children are the most affected age group.

Poverty among indigenous population is higher than in non-indigenous populations.
A World Bank report (Hall and Patrinos, 2005) analyses in depth five countries (Bolivia, Ecuador, Guatemala, Mexico and Peru) with large indigenous populations, and confirms that in spite of the efforts, poverty levels for indigenous peoples have reduced very slightly during the Indigenous Peoples Decade, 1994-2004. In 2002, 74% of Bolivia's indigenous population were poor (as against 53% of non-indigenous population) and 89.7% of Mexico's indigenous population were poor (as against 46.7% of non-indigenous population); (Hall and Patrinos, 2005). Indigenous people have lower quality of education and less access to basic health services than non-indigenous people. The report indicates that there are higher malnutrition levels in indigenous than in non-indigenous children: for instance, in Guatemala, the malnutrition rate for indigenous children is about 58 percent, almost twice the rate for non-indigenous children, which is 33%. In the case of Mexico, indigenous children malnutrition rate is 44%, against 14% for non-indigenous children. In Ecuador, chronic malnutrition is more than twice as high in indigenous people as compared to non-indigenous people.

Unfortunately, there are very few social policies targeted at indigenous peoples. The picture is also discouraging in the labour sector, characterized by an absence of specific policies "to address labour market discrimination and equalize labour earnings" (Hall and Patrinos, 2005:3).

Nowadays, nobody denies that poverty is an obstacle for national development and that economic policies should be accompanied by poverty alleviation strategies; the international community has established and renewed its commitment for poverty reduction through the agenda of the Millennium Development Goals

(MDGs). However, there are questions about the appropriateness and the effectiveness of the ways in which current poverty reduction approaches address the needs of indigenous peoples in the region.

Multilateral institutions consider indeed poverty alleviation as one of their main targets. For instance, the 2001 World Development Report of the World Bank centred on "attacking poverty."[20] International cooperation ties their funding to projects or programmes related in one way or another with poverty alleviation. The environmental community has also recognized the importance of reducing poverty and improving the quality of life of the population. Two decades ago, the emblematic Brundtland report[21] stressed the linkage between poverty and environmental degradation, and later the Earth Summit (1992) focussed on environment and development. Following the Earth Summit, Rio +5 and Rio +10 summits also acknowledged poverty alleviation as a major objective. The Johannesburg Summit in 2002 stressed the need to fight poverty in order to achieve sustainable development[22]. More recently, the MDG + 5 Summit (September 2005) confirmed, although timidly for some, the international commitment to poverty reduction.

However, the Chairperson of the UN Permanent Forum on Indigenous Issues (UNPFII) stressed just before the UN MDG + 5 Summit that "indigenous peoples are invisible in the Millennium Development Goals (MDGs)"[23]; subsequently, the UNPFII recommended a clearer approach to involving indigenous peoples in implementation of the MDGs, through a rights-based approach[24].

Poverty threats the maintenance and preservation of traditional knowledge of indigenous and local communities in various ways, affecting their whole system of traditional economy, causing negative impact over their natural resources, altering their family structures by forcing the young to migrate to the cities, and changing gender patterns of labour distribution. Indigenous and rural communities witness how their traditional agricultural systems are altered due to their pressing needs for surviving in a changing environment. Because of soil degradation and inequality in land distribution, communities have no option other than to intensify cropping by reducing crop cycle (Baranyi et al, 2004).

Paradoxically, indigenous peoples' richness is in their culture, spiritual values, and traditional knowledge (Hall and Patrinos, 2005), undervalued by "western" society, in spite of their contributions in many sectors.

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[20] http://web.worldbank.org.

[21] *Our Common Future*, 1987.

[22] http://www.johannesburgsummit.org/.

[23] Victoria Tauli-Corpuz, "Indigenous peoples and the Millennium Development Goals". Paper submitted to the 4th Session of the UN Permanent Forum on Indigenous Issues, New York, 16-27 May 2005.

[24] United Nations Permanent Forum on Indigenous Issues. Report on the fourth session. New York, 16-27 May 2005.

Considering that many indigenous peoples depend directly on natural resources for satisfying their health and food needs, the preservation and maintenance of traditional knowledge and practices related with biodiversity, nature conservation, genetic resources and agriculture have an important role to play in the eradication of poverty and the definition of sustainable development with equity.

4. Education, training and employment policies and programmes

Education has been one of the primary channels for the implementation of assimilationist policies and the forced integration of indigenous peoples into the national society and market. Some bilingual education programmes were designed as a vehicle to integrate indigenous people into the dominant culture (Abram, 2004; Rieder, 2002); the US Summer Institute of Linguistics (SIL) initially implemented such programmes in Latin America, with very little intervention from the state, with the exception of Guatemala and Bolivia, where governments participated actively from the beginning (Abram, 2004).

Forcing indigenous children to learn the national official language was seen by governments, churches and other groups as a way to integrate them into national society, believing that cultural and language homogeneity was essential for national development. In the work of the Summer Institute of Linguistics and other religious institutions operating in Latin America and the Caribbean, integrationist education was seen also as instrumental for a rapid and effective evangelization of indigenous peoples. As a result, thousands of indigenous people lost appreciation for their mother tongue, which strongly influenced their ability to continue using it and to preserve the associated traditional knowledge.

The failure of conventional bilingual education programmes and the pressure of indigenous organizations in Bolivia, Mexico, and Ecuador, for example, fostered the recognition of important educational and cultural rights of indigenous peoples, provoking a shift towards a multicultural educational approach (Comboni and Juarez, 2001); this gave raise to multi/inter-cultural educational approaches for indigenous peoples, based on their active participation in designing and developing such programmes.

Several countries have recognized the multicultural nature of the nation in their constitutions (Mexico, Constitutional Amendment of 1995, Bolivia, 1994, Colombia, 1991, Ecuador, 1989, Guatemala, 1985, Nicaragua, 1987, Paraguay, 1992, Peru, 1993 and Venezuela, 1999), and some of them have included multicultural education as a constitutional right (e.g., Constitution of Brazil in 1988).

Multicultural Bilingual Education has seen an increase in the past decade. Strategies, policies, and programmes have been designed to implement a more culturally sensitive education for indigenous peoples. Some countries also approved general provisions in laws and constitutions to support this new approach. Although there is no specific legislation regarding the inclusion of traditional knowledge in the curricula, the inclusive approaches to the design and development have led to significant consideration of traditional knowledge as part of the curricula.

Arguments in favour of Multicultural Bilingual Education emphasise that it reinforces cultural identity of children, strengthens self-esteem, provides a better access to education, and promotes longer retention of girls in school. Some experts affirm that language is the basis of culture and identity of a person and, therefore, without their mother tongue children cannot develop adequately and do not make progress in school (Abram, 2004).

A study by the World Bank stressed the importance of education, particularly of bilingual/multicultural education for improving income levels of indigenous peoples (Hall and Patrinos, 2005).

Latin American countries have implemented Multicultural Bilingual Education programmes in various ways and with different levels of success. Some have become official programmes, while others are privately funded, with the strong support of indigenous organizations. For instance, Ecuador, Peru, Bolivia, Mexico, and Guatemala have Multicultural Bilingual Education as part of their national educational systems. In Brazil, Colombia, and Chile, legislation recognizes the rights of indigenous peoples to set their autonomous programmes, which are recognized as official programmes. In Paraguay, the state supports the teaching of Guarani language among the native and mestizo populations. Honduras, Panama, El Salvador, and Argentina are about to approve intercultural bilingual education. Ecuador, Guatemala, Costa Rica, and Colombia have also private indigenous educational projects, but without official recognition by the State (Abram, 2004).

Mexico started to implement a Multicultural Education Programme in 1997 and passed a law of linguistic rights in 2003. However, this programme is quite recent and the government is working on the inclusion of ethnic contents into the national curriculum, in consultation with indigenous peoples (Schmelkes, 2003).

In Bolivia, where the majority of the population is indigenous, educational reforms started only in 1993, after the Indigenous March of 1990. The set of reforms included a new Education Law, establishing Intercultural Bilingual Education and promoting indigenous participation in the implementation of the Education Reform (Law 1565).

Unfortunately, there is very little information on the effectiveness of these programmes. So far their effects have barely gone beyond primary education (Abram, 2004), with the exception of a few interesting programmes at the university level[25]. Brazil[26], Bolivia, Chile, Ecuador, Guatemala, Mexico, Nicaragua, and Peru have degrees at university level for indigenous peoples; and Costa Rica, Colombia, Venezuela, and Bolivia are in the process of creating such programmes[27].

An interesting positive example at the university level is the Inter-cultural University of Mexico, created with the aim of promoting a process of revaluation and revitalization of indigenous cultures and language, with a holistic approach to education, where traditional knowledge is integrated with other types of knowledge. The programmes are oriented towards both indigenous and non-indigenous students, with the aim of building bridges and providing alternatives to indigenous youth to return to their villages and apply their knowledge[28].

Nevertheless, experiences from the existing programmes have not been adequately disseminated, and still there are very few indigenous professionals capable of implementing such programmes. Most countries of the region still need to strengthen bilingual teachers' training and build the curricula with inputs from, and in agreement with, the communities (Schmelkes, 2003), incorporating traditional knowledge, considering

[25] http://www.iesalc.unesco.org.ve/programas/indigenas/informes/alatina/ind_al_barreno_final.pdf

[26] See, Arno Rieder, 2002. Educación Superior Indígena en el Brasil. Reunión Regional sobre la Educación Superior de los Pueblos Indígenas de América Latina. UNESCO/IESALC, Guatemala.

[27] See, Leonzo Barreno, *Educación Superior Indígena en América Latina*.

[28] See, http://cdi.gob.mx/.

indigenous and non-indigenous students, and promoting the understanding of the role of traditional knowledge and practices in medicine, food, and biodiversity conservation.

In spite of progress on this front, in Colombia experts report a lack of effective educational policies to promote intercultural education and the preservation of traditional knowledge. In Chile, it is argued that the growing trend of privatization in the educational system has made it difficult for indigenous peoples to participate in the planning of educational programmes, the preparation of materials, or the selection of teachers.

In cases where benefits have been reported, educational programmes seem to have enjoyed a strong support from indigenous organizations. There are some promising indigenous-led initiatives; for instance, the indigenous movement in Chiapas is trying to gain support for the implementation of their own intercultural educational system.

However, indigenous organizations are not so strong or influential in all countries and programmes' outcomes are variable (Abram, 2004).

In conclusion, despite the theoretical and experimental advances, Multicultural Bilingual Education has not received sufficient attention from the State, with the exception of Bolivia, Guatemala, and Ecuador, where it became the most dynamic area of the educational system (Abram, 2004). Although some progress has been made at a conceptual level, tools and resources are still limited, and public funding has not been able to guarantee implementation. The fact that education has generally not been a priority for governments (in terms of funds allocation) has limited the effectiveness of Multicultural Bilingual Education Programmes. In fact, literacy rates among indigenous and rural populations remain lower than those found in urban areas.[29]

5. Employment policies

None of the countries of the region has employment policies oriented towards indigenous communities as such. In fact, indigenous and local communities receive very little attention in national employment policies and most of them do not enjoy labour or social benefits. The consulted experts and institutions affirmed that there are no programmes of employment designed with a multicultural approach.

The limited and inequitable access to education and markets affects the opportunities of the communities to enter the labour market. There have been attempts in some countries for overcoming this problem through the creation of communal or multi-communal enterprises, as in the cases of Peru and Ecuador. Nevertheless, experts believe that this type of legislation, when it exists, has been developed mostly within a "western" scheme, ignoring the cultural function of land and simply turning it into capital and as a guarantee for loans.

Although the ILO Convention 169 on Indigenous and Tribal Peoples in Independent Countries (ILO 169) has specific provisions regarding indigenous peoples' labour rights, countries of the region have not developed legislation to implement them, and the majority of the indigenous population only has access to jobs within the informal labour market (Garcia Hierro, 1997). Current labour policies and legislation in the region do not have an intercultural approach, nor do they integrate provisions to guarantee the respect and preservation of traditional knowledge and practices.

[29] http://www.iesalc.unesco.org.ve/programas/indigenas/informes/alatina/ind_al_barreno_final.pdf

6. National modernization programmes that include development, transfer, and adaptation of new technologies

New technologies have significantly transformed the natural environment of rural areas in Latin America and the Caribbean. These technologies are associated with the intensification of natural resource exploitation – such as oil, mining, forest, fishing, tourism, bioprospecting and agricultural production. The transformation of the productive environment has impacted on the communities' traditional knowledge and practices linked to natural resources, thus bringing about changes to the relationship between local cultures and nature.

While, on the one hand, oil and mining activities have benefited from new technologies that have the capacity not only to enhance their productive performance but also to reduce their social and environmental impacts, on the other hand, new technologies and national policies have facilitated the access of extractive industries to remote areas that are the home to indigenous and local communities. The cultural and social impacts of this process are still hard to predict, especially in the long term, and advances in their management are still in their infancy. Regardless of some efforts, so far those impacts have not been adequately addressed, predicted, prevented, mitigated, or managed.

New technologies have also improved the performance of forest activities, with the incorporation of sustainability measures, such as forest management planning. However, these measures are relatively new in the region, and some countries have only started to implement them. Access to new technologies for small producers and indigenous and local communities is limited. In the meanwhile, deforestation continues to increase, as well as illegal and unsustainable forest practices (Koohafkan, 1996).

The implementation of mechanisms for participation, benefit-sharing, and preservation and maintenance of traditional knowledge and practices, is considered fundamental in the region for improving sustainable forest management. For instance, it is argued that the conjunction of modern technology and traditional forest practices could improve the performance in the forest sector and provide the means to local and indigenous communities to participate in the market, while maintaining their own cultural patterns. However, the value of forest-related traditional knowledge has only recently been recognized in political fora, and remains largely a conceptual and theoretical issue, while mechanisms for their preservation and use in forest management are still under discussion.

Food production has changed significantly during the last 40 years, not only due to the introduction of new technology but also because of the growing demand from domestic and international markets. Modern technology and changes in the agricultural and forest sectors have imposed transformations in the rural environment and the population, with negative impacts over biodiversity and communities' welfare. While the impacts of recent technologies in the agricultural sector (such as genetically modified crops) are still unknown, there are concerns related with their development, trade, and use in the region.

Romero (2002) notes that among the known impacts of modern technologies in agriculture in Latin America are soil degradation, land and water loss for rural communities, forced migration, seasonal agricultural labour under unfair conditions particularly for women, disruption of traditional agricultural systems, and loss of agricultural biodiversity and traditional practices. While incentives for research and development have been created by IPR systems, no significant mechanisms have been put into practice for the protection and preservation of traditional knowledge and practices associated with agriculture and medicinal plants. Guaranteeing the preservation of traditional knowledge and agricultural biodiversity is of particular relevance considering that the rural poor depend on biodiversity for about 90 percent of their food and health needs (Shand, 1999).

Traditional practices of farmer communities are essential for the preservation of agricultural biodiversity, since they maintain traditional varieties of crops and plants. Genetic diversity in agriculture allows cultivars and animals to adapt to different conditions and environments, without which sustainable agriculture would be impossible (Koohafkan, 1996). Modern technology and IPR systems can disrupt traditional systems and crop diversity, affecting free exchange and re-use of plant and seeds by indigenous and local communities. It is widely shared in the region the feeling that "[The] practice of international agricultural development has been dominated by technical questions, ignoring the more fundamental social and economic ones, and neglecting competing kinds of knowledge, such as traditional farmers' knowledge and perspectives from the social sciences. The result has been the imposition of inadequate development models, of which biotechnology is the latest variant."[30]

7. Modern biotechnology and bioprospecting

Of particular relevance to the region are the advances in modern biotechnology related with health and food production. Globally, it is estimated that out of 119 commercially useful plant-based drugs, 74% were in prior use by indigenous communities (Swanson, 1997). Traditional knowledge can save time and money in the research process, since it is known that between 10,000 and 35,000 samples must be tested to yield one clinically valuable drug, number that could be significantly reduced with the help of information provided by indigenous and local communities.

It has been argued that while bioprospecting for the search of valuable plant and animal genetic resources by pharmaceutical and other companies does not impose a significant harm to the environment per se, it may have economic and cultural impacts on indigenous and local communities, relating to the disruption of cultural patterns, lack of encouragement for preserving and maintaining traditional knowledge, and potential impacts of IPR systems over their capacity to continue using their knowledge without restrictions.

It is commonly accepted that a fair share in the benefits reported by this sector could be a motivation for communities to maintain and protect their traditional knowledge. In reality, however, no significant benefits have been channelled so far in the region to indigenous and local communities as a result of biotechnology. The preservation and intergenerational transmission of traditional knowledge and practices of indigenous and local communities of the region have been endangered, while the multinational industry has received benefits for medicines and other products based on genetic resources identified through traditional knowledge. Given the past experiences, the prevailing sentiment in the region seems to be that there is still a long way to go before fair and equitable benefit-sharing is achieved in relation to the profits that the biotechnological industry receives from the use of traditional knowledge.

Today, recognition of indigenous and local communities' contribution in bioprospecting for medicinal plants is widely acknowledged and efforts are being made to regulate this sector. However very little advances have been made so far and strong disagreements persist on how to implement prior informed consent and determine the share of benefits. In the meantime, unregulated access continues, as current IPR systems do not effectively protect indigenous and local communities' knowledge from external misappropriation.

[30] Miguel A. Altieri and Peter Rosset quoted in The Pew Initiative on Food and Biotechnology, 2004

Biotechnology in the food sector has been (and still is) the subject of much controversy. It is one of the fastest-growing industrial sectors, where the world's top ten companies dominate 85 percent of the whole seed and agro-chemical market. So far, investment in this sector has concentrated primarily on four crops: soybean, cotton, maize, and canola, mainly for insect resistance and herbicide tolerance, and small areas of potato and papaya (Fresco, 2001).

The potential role of GM crop in guaranteeing food security is one of the most controversial aspects of biotechnology in the food sector. Those in favour point to the potential benefits of the technology to increase food production, reduce crop losses from diseases, insects, and drought, and improve the nutritional content of traditional foods (Pew Initiative, 2004: 7). However, several experts have raised their concerns about the environmental, health, social, economic, and cultural implications of genetically modified crops (Altieri, 2001; Shand, 1999)[31]. Some of the environmental risks of agricultural biotechnology can be associated with the transmission and dispersion of GM crops to their wild relatives, perturbation of natural systems of pest control and new viruses and weeds (Altieri, 2001).

Advocates of modern biotechnology have a hard time to convince farmers in developing countries of the benefits of this technology, as these farmers do not have the economic resources to access such technology or adequate infrastructure to transport, store, and sell their agricultural products (Pew Initiative, 2004). Since hunger in the developing world is more a result of poverty and unfair distribution, food security can only be guaranteed with integrated approaches to poverty eradication, which are impossible if the system continues altering traditional agriculture, imposing restrictions on traditional knowledge and practices and increasing the cost of small-scale farm production. As it has been pointed out, food security also depends on the farmers who select, improve and use crop diversity. With new technologies as the so-called "terminator technology"[32], farmers would not be able to save and re-plant seeds from their harvest. If this happens, centuries of crop diversity will be lost. The risks of genetic erosion are high, with crop genetic resources disappearing at 1 or 2 percent per annum (Shand, 1999).

Latin America harbours three of the eight centres of origin of crop species of the world. The region has the world's richest concentration of biodiversity of plants and animals (probably as much as 90% of the world's species). The potential impacts of the release of genetically modified organisms (GMOs) into the environment cannot be overlooked, especially given the importance that agriculture and food production have for the economies of the region and rural communities, and considering also the growing presence of agricultural products from Latin America in the international market (Trigo et al, 2000).

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[31] See also, Tewolde Berhan G/Egziabher] and Vandana Shiva [in http://www.eldis.org/static/DOC11738.htm; See also, Pew Initiative on Food and Biotechnology, 2004 (available at http://pewagbiotech.org/resources/issuebriefs/feedtheworld.pdf)

[32] "Terminator technology" is a label that has become popular for Gene Use Restriction Technology (GURTs), an innovation designed to genetically switch off a plant's ability to germinate a second time. Developed as a way of maintaining proprietary rights over genetically modified plant varieties. In Genomic in an Open Society, Hell3LS. Winter 2004 Vol. 2 / N° 2. Available at http://www.genomecanada.ca/GCethique/bulletin/GE3LS_Winter2004.pdf

Global estimates for 1999 indicate that 39.9 million hectares of land were planted with transgenic crops. Of these, 7.1 million hectares (18%) were planted in developing countries, mostly in Argentina (6.7 million hectares), while the US and Canada accounted for 32.7 million hectares (82%). Of the 39.9 million hectares, 28.1 million (71%) where modified for tolerance to a specific herbicide, 8.9 million hectares (22%) were modified to include a toxin-producing gene from a soil bacterium, while 2.9 million hectares (7%) were planted with crops having both herbicide tolerance and insect resistance[33].

In 2001, GM crops totalled about 44.2 million hectares globally (Fresco, 2001). Brazil, Argentina (the second larger producer of soybean in the world[34]), Paraguay (where it has been reported that illegal GM soybean is being used[35]) and Mexico (where indigenous organizations are fighting against the cultivation of transgenic maize)[36], are the countries of the region with the largest areas of GM crops.

Genetically modified crops and test trials are growing all over Latin America. Of the 200 test trials carried out in developing countries in 2001, 152 were carried out in Latin America (Fresco, 2001). This technology is being tested and implemented in the region without an adequate legal framework or a deep understanding and evaluation of the environmental, cultural, social, and economic implications for local farmers and its effect on national food security. Furthermore, technological and scientific knowledge related with biotechnology is concentrated in the developed world, mostly in the private sector, and Latin American countries find themselves unprepared to deal with its potential impacts.

8. Identification of activities, actions, policies, legislative and administrative procedures that may discourage the respect for traditional biodiversity-related knowledge

In Latin America and the Caribbean, indigenous and local communities have been long affected by policies, legislation, and administrative procedures that have not recognized their rights, interest, and cultural values. At least until the 1930s, national policies were conceived to abolish indigenous collective property and traditional authorities (Roldan, 2004). The consequences of these policies were the disappearance of ethnic groups and the erosion of traditional cultures. All or part of their ancestral institutions, languages, and traditional knowledge continue to vanish.

A progressive departure from this thinking began to be reflected in international law, modern constitutions and national legislation in the last decade, when more efforts have been made towards recognition of indigenous and local communities' rights, seeking to incorporate these communities into the wider national society while acknowledging (and respecting) the cultural differences. The recognition

[33] Electronic Forum on Biotechnology in Food and Agriculture, FAO. Chile,

http://www.fao.org/biotech/forum.asp?lang=en

[34] http://pewagbiotech.org/resources/factsheets/.

[35] http://www.ipsnews.net/.

[36] See *Territory, autonomy and defending maize* in http://www.grain.org/seedling/

by several constitutions of the multicultural and pluricultural nature of the nation has been a point of departure from the old approach (Bolivia, 1994; Colombia, 1991; Ecuador, 1998; Guatemala, 1998; Mexico, 1917, amendment, 1995; Nicaragua, 1987; Paraguay, 1992; Venezuela, 1999), and is linked to the ratification of the ILO Convention 169 - the most advanced legal instrument relevant to indigenous and tribal peoples.

However, in spite of all these advances, there still are several flaws and contradictions regarding indigenous and local communities' rights. Indigenous and local communities' representatives are still fighting to see their demands and interests incorporated at the highest level of the national agenda. Several indigenous movements in the region have prompted important changes at the policy level, but not all countries have strong indigenous and local organizations capable of dealing with all the complex issues affecting traditional knowledge and practices.

Increasingly, the relation of indigenous and local communities with their natural environment, and their important contribution to the conservation of biodiversity and food security, has been recognized in policy frameworks, and indigenous organizations have managed to have their demands incorporated into the environmental national agenda. Nevertheless, for the majority of the countries of the region, this contribution has not yet been effectively translated into specific regulations and actions or concrete benefits on the ground. The most controversial issues are those related with land and natural resource rights, self-determination, autonomy, and the protection of traditional knowledge. More recently, trade liberalization policies have added a new dimension to these contentious issues, as they increase the pressure over land and resources, intensifying the threats over cultural patterns and traditional lifestyles. Real encouragement and support for preserving and maintaining traditional knowledge associated with biological resources are still hard to find.

Generally in the region, national legislation still needs to be updated in order to harmonize national provisions with ILO Convention 169, particularly regarding indigenous participation in policy making and rights concerning natural resources and territories, as well as with CBD provisions related with traditional knowledge. This applies particularly to sectoral legislation. As experts from Colombia affirm, there are no specific studies in the country that determine if national policies of different sectors are compatible with the rights of indigenous peoples and Afro-Colombian communities, and therefore it is hard to identify all the specific legislation and procedures that may be affecting the maintenance of traditional knowledge.

Roldan (2004) proposes the following typology of national legal regimes in Latin America based on the level of recognition of indigenous rights:

Typology of national legal regimes related with indigenous rights

Superior legal framework	***Legal framework in progress***	***Deficient legal framework***
Bolivia Brazil Colombia Costa Rica Panama Paraguay Peru	Argentina Guatemala Honduras Mexico Nicaragua Venezuela	El Salvador Guyana Suriname Uruguay

On the other hand, local communities, who also fall under the scope of the CBD, do not enjoy the special protection conferred by ILO 169 to indigenous peoples. This establishes strong differences between these two groups. Additionally, indigenous peoples' organizations have been more active and effective in raising their voice in the

environmental arena. Only a few countries have recognized Afro-Latin American communities' land and traditional knowledge's rights (e.g. Colombia approved specific legislation regarding land rights of Afro-Latin American communities; Ecuador included Afro-Ecuadorians in its constitution together with indigenous peoples; the Peruvian law for the protection of traditional knowledge also includes under their scope Afro-American and farmer communities; and so did the Andean Community Decision 391).

Legislation and policies in the following fields may affect positively or negatively the preservation and protection of traditional knowledge:

- Trade
- Land tenure and land use
- Mining, oil and natural resources
- Protected areas
- Traditional knowledge and genetic resources
- Intellectual Property Rights such as patent and plant breeder's rights laws
- Participation

Trade related policies

Indigenous organizations have argued that trade policies in the region have generally not taken into consideration the interests and needs of indigenous and local communities. While trying to incorporate these communities into the market, national governments have not provided them with the means for subsistence and for competing in a globalized world, while maintaining their own values and cultures.

The strong emphasis on land reform in the 1990s, the growing modernization of agricultural production (including changes responding to the pressure for standardized IPR systems and provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the WTO), and the negotiations of several trade agreements in the region are of particular concern for indigenous peoples and farmer communities throughout Latin America and the Caribbean. After having seen the impacts of liberalization policies and the rise of globalization, indigenous and local communities say to have good reason to fear the potential impacts that new trade agreements may bring[37].

Within or outside the process led by the World Trade Organization, several trade agreements are being negotiated in the region, the most important of them being the Free Trade Area of the Americas Agreement (FTAA). This agreement is expected to be approved by the end of 2005 and it will be adopted by all countries of the American hemisphere, including the Caribbean countries (except Cuba).

[37] See, http://www.oxfamamerica.org/newsandpublications/news_updates/archive2003/art6502.html. In addition, Servindi (2004) Los Pueblos Indigenas, el ALCA y el TLC. Manual de Capacitación.

For some activists, the FTAA not only defines a new framework for trade and private property, but it imposes a new ideological, legal, and political frame to define the relations between the transnational capital, the States, and the Latin-American peoples[38].

Although the Second Summit of the Americas in Santiago in 1998 agreed to negotiate the agreement with transparency and making it accessible to all sectors of national society, the negotiation process has not been seen as a transparent and open process by most of the stakeholders. Initial discussions about the FTAA began in 1994 and formal negotiations have been ongoing since 1998, but the negotiated text was made public only in 2001[39].

While consultations with the private sector have been incorporated since 1996, the participation of other sectors (NGOs, indigenous and local communities) has been more limited[40]. This lack of transparency and the complexity of the subjects included in this agreement have made it difficult for indigenous and local communities to understand all implications of the FTAA. Nevertheless, indigenous organizations are trying hard to raise their voice and create awareness about the main threats it may imply for their cultures, their life and the natural environment which they depend upon for their basic food and health needs.

Some of the major concerns regarding the FTAA are related to the unfair competition with subsidized agricultural products from developed countries, the intensification of natural resource exploitation, intellectual property rights over plants, and the loss of indigenous cultures and biodiversity resulting from the intensification of development activities and infrastructure in rural areas (Servindi, 2004).

Additionally, indigenous organizations fear that the benefits of trade agreements will not reach indigenous and local communities, because these do not have the capacity to take advantage of the benefits, they are too far from markets, and most of them are not even aware of the possibilities that may open. Instead of improving their quality of life, it will increase the gap between the rich and the poor in the continent.

The Declaration of the Fourth Trade Ministerial Meeting in San Jose, 1998, established the objectives of the FTAA: "To promote prosperity through increased economic integration and free trade among the countries of our Hemisphere, which are key factors for raising standards of living, improving the working conditions of peoples in the Americas and better protecting the environment" and "To strive to make our trade liberalization and environmental policies mutually supportive, taking into account work undertaken by the WTO and other international organizations".[41]

In spite of these objectives, the draft text of the FTAA does not incorporate equity issues, cultural considerations and special measures to prevent negative impacts of free trade on the poor, particularly in relation to food security and biodiversity. Moreover, the FTAA negotiations have done very little so far to prevent the new rules defined in this agreement from facilitating biopiracy and misappropriation of traditional knowledge and practices.

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[38] http://www.grain.org/biodiversidad/?id=177

[39] FTAA draft text available at: AT http://www.ftaa-alca.org/alca_s.asp).

[40] http://www.grain.org/biodiversidad/?id=177.

[41] http://www.ftaa-alca.org/Ministerials/SanJose/SanJose_e.asp.

The FTAA does not incorporate provisions related with the environment or labour safety measures, leaving each country to define their own environmental and labour regulations[42]. It does not take into consideration how trade liberalization will affect food security or impact on cultural diversity; measures to adapt Intellectual Property Rights regimes within the FTTA may open the door to patenting of living organisms, plants, and traditional knowledge[43]. It is particularly worrisome that most of the section on Intellectual Property Rights referring to traditional knowledge and access to genetic resources remains in brackets.[44]

In sum, trade agreements are being negotiated without taking into consideration the needs of indigenous and local communities, one of the most marginalized and poorest sectors of national society. The promotion of free trade as the panacea for national development and poverty alleviation overlook the social, cultural, and environmental impacts of trade policies, particularly on the poor. By ignoring the relevance of recognizing and protecting indigenous peoples' traditional territories for guaranteeing the maintenance of their ancestral cultures, as well as the importance of cultural diversity for biodiversity conservation, policymakers may be leaving out of the discussion a fundamental element in the success of free trade agreements reaching the most disadvantage sectors of the society.

Today, there is a strong opposition to free trade agreements from some social movements, indigenous organizations, and NGOs. This opposition is increasing as the deadline for the approval of the FTAA approaches.

Agrarian reforms and new land regimes

Land rights are at the core of indigenous peoples' demands. Although land claims involve fundamental issues of historic claims, discrimination, and cultural issues, they have also an environmental dimension (Plant and Hvalkof, 2004). Indigenous organizations have been highlighting in various fora the link between culture, territories, and traditional knowledge. Land issues need to be addressed at the national level, taking into consideration its relationships with culture and knowledge.

Initial attempts (1950-1980) to revert unfair conditions in land distribution and to modernize the agricultural sector were based on the social agenda of the agrarian reform, and were mostly directed at rural communities, without any consideration for ethnic issues (Aylwin, 2002). In spite of this, agrarian reforms involved the devolution of some ancestral lands and in a number of countries benefited indigenous farmer communities. This was the case in Bolivia, Colombia, Ecuador, Mexico, and Peru. Nevertheless, the reform generally did not take into consideration indigenous collective rights and traditional authorities; in countries like Bolivia and Ecuador indigenous communities received lands as individual plots. In Peru, the majority of peasants were organized in cooperatives instead of building upon their traditional organizational structures, and less than one third of them received communal titles (Plant and Hvalkof, 2004). In Brazil, the process was quite different, since agrarian reforms were oriented

[42] See draft text of the FTAA agreement in http://www.ftaa-alca.org.

[43] http://www.grain.org/biodiversidad/?id=177

[44] http://www.ftaa-alca.org.

towards landless peasants and not towards indigenous peoples. In Chile, experts consulted affirm that one of the main causes of the lost of traditional patterns of indigenous communities is the transformation of communal land into private property.

In sum, although agrarian reforms in Latin America between the 1950s and 1980s varied from one country to another, they had some similarities. They targeted mainly farmer communities from mountain areas, not reaching indigenous peoples from the lowlands and tropical rainforests or Afro-Latin American communities; they did not address indigenous collective rights, and mostly promoted individual ownership; they did not recognize territorial rights; and they did not have ethnic criteria to differentiate indigenous from non- indigenous people.

Agrarian reforms did not guarantee either land security. They did not provide peasants with the means for market production. The titling process was irregular, many landless farmers never received land titles, and inefficient demarcation of lands created conflicts between communities and colonists. Moreover, inefficient land official registers intensified the conflicts among different landholders (Plant and Hvalkof, 2004).

On the other hand, land rights allocation of the rainforest received a different treatment. Initially, in the Amazon lands were given to colonists as part of the colonization programmes, and indigenous peoples were allowed to remain in State-owned lands but without recognition of property rights (Aylwin, 2002). Only in the last 10 years, most of the countries have started a process for the recognition of indigenous peoples´ lands in rainforests; only Peru had already recognized collective property rights of indigenous communities from the Amazon in 1974. A different approach has been taken by Brazil, which, since 1910, has established a legal regime to protect indigenous lands in the form of reserves.

Thus, the 1990s brought a new set of land reforms with a different approach. Several countries implemented land market-oriented measures (Colombia, Ecuador, Peru, Mexico) with the aim to foster and modernize the agricultural sector. Indigenous lands from the rainforest were kept out of the land market, with the exception of Peru (1995) and Mexico (1992). On the other hand, several countries undertook constitutional and legal reforms in order to recognize or strengthen land rights of indigenous peoples, such as Argentina, Bolivia, Paraguay, Guatemala, Brazil, Colombia, and Ecuador.

Additionally, several Latin American constitutions started to recognize not only land rights, but also the cultural dimension of such rights.

In order to adapt land rights to the special needs and characteristics of indigenous peoples' relation with lands and natural resources, several countries incorporated special guarantees for indigenous lands (inalienable, imprescriptible and nonmortagageble), with the exception of Peru and Mexico. Some indigenous peoples have considered these guarantees essential to preserve their traditional knowledge and practices and to keep their cultures alive; but others have indicated that it is not the national State but themselves who should establish the rules. The Peruvian Land Law of 1995 has been criticised by several experts and largely contested by indigenous peoples on the grounds that it threatens the integrity of their traditional lands and put pending land claims at risk (Plant and Hvalkof, 2004). In Mexico, the 1992 Amendment to its Constitution permitted *ejidos* to decide if they want to remain under communal property or divide the land in individual plots (Plant and Hvalkof, 2004).

Today, indigenous demands go beyond land rights. In effect, they call for the recognition of their traditional territories and more autonomy for management and use of the natural resources. It has been suggested that the points of departure for finding solutions in these matters are the political will of national governments, and realistic proposals from both governments and indigenous organizations in specific cases.

In summary, in the majority of the countries of the region, agrarian reforms and market-oriented land regimes have not resulted in a definitive solution for indigenous peoples' land claims, nor have they guaranteed land security. ILO Convention 169's provisions on recognition of land rights have not been fully implemented so far in most countries, and only recently, a few nations started to recognize in their constitutions the concept of indigenous territories, such as Ecuador, Bolivia, and Colombia.

In the meantime, several countries are going ahead with securing land tenure through land titling projects, mostly funded by the Inter-American Development Bank. However, it will take time to solve decades of deficient demarcation and overlapping, insufficient land allocation, and occupation of indigenous lands by colonists.

Oil and Mining

Although oil and mining activities do not have direct effects on traditional knowledge and practices, they may disrupt traditional lifestyles, because of the multiplicity and magnitude of the social and cultural impacts of their operations. Several NGOs and indigenous peoples' organizations have denounced the impact of these activities over indigenous lands, natural resources, and cultures, and some very well-known cases have provoked changes in policies and legislation at the national level.[45]

For instance, it is reported that oil activities have been causing damage to the Awa people from Colombia, affecting their traditional communication with the spiritual world of their ancestors. The Awa people see oil activities as an important threat to biodiversity conservation, and they think that their physical and cultural integrity is at risk because of the presence of workers and colonists.

The intensification of these activities in the region has also increased conflicts between companies and communities. While some large companies have improved their environmental and social standards, there are still significant differences in the quality and characteristics of social programmes among different companies. While environmental legislation is in force in all countries of the region, cultural impact assessment, control, monitoring and participatory mechanisms need to be strengthened. In addition, with only a few exceptions, most countries have not implemented participatory mechanisms for indigenous and local communities[46]. For instance, effective participation of communities would be very useful in the identification of potential cultural impacts and to identify how these activities can affect traditional knowledge and practices.

Cultural and biodiversity impacts have only begun to be considered by some oil and mining companies, but so far cultural indicators are weak, and very few companies have implemented sustainable development policies.

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[45] http://www.amazonwatch.org/amazon/EC/

[46] There are some advances on participation and consultation mechanisms in Colombia, Law 99 of Citizen Participation from 1993, Bolivia, law of public participation, LPP No. 1551, 20 de April de 1994) and Peru Regulation for Public Audience for the Approval of Environmental Impact Assessments., Resolución Ministerial nº 535-2004-MEM/DM.

At present, Environmental Impact Assessment (EIA) is generally not properly accompanied by cultural and social impact assessment, nor by strategic assessments that could help politicians to decide, based on economic, environmental, and social criteria, about the best options for the country. Although standards for extractive activities have risen significantly, incorporating in some cases social policies and participatory programmes, governments still need to reinforce their monitoring and evaluation systems.

Mining is particularly worrisome in countries rich in valuable minerals such as Chile, Peru, and Bolivia. The use of hydro resources in mining activities affects communities' water uses for agriculture. Of particular relevance for the maintenance of traditional practices in agriculture is the approach given to hydro resource by Chilean legislation. Some argue that privatization of water in that country is creating a monopoly over this resource, mostly for mining activities, affecting indigenous peoples from the northern part of the country, such as the Aymara, Quechua, Atacameño and Colla.

Water policies and legislation

Water resources are relevant for the maintenance of traditional knowledge, particularly in relation to food production. It is also fundamental for indigenous and local communities' livelihoods and the preservation of local and traditional cultural systems associated with conservation and sustainable use of natural resources.

Water management systems of indigenous and local communities are essential for providing food to the majority of the rural poor in the region. However, these communities are struggling for preserving their rights to continue using and managing water resources for their agricultural activities. Several and more powerful actors are competing with communities in the use of water, for instance, for mining activities, dam projects, and large-scale agricultural production. Most of the water regulations in the region pay little or no attention to indigenous peoples and do not take advantage of ancestral practices for water management, nor have provisions to guarantee its continue use by indigenous and local communities.

For a more efficient allocation of water rights, some experts have suggested that privatization of water resources would help, since it will promote conservation and a more efficient use of this resource. Following this reasoning, policy makers have drafted legislation and created a water market in Chile. This country was the pioneer in the region in implementing a private property rights approach for water resources, in which property rights over water are separated from property rights over land. However, Chilean legislation has been strongly criticised by several experts and indigenous organizations, and so far it has not proven to be the best approach for managing water resources in the region. In fact, this legislation has been designed and implemented without taking into consideration local and indigenous perspectives about water and its collective use and management developed through centuries.

The water market created in Chile has not been able to avoid water speculation. Applications for water rights surpass in five times the flow of all southern rivers in this country. There are some indigenous and rural communities that have not been able to obtain water rights, and therefore, they are forced to pay a rent for using this resource to the water owner[47] .

Other countries of the region, such as Argentina, Bolivia, Ecuador and Peru have been discussing new water laws for several years.

[47] http://www.cepes.org.pe/revista/r-agra63/8-9-aguas.pdf

An expanded water market in the region will need a strong institutional capacity to assign rights over resources, recognizing and safeguarding pre-existent rights and the social and cultural function of water resources for indigenous and rural communities, and guaranteeing that the poor will not be deprived from it. Institutional capacity is also necessary to solve conflicts over water. In the presence of conflicting interests, recognizing and assigning rights over water can be even more complicated than finding solutions to land claims.

Forest policies and laws

Indigenous peoples from lowland rainforests are heavily dependant on forests for their livelihoods. Forest products are the basis for their food, shelter and health supplies, as well as for religious and cultural practices. Unsustainable forest practices can be very damaging for indigenous peoples, including because of the associated indirect social impacts, such as construction of roads and land occupation (Biodiversity Strategy, Bolivia, 2001). The deforestation rate in Brazil is the highest in the region, with three million hectares per year. In the last decades, Brazil has turned into the major producer and consumer of tropical timber of the world, 80% of which is illegal (Sevilla et al, 2004). The deforestation in Brazil is said to largely affect traditional indigenous lands, directly or indirectly.

Several countries of the region have modernized their forest policies and passed new legislation. Peru, Mexico, Bolivia, Costa Rica, Guatemala, and Cuba, have been adopting technical measures for sustainable forest management (forest planning, management plans, private rights for logging, and control mechanisms); (Sevilla et al, 2004). However, such policies are still new and countries have just started to implement them, with some difficulties.

Forest policy and legislation have generally been designed without (or very little) participation of indigenous peoples, with a few exceptions, such as Peru, where indigenous peoples' representatives have been participating in the National Forest Roundtable and in some workshops during the preparation of the forestry regulations. However, even in the Peruvian process, the options for indigenous and local communities to influence the outcomes were very limited.

Additionally, only a few countries have included communities' rights and the consideration of indigenous peoples forest related knowledge (TFRK) into their national forest policies, such as Costa Rica, Ecuador, Panama, Peru, Venezuela and Mexico (Sevilla et al, 2004).

Legislation in the region is mostly focused on forest activities for the private sector, and indigenous peoples' forest activities are limited to subsistence purposes only, with a complete lack of recognition of rights for managing natural resources (Roldan, 2004), with some exceptions like Bolivia and Peru, where indigenous peoples can enter into private agreements to carry out commercial forest activities in their communal forests. However, commercial activity in indigenous lands has not been regulated adequately, control mechanisms are weak, and there are no incentives or technical assistance for indigenous communities.

Additionally, the expansion of exotic plantations in countries like Chile are affecting indigenous peoples' lands. Although Chile has an Indigenous Law in force, it has not been adequately implemented to avoid these impacts. In effect, in this country the forest industry is well developed and generates important revenues for the country. Nonetheless, the development of this industry has created problems with Mapuche communities, because of the expansion of exotic plantations such as of Pine and Eucalyptus

Some of the main problems are related with the lack of clarity regarding indigenous' rights over forests – perhaps with the exception of Colombia, where renewable natural resource in indigenous territories are

the property of indigenous peoples, while non-renewable resources remain the property of the state, but communities have a preferential right over these resources. Indigenous mining zones have been established in Colombia. To a certain extent, this has helped to control mining and forest activities in indigenous lands.

Inaccurate official registers of land rights have caused overlaps between indigenous lands and private concessions over forest areas (Sevilla et al, 2004). Corruption at the local level and illegal logging are facilitating the invasion of indigenous lands and hindering the implementation of sustainable forest management.

Few measures have been taken so far to protect and promote the use of traditional knowledge and customary practices of indigenous peoples for the management and use of forest resources (Newing, 2004). Progress on the recognition and implementation of these measures are weak and countries do not yet have provisions considering traditional forest-related knowledge as a technical component of sustainable forest management. Costa Rica, Ecuador, Colombia Panama, Peru, and Venezuela mention TFRK in their national forest plans, but have not developed specific legislation to incorporate TFRK into forest management plans (Sevilla et al, 2004).

Biodiversity Conservation and Protected Areas

Increasingly, since the Rio Summit in 1992, Latin America and the Caribbean countries have started to incorporate biodiversity conservation as a specific topic of the national agenda. Participation, indigenous rights, and community-based approach for biodiversity conservation have been progressively incorporated into environmental projects and legislation throughout the region. With a focus on sustainable development, most countries have approved biodiversity policies, strategies and action plans, incorporating some considerations of indigenous and local communities' role in biodiversity conservation.

Governments have recognized the importance of biodiversity for their development, in terms of its ecological value, economic potential, social and cultural role, and for satisfying the food and health needs. Some also highlight the important role of indigenous and local communities' traditional knowledge and the correlation between cultural and biological diversity[48], and some experts argue that traditional knowledge loss is one of the major threats to biodiversity (Zent and Zent, 2003).

It has been estimated that about 40% of world market is based on biological process and products[49]. However, national governments are not giving sufficient attention to the potential of biodiversity and traditional knowledge associated with biological resources, and tropical rainforest are disappearing faster today than ten years ago, as it is the Andean vegetation at even higher rates (CAN, 2002).

Protected areas are of particular relevance for indigenous peoples and local communities, since approximately 85% of protected areas in the region are inhabited by indigenous or local communities (Sevilla et al, 2004). The overlap of protected areas with traditional territories have created a conflicting relation with those communities, due to the limitations imposed by protected areas over traditional and

[48] See, Biodiversity Strategy of Bolivia, Brazil, Costa Rica, and Andean Community Strategy.

[49] Bolivian Biodiversity Strategy, 2001

subsistence uses of natural resources. The lack of recognition of property rights of communities has generated mistrust towards protected area authorities. Some experts think that indigenous peoples have been largely ignored in conservation policies (Zent and Zent, 2003).

In recent years, approaches to protected areas started to change, more actively incorporating a human dimension in nature conservation, with participatory mechanisms, comanagement, community-based approaches, and the recognition of, and respect for, traditional and subsistence natural resource uses and practices. Useful experiences in these field can be found in almost all countries of the region.

In Colombia, for example, the national government has taken measures to change a long history of conflict between protected areas and indigenous and local communities, adopting participatory policies for nature conservation, including an intercultural management approach, with co-management and participatory planning as its basic components. There are some pilot experiences, such as the Sierra Nevada de Santa Marta national park, where indigenous environmental planning has been adopted as a component for the management of the national park, the Alto Fragua-Indiwasi National Park – established as an indigenous owned and managed area, and others. However, the role of traditional knowledge in environmental planning of the areas is still not fully recognized.

In Peru, authorities are making efforts to implement a co-management regime for the management of Communal Reserves (a national category of protected area) by indigenous and local communities. The comanagement regime for Communal Reserves has been recently approved with the agreement of the organizations representing the communities involved[50].

In spite of the mentioned advances, co-management experiences in the region are limited and there are few specific mechanisms for the recognition of traditional knowledge in the conservation and management of protected areas. Co-management options are mostly the result of implementation of specific projects or agreements for the management of a particular area, rather than a consequence of the implementation of a more general national legislation.

Access laws and regulations to protect traditional knowledge

Following the mandate of the CBD, provisions to regulate access to genetic resources and respect, preserve and maintain traditional knowledge, innovations, and practices have been enacted or are in draft form in most Latin American countries. However, the advances for the approval and enforcement of this framework are still weak, due to the technical and conceptual difficulties in approaching these issues, and the significant disagreements about fundamental definitions and matters related with Intellectual Property Rights (IPR), benefit-sharing, and prior informed consent. Several experts and indigenous organizations consider that commercial use of genetic resources constitute biopiracy since the actual legal and policy regimes cannot adequately ensure prior informed consent.

More advances in this issue can be found in Bolivia, Ecuador, Peru, Colombia, and Venezuela, which in 1996 approved the first regional legislation that included provisions for access to genetic resources and traditional knowledge. The close relationship between access to genetic resources and traditional knowledge resulted in Decision 391 of the Andean nations, recognising the intangible component associated with genetic resources and dictating that country members should develop legal frameworks to protect indigenous, local, and Afro American communities' traditional knowledge, practices, and

[50] Annex to the Resolución de Intendencia Nº 019-2005-INRENA-IANP.

innovations. Moreover, the Decision establishes that benefit-sharing agreements should be attached to the access contracts. With this Decision, traditional knowledge was definitely incorporated in the national agenda of the member countries, provoking arduous debates and discussions on this topic (Ruiz, 2002).

Based on this decision, Andean countries started to define their national access and traditional knowledge regimes. The decision was later complemented with Decision 486 of 2000, which states that when access to genetic resources is based on traditional knowledge, "patent may be declared null or void if PIC (Prior Informed Consent) of indigenous and local communities was not obtained" [51].

Although Decision 391 technically could be implemented without further development of new national laws for access to genetic resources, the ambiguities in its text, coupled with social protests, political concerns, and institutional limitations obliged Bolivia, Ecuador, Peru, Colombia, and Venezuela to develop national legislation for its implementation[52]. With unequal advances among its members, countries are still working on national provisions and, in spite of all efforts, implementation of Decision 391 in Member States has been limited (Ruiz, 2003).

Bolivia, Costa Rica, Peru, Brazil, Panama, and Venezuela have passed some national provisions for the protection of traditional knowledge. Bolivia has included provisions regarding traditional knowledge into its legislation on access to genetic resources[53], and is working on a traditional knowledge *sui generis* regime. Brazil has regulated both issues in an Interim Measure.

Panama and Peru have established special legal frameworks for traditional knowledge, but have not yet approved their access laws, and Panama[54] regime covers only traditional knowledge related with folklore.

Venezuela and Costa Rica included access and traditional knowledge provisions in their biodiversity laws, with Costa Rica being the first in the region to regulate the use and protection of traditional knowledge at the national level in 1998. In Venezuela, the Ministry of Environment and Natural Resources established the requirement of contracts for any access to biological resources and associated traditional knowledge, whether for research or for commercial purposes. Some have criticised this interpretation of Decision 391, because it discourages research and many issues remain undefined. For instance, of the 20 applications for access to genetic resources received between 1997 and 2001, only six were granted and four of them have been suspended (Zent and Zent, 2003).

Ecuador, Mexico, and Nicaragua have some general provisions for access to genetic resources in their biodiversity and environmental laws, but have not developed any provision for the protection and preservation of traditional knowledge. Argentina and Ecuador have drafted legislation for access, which include some provisions related with traditional knowledge.

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[51] See, unep/cbd/wg-abs/3/2. 2004.

[52] Ibid

[53] Decreto Supremo No. 24676, 21 of June 1997.

[54] Law Nº 20 of 2000 on the special intellectual property regime for collective rights of indigenous communities, for the protection of their cultural identities and traditional knowledge.

In countries like Chile and the majority of the Caribbean countries there is no legislation for the protection and preservation of traditional knowledge and access to genetic resources, and advances in policies, legislation, or actions on this subject remain weak.

So far, Peru is probably the only country with a comprehensive framework on traditional knowledge, as part of its national law on a *sui generis* regime for the protection of traditional knowledge, innovation, and practices of indigenous, local, and Afro Peruvian communities[55]. Peru has also two important articles in its Biodiversity Law of 1997, recognizing TK as cultural patrimony, and requiring prior informed consent for the use of traditional knowledge. In addition, the Industry Law also refers to a *sui generis* regime and to the creation of a register of TK.

Colombia has been a key player in the development and approval of the Andean Community Decision 391, as well as of the need to articulate traditional knowledge within laws on access to genetic resources (Ruiz, 2004). Colombia has also recognized significant rights of indigenous and Afro-Latin American communities. It has one of the most advanced legislations concerning indigenous peoples' rights. With regard to TK, however, Colombia has not yet approved a *sui generis* regime.

Bolivia is also working on a more comprehensive legislation for the protection of traditional knowledge, and indigenous peoples will be consulted in this regard before the legislation is approved (Ruiz, 2004).

An interesting case is Brazil, which has passed provisional measures giving protection to genetic resources and TK while discussions and proposals are still on the table (Interim Measure 2.186, 2001). After the approval of the Interim Measure, Brazilian government will continue working on the improvement of national regulations regarding genetic resources and traditional knowledge, recognizing the interdependence between these two subjects. Brazil has also defined specific measures, with the participation of indigenous and local communities, for prior informed consent of communities for the access to genetic resources and associated TK for scientific purposes without potential or perspective of commercial use (Resolution Nº 9, December 2003 and Resolution Nº5, June 2003). More recently, the Ministry of Environment has elaborated rules for the access to genetic resources and associated traditional knowledge[56].

In spite of the efforts mentioned, most countries do not have comprehensive legislation to protect TK, and those who have already approved legislation are experiencing difficulties with its implementation. For instance, Peruvian law has not been fully implemented after more than three years of having been approved.

In Brazil, experts argue that legislation regarding access to genetic resources and traditional knowledge has not been very effective so far. The reasons may be that (1) the legislation is not widely known and not understood by indigenous and local communities, (2) there are no effective sanctions in case of non-compliance, and (3) there is a lack of effective measures to prevent and punish illegal appropriation of TK outside national jurisdiction.

Most legislation and draft norms incorporate similar provisions, such as registers, benefit-sharing arrangements (in the form of trust funds), and prior informed consent requirements. However, several difficulties remain unsolved, for instance regarding:

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[55] Law 27811 of 2002.

[56] See www.mma.gov.br/port/cgen.

- the role of registers and the mechanisms to guarantee that they don't turn into instruments for biopiracy;
- the level of benefit-sharing and the distribution among the different owners (peoples and communities) of traditional knowledge;
- who should grant prior informed consent, and the effective and culturally appropriate procedures for reaching this consent.

These issues are still a matter of debate and it has been argued that they can only be defined after a meaningful and comprehensive consultation processes has been carried out at the national level with indigenous and local communities (Tobin and Swiderska, 2001). In the meantime, the absence of comprehensive policies and legal frameworks for the protection of this knowledge is leaving the path open for biopiracy. Indigenous organizations argue that regulations for access to genetic resources and traditional knowledge's *sui generis* regimes cannot be separated (Barragan, 2004); some countries, such as Brazil, Bolivia, Costa Rica, and Peru, are recognizing this interdependence, and are also taking into consideration the prior informed consent of indigenous and local communities before granting access to genetic resources associated with traditional knowledge.

Indigenous organizations complain also that these approaches to protect traditional knowledge emphasize the commercial application of traditional knowledge and give little attention to its application for biodiversity conservation.

The protection and preservation of traditional knowledge have not been addressed with a holistic and transectoral approach, and the issue has hardly been put at the highest level of the national agenda. Therefore, policymakers from public sector, congressional representatives, and judges have a very little understanding of the implications of this topic and the consequences of not protecting and preserving traditional knowledge.

Countries have weak institutions for dealing with traditional knowledge and indigenous issues in general, since most authorities for indigenous affairs do not have the necessary technical expertise or the human and economic resources to deal with these issues. As a CBD document stresses, "it is generally recognized that the development of national access and benefit-sharing measures has proven difficult for many countries due to a number of factors - lack of technical expertise, budgetary constraints, weak government structures and political support, local social conflicts and conflicts over ownership of genetic resources"[57].

[57] UNEP/CBD/WG-ABS/3/2. 2004:20.

Although some legislation has interesting measures[58], more time is needed to assess their viability and effectiveness. In effect, there is very little practical experience with legislation and very few contracts for the use of traditional knowledge and few bioprospecting applications.[59]

Full protection of traditional knowledge has implications for several issues, such as access to genetic resources, forest and wildlife, land rights and IPR laws, each of which have their own piece of legislation. One of the challenges for regulators in Latin America and the Caribbean is to ensure that national legislation guarantees consistency among the different laws relevant for the protection, preservation, maintenance and sustainable use of traditional knowledge.

The region has been very active in the discussions regarding the protection of genetic resources and associated traditional knowledge. With much enthusiasm, Andean countries adopted in 1996 one of the first pieces of legislation for access to genetic resources and traditional knowledge; there are important efforts to define a *sui generis* regime, such as the Peruvian legislation for the protection of traditional knowledge, and actions of some states to tackle this issue, such as the recent campaign launched by the government of Brazil to fight biopiracy.

However, after more that ten years of the adoption of the CBD, most of the legal frameworks regarding genetic resources and traditional knowledge are incomplete or lack implementation. The issue remains unnoticed by most of national society and authorities, and the lack of coordination and cooperation among authorities involved, and the lack of capacity to deal with this issue, provoke a feeling of frustration among indigenous and local communities.

Indigenous peoples argue that in order to fully preserve traditional knowledge, access regimes should incorporate traditional knowledge provisions or should only be in force after effective protection to traditional knowledge takes place. The ongoing discussions at the international level regarding an ABS international regime reinforce this concern.

Intellectual Property Rights Laws and Traditional Knowledge

In spite of all efforts and ongoing proposals, Intellectual Property Rights (IPR) have not yet been transformed to give traditional knowledge the same level of protection available for “western” research

[58] Peru (article 4, Biodiversity Law) and Venezuela (article 83, Biodiversity Law). Authorities can review patents and other intellectual property rights registered outside their countries regarding their genetic resources or traditional knowledge of communities in order to claim the nullification of the benefits arising from their utilization. UNEP/CBD/WG-ABS/3/2. 2004.

[59] Two examples of contractual arrangement for bioprospecting that helped to shape national legislations are the Know-how License within the International Cooperative Biodiversity Group (ICBG) in Peru and Inbio-Merk agreement in Costa Rica.

innovation and inventions[60], and most countries of the region still do not have complete legal frameworks to confer protection to IPR aspects of traditional knowledge. In any case, South American countries seem to have progressed in these areas more than the Caribbean countries.

As it has been pointed out, it is important to guarantee that those involved in biotechnology for food production and pharmaceutical products are not left out, and that they receive a fair and equitable share of the benefits arising from such activities (Fresco, 2001). However, existing IPR regimes are not prepared to recognize and protect traditional knowledge, since they do not incorporate the concept of collective ownership.

South America is one of the more active regions in pushing for the discussion on traditional knowledge within trade agreements (FTAA and WTO). Peru, Brazil and Venezuela, together with India, Pakistan and Thailand, have presented at the TRIPS discussions a proposal exploring "disclosure requirements relating to the origin of genetic resources and any traditional knowledge used in an invention" and to show evidence of prior informed consent.[61]

While there is still an ongoing discussion on whether traditional knowledge should be protected by adapting existing IPR regimes, creating *sui generis* regimes or only incorporating some measures into patent applications, some options have already been incorporated into a few pieces of national legislation.

Registers have been identified as one of the principal mechanisms to protect and preserve traditional knowledge, and several countries in the region are exploring the creation of registers. Peru's collective regime on traditional knowledge, Panama's law on folklore, and Brazil's interim measure, have incorporated provisions for traditional knowledge registers.

Nevertheless, registers create some concerns for indigenous organizations, since they have the potential of placing traditional knowledge in the public domain and facilitating biopiracy (Alexander et al, 2003). These concerns are being evaluated and options about the confidentiality of the registers continue to be explored. Other concerns which are still under discussion are those regarding who will control the registers and how they will become accessible to communities that are often too far from national authorities' offices and may not know of the existence, function or uses of the register.

Other options that are being explored are local registers or databases developed by indigenous and local communities' organizations. This option has the advantage of the proximity of communities to the register, which would reinforce their sense of ownership and build their trust in this mechanism.

There are very few examples of IPR laws at the national or regional level that have incorporated traditional knowledge considerations into its provisions. One such case is the Peruvian Industrial Law of 1996[62], which called for the development of a *sui generis* regime, including a register of traditional knowledge. Other examples are Decision 486 of the Andean Community Nations.

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[60] UNEP/CBD/WG-ABS/3/2. 2004.

[61] Ibid.

[62] Decreto Legislativo 823.

Some national laws related with biodiversity and access to genetic resources have established obligations on IPR regarding genetic resources, such as Costa Rica, Peru, Venezuela and Brazil[63]. Decision 486 of the Andean Community on a Common Industrial Property Regime, 2000, the Brazilian Interim Measure and Costa Rica biodiversity law 7788 of 1998 refer to the traditional knowledge or the intangible component associated with genetic resources and IPR obligations[64].

Here again, the challenge for policy makers and regulators is to link traditional knowledge legislation, biodiversity, access laws and IPR systems, making sure that authorities coordinate among themselves. Challenges for *sui generis* regimes are to be adequately reflected in IPR national legislation. So far, advances are short in this area. Additionally, cultural barriers among different institutions involved in the protection of traditional knowledge are hard to overcome. It is necessary that governments strengthen the cooperation and coordination between the Patent Office and national authorities dealing with biodiversity and indigenous issues.

Of particular interest are IPR related with plant varieties and seeds because of the fast growth of the industry and its potential threats to food security.

Because regulations on IPR related with biodiversity and agriculture are being determined at the international level, options at the national level to regulate IPR with respect to traditional knowledge depend mostly on decisions taken within trade fora such as WTO and FTAA. In 2001, the Doha Declaration broadened the discussion for TRIPs to "examine the relation between the TRIPS agreement and the CBD, the protection of traditional knowledge and folklore"[65], but so far there have been no significant advances.

Specific rights for farmers related with food and agriculture have been absent from international and national legislation for too long. It is only recently that a legally binding agreement to protect plant genetic resources for food and agriculture has been developed, and for the first time an international binding agreement has recognized farmers' rights. The FAO's International Treaty on Plant Genetic Resources for Food and Agriculture set the basis for the development of national legislation regarding the protection of farmers' rights related with plant genetic resources for food and agriculture. Of particular interest are articles 9.1 and 9.2, which as article 8(j) of the CBD, recognize "the enormous contribution that the local and indigenous communities and farmers of all regions of the world have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agricultural production throughout the world".[66]

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[63] UNEP/CBD/WG-ABS/3/2. 2004.

[64] Ibid.

[65] UNEP/CBD/WG-ABS/3/2. 2004

[66] International Treaty on Plant Genetic Resources for Food and Agriculture. Article 9.1, ftp://ext-ftp.fao.org/ag/cgrfa/it/ITPGRe.pdf

Legislation on IPR and traditional knowledge in agricultural biotechnology related areas is still in its infancy. The most underdeveloped area in this field is the Caribbean, together with El Salvador, Guatemala and Honduras in Central America (Trigo et al, 2000).

Thus, in order to fulfil their obligations under the FAO's Treaty, national governments will have to take measures to protect farmers' rights and their traditional knowledge, such as benefit-sharing mechanisms and the right to participate in relevant decision-making processes at the national level. This treaty puts traditional farmers and "modern breeders" at the same level, and "…provides a basis for the recognition of the collective innovation of farmers and indigenous and local communities on which agriculture is based[67]", which will have to be translated into national regulations. From Latin America and the Caribbean, only Cuba, El Salvador and Peru have ratified the FAO's Treaty. In the meantime, GM crops have been planted in several Latin American countries (mainly Brazil, Argentina, Mexico and Paraguay), without adequate legal regulation.

As a CBD document has stressed, "Farmers' rights are crucial to food security in providing an incentive for the conservation and development of plant genetic resources that constitute the basis of food and agricultural production throughout the world. Making Farmers' Rights a reality, under the FAO's Treaty, at the national level as well as between nations, will represent a challenge for the years to come and one of the manifold tasks to be promptly and steadily tackled in implementing the FAO's Treaty"[68].

IPR raise cost and benefits for indigenous and local communities, but economic benefits will only come when knowledge is associated with a biological or genetic resource with commercial value. Expectations might be high about the short term and economic benefits for communities, and the introduction of IPR or *sui generis* regime will demand that communities find the necessary technical and legal advice.

Participation, consultation, and prior informed consent

Participation at the policy level has always been difficult for indigenous and local communities. At best, implementation of participatory rights has been limited to local projects or specific actions. Nevertheless, indigenous movements in Bolivia, Ecuador and Mexico have made the voice of indigenous peoples heard all over the world, and in some cases they have gained greater political power. Some examples are the struggle of the indigenous peoples in Chiapas for autonomy and recognition of indigenous rights in national legal frameworks, the fight of indigenous peoples in Ecuador against oil companies, and the Indigenous Peoples March of 1990 in Bolivia.

Building cross-cultural participatory processes is with no doubt one of the most difficult and challenging tasks faced by governments. Participatory processes should be an ongoing process, with different stages, depending on the nature and scale of the project. Each stage presents its own difficulties and challenges. A participatory process for instance could begin with consultations as a preparatory mechanism, with the aim to identify the needs and interest of communities, and also during the project planning and in the monitoring and evaluation stage. When indigenous and local communities have to grant prior informed consent, the process should also require a dialogue among all parties, access to the relevant information,

[67] Ibid.

[68] Ibid.

and sufficient time to reach informed decisions. Therefore, informed consent should be sought prior and throughout a project or program (Laird and Noejovich, 2002).

It has to be recognized that, in the last decade, governments have made efforts to increase the opportunity for participation of indigenous peoples and local communities in the definition of legislation, policies, strategies, and plans related with environmental issues. Colombia and Bolivia have laws on participation since 1993 and 1994, respectively. Some interesting examples of indigenous peoples' participation in decision making processes are Bolivia, Ecuador, and Colombia, where governments have recognized indigenous territories as territorial administrative entities.

The rights of indigenous peoples to participate in decisions regarding their own development priorities and natural resource exploitation have been recognized by ILO Convention 169, which has been approved by 13 Latin American and the Caribbean countries.[69] Article 6 of ILO Convention 169 establishes that governments must consult indigenous peoples about every legal or administrative measure that may affect them, and Article 15 refers to consultation for natural resource exploitation in traditional territories.

Colombia has established an Interethnic National Committee with the task of evaluating national requirements for the implementation of Article 8(j) of the CBD. To achieve its tasks, the committee has carried out a first phase of workshops to provide the necessary information to indigenous and local communities prior to the next phase, where communities are expected to elaborate their own proposals for the protection of traditional knowledge**.**

Peru has incorporated participation of indigenous peoples and local communities in specific legislation regarding the approval of environmental impact assessment for oil and mining activities and for the management of protected areas.

Biodiversity strategies in countries such as Brazil and Costa Rica have been carried out with the participation of different stakeholders, including indigenous and local communities. Additionally, in Costa Rica, a consultation process with indigenous and peasant representatives was developed during the drafting process for regulations to the Biodiversity Law, in 2002, for discussing provisions for the protection of traditional knowledge. In 2004, the National Commission for the Development of Indigenous Peoples (CDI) of Mexico carried out the "Consultation with Indigenous Peoples about their development needs and aspirations".[70]

St. Lucia has a national participatory process based upon a chain of communication flows in both directions, where governments inform and consult indigenous and local communities about different issues and the communities express their opinions, which are taken into consideration for the preparation of national proposals.

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[69] Between 1990 and 2000, ILO Convention 169 was ratified by Argentina, Bolivia, Brazil, Colombia, Costa Rica, Dominica, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Peru and Venezuela.

[70] http://cdi.gob.mx.

Brazil is another example where some advances on participation have been identified. For instance, the Ministry of the Environment has carried out consultation processes to improve legislation regarding the protection of traditional knowledge and the Ministry of Foreign Affairs has consulted indigenous and local communities' representatives in the preparation of Brazilian position on traditional knowledge. Moreover, indigenous and local communities' representatives are members of the Council for the Management of Genetic Resources. One of the outcomes of these consultations is the Resolution Nº9 of the Minister of the Environment regarding prior informed consent for access to genetic resources for scientific purposes.

Nonetheless, participatory mechanisms in the region are still underdeveloped and do not adequately reflect the spirit of Convention 169 and in spite of government's efforts, participation remains largely in paper. For instance, in Colombia, communities have challenged the consultation regulations because they are not in accordance with the spirit of Convention 169 and do not respect the timeframe necessary to carry out fair and equitable participatory processes.

Most of the participatory processes involving indigenous and local communities have been carried out without a specific legal framework that establish the procedures and conditions for guaranteeing an inclusive, meaningful, and effective intercultural participatory process. This explains the demands of indigenous groups, who argue that there are still few options to participate and influence the decisions on issues relevant for their life, culture, and environment.

For instance, not all countries incorporated indigenous participation in the elaboration of national forest plans and biodiversity policies, and the procedures were inadequate in cases where the countries did. They usually failed in terms of access to information, adequate time to give informed opinion, or in facilitating participation and incorporating communities' opinion and interest[71].

In several countries where some sort of participation has been carried out for the development of Biodiversity Strategies, indigenous peoples' participation has been limited or has been inadequate. In Chile, it has been indicated that indigenous peoples did not participate in the biodiversity strategy.

Prior informed consent for the use of traditional knowledge has only been recognized formally in some countries' legislation such as Costa Rica, Brazil, Peru, Bolivia, and Venezuela, without being implemented so far.

One of the main points of confusion when implementing participatory and consultation processes is the level to which communities can influence these processes. This is not always clearly established at the beginning of the process, and most of the time participation and consultation take the form of a dialogue without any possibility of changing the outcomes, and without sufficient time allocated to communities for preparation (Tobin et al, 1998).

There are some concerns about the large amount of time and resources involved in participatory processes with indigenous peoples. In spite of these, there is evidence of the benefits reported by incorporating indigenous participation from the beginning of a project or process (Tobin and Swiderska, 2001). As WIPO (1999) stressed, the best way to define a system for access to genetic resources is with the participation of indigenous and local communities. Nevertheless, this participation should be built together with communities and take into consideration their own systems for decision-making.

[71] See National Report submitted to the Secretariat of the CBD.

Another concern is regarding indigenous and local communities' capacity to participate in negotiation processes and achieve fair and equitable agreements. Negotiation among unequal parties makes it difficult to reach fair agreements. There are very few examples where indigenous peoples have managed to negotiate with success an agreement with interesting benefits from the use of their traditional knowledge. The lack of national legal frameworks has made negotiations harder, since all aspects have to be negotiated in each contract. This increases the transaction cost. Several examples of contracts for the use of traditional knowledge that have been negotiated without a legal framework have been criticized, due to the doubtful fairness in the process of reaching prior informed consent and the amount of benefits granted[72].

So it is not only required to recognise the rights of communities to enter and negotiate agreements for the use of their traditional knowledge and natural resources. Negotiation among unequal parties should involve measures to eliminate those inequalities. Governments are responsible for setting the legal framework and the mechanisms necessary to guarantee the fairness and equity of negotiations between communities and research institutions and companies.

Tobin et al (1998) identified several criteria for consultation. These should be: to be carried out in good faith, timely, inclusive of all sectors and at the local level, significant, continuous, informed, facilitated, reported, respectful of culture, laws, and representative organizations, equitable, and no coercive. These criteria, together with a radical change in the culture of policymakers and public servants, so that they respect and recognize cultural differences and be prepared to share power for the management and conservation of natural resources, will radically increase the meaning of participation.

It has been pointed out that no legislation can be effective without mechanisms to enforce and guarantee compliance, and a transparent justice system, accessible to all actors. Unfortunately, access to justice in the region is proportionate to income and influence, and depends of several factors such as race and proximity to urban areas. Lack of understanding of legislation and legal advice, as well as poor education and communication systems, make it difficult to indigenous and local communities to have their voice heard in courts. Access to information is also crucial for fighting a case in court and participating in negotiation or conflict resolution processes. In addition, corruption affects the capacity of tribunals to make fair and equitable decisions.

B. IDENTIFICATION OF PROCESSES AT THE LOCAL COMMUNITY LEVEL THAT MAY THREATEN THE MAINTENANCE, PRESERVATION, AND APPLICATION OF TRADITIONAL KNOWLEDGE

1. Territorial factors and factors affecting communal lands

Lands and territories are the basis of indigenous peoples' culture and identity. They largely determine their survival, standard of living, healthcare, and nutrition. The interdependency and complementarities of

[72] See http://www.commondreams.org. For more discussion on contracts for access to genetic resources and traditional knowledge see Tobin (2002) Biodiversity prospecting contracts: the search for equitable agreements, in Laird (ed) *Biodiversity and Traditional Knowledge*. *Equitable Partnership in Practice* 2002.

its elements are the foundation of indigenous peoples' worldview. Traditional knowledge is the expression of this link between culture and land, and its importance goes beyond its role in biodiversity conservation (Barragan, 2004).

Nevertheless, the nature and importance of indigenous' territories has not been clearly understood by policymakers and donors, who insist on merely assigning an economic value to indigenous lands. For indigenous peoples, "territory" is indeed a cultural concept and not a tradable good (Baranyi et al, 2002). Indigenous peoples ask for the recognition of their territories, in order to be able to subsist, to maintain their cultures, to exercise their customary laws, and to keep their traditional lifestyles alive.

Though governments have recognized, demarcated, and titled a large amount of communities' lands, it is necessary to incorporate the concept of territoriality and to guarantee land security, since most countries still suffer from conflicts at the local level, incomplete regulation, inadequate procedures and laws, and lack of protection of fundamental rights of indigenous and local communities.

The allocation of rights over land and resources in the past has shaped the actual situation and determined the present fate of indigenous territories. At present, indigenous peoples have to compete with other holders of land rights, some of whom have been there long enough to consider themselves as legitimate owners. They have to struggle with colonists or other dwellers for the tenure and use of their ancestral lands and resources, as well as with oil and mining companies having authorizations granted by the state to exploit the subsoil resources in traditional territories.

Additionally, as reported earlier, armed conflicts in several countries (Peru, Mexico, Colombia, Guatemala, El Salvador, Nicaragua) have been the cause of displacement of many indigenous communities. In Colombia, over three million of people (mostly indigenous and rural people) have been displaced since 1985; in Peru, about 600,000 people were displaced between 1980 and 2000, and less than 10% have returned to their original settlements.[73]

In rainforest areas, there is a strong pressure over land historically claimed by indigenous peoples. The pressure of colonist and inadequate legislation has forced communities to change their traditional patterns of semi-sedentary social structures, intensifying agriculture and reducing their traditional activities such as hunting, fishing, and harvesting. This is particularly worrisome since agricultural potential of those lands is poor. Community structures in Amazonian countries has been determined arbitrarily by the state and other external factors, such as religious and educational institutions. This has particularly affected indigenous peoples, who were forced to organize into a sedentary structure.

So far, authorities have not had the capacity to enforce the laws or defend indigenous lands from invasions of colonists. They have not been able to guarantee that extractive operations in indigenous lands do not negatively affect their resources, culture, and health. Governments have been ineffective in controlling illegal activities such as informal gold mining and logging, due to their limited human and economic resources, weak institutional capacity, corruption at the local level, and lack of a strong political will to solve land claim and conflicts in rural areas.[74]

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[73] http://www.acnur.org/

[74] For more information on illegal logging see

www.cifor.cgiar.org/publications/pdf_files/research/flegt/flegt_livelihoods.pdf

In countries where indigenous peoples are a small minority, and countries where individual private ownership property over land prevails, it is extremely difficult for indigenous peoples to have their ancestral lands recognized.

Brazil is probably the only country with a strong authority in charge of indigenous issues, FUNAI. The Indian Statute of Brazil defines a regime for the protection of indigenous peoples, by which they are under the trusteeship of the State. However, even FUNAI has limitations and has not been free of criticism, and invasion of traditional territories and abuses to indigenous peoples in Brazil continue to be denounced.

ILO Convention 169 establishes the need to recognize "The rights of ownership and possession of the peoples concerned over the lands which they traditionally occupy" [75]. The majority of countries in the region have not fully implemented this article, although steps have been taken in most countries. Further, some countries have gone beyond the ILO 169 requirements and have incorporated provisions acknowledging the concept of indigenous territories and giving further autonomy to indigenous peoples. This is the case of Territorial Circumscription in Ecuador, Territorial Entities in Colombia, Community Lands of Origin in Bolivia (Barragan, 2004) and "Comarcas" in Panama (Roldan, 2004).

Although in most Latin American countries indigenous communities have some sort of land rights, claims do not cease due to insufficient allocation of land, inefficient titling, problems with enforcement and legal security over land. In Ecuador, 50% of indigenous people have insufficient land and for 19% their lands have not yet been recognized (Encalada et al, 1999).

Recently, several projects funded by the Inter-American Development Bank have concentrated in land titling. The objectives are to review and modernize demarcation techniques, in order to make them more accurate and avoid conflicts due to land overlaps. These projects involve the modernization of official land registers and procedures for granting of titles to indigenous communities. Nevertheless, funding is limited and in some countries titling programmes have concentrated mostly in coastal and mountain areas.

Furthermore, titling alone does not guarantee land security. Prior to granting private rights over land and resources, governments need to implement conflict resolution mechanisms and reinforce local capacity to solve land claims tenure and use. For instance, although the policy of Peruvian government is to avoid granting forest rights within indigenous lands, concessions have been offered "by mistake" over indigenous lands, creating tensions between indigenous communities and forest authorities.

Additionally, new land regulations implemented in the region have not transformed the agrarian structure for the benefit of farmer communities. For example, processes for land redistribution in Honduras and Nicaragua seem to be at risk because of the lack of credits and incentives for communal and small farmers, turning into a re-concentration of land. In El Salvador, Guatemala and Honduras, the new Land Banks are not facilitating entry for poor peasants into the market (Baranyi, 2004).

In Bolivia, recent measures and constitutional rights have reinforced traditional territorial rights for indigenous peoples. However, several traditional lands are still illegally occupied by colonists, and indigenous groups of Bolivia are asking that such lands be redistributed to peasants with no land (Baranyi, 2004). Although Brazil has recognized more than 12% of its territory as indigenous lands, these continue to be invaded by miners, ranchers and landless peasants. There are several pending court cases in Brazil about claims of third parties over indigenous lands (Roldan, 2004).

[75] Article 14, ILO Convention 169.

In Colombia, experts estimate that since the beginning of the 1990s, drug dealers have taken between three to four million hectares of agricultural lands, which is more than the area redistributed by the government in 35 years of agrarian reform (Baranyi, 2004).

Protected areas established on communities' lands and territories have created innumerable conflicts between communities, national authorities and conservation NGOs. At best, protected area authorities have allowed indigenous peoples to remain inside the areas, or use the resources only for subsistence purposes.

However, recent experiences of co-management and participatory management options in countries like Peru, Ecuador, Bolivia, Colombia, Belize, Argentina, Chile, Panama, Costa Rica, Nicaragua, Mexico and others are trying to revert this situation[76]. However, unsolved land claims may undermine the success of new approaches to protected area management – something protected area managers cannot solve alone.

Land security needs to enhance the relation between national policies and local reality, and should be framed within the complex set of interrelated legal, social, and political issues in order to be effective (Roldan, 2004). National legal frameworks should be accompanied with legal and political changes, to reinforce the role of local governments, enhance coordination among authorities at local level, and implement conflict resolution mechanisms, supported by customary laws and practices (Baranyi et al, 2004).

The struggle over traditional territories is so important that indigenous communities do not see any option for protecting and maintaining their traditional knowledge and practices without the preservation of the ancestral territory in which that particular knowledge or practice is developed.

Lack of clear recognition of rights over natural resources and autonomy to manage those resources in their traditional way, are transforming cultural patterns associated with the natural environment. When land rights of indigenous peoples have been recognised, authorities have been in many cases unable to defend these rights, and although there are important advances in this field, the tenure insecurity makes it difficult to manage natural resource in traditional ways and preserve related knowledge (Zent and Zent, 2003).

Solutions need a deeper understanding and evaluation of cultural and historical roots of land claims and conflicts, together with political will and cooperation of all parties. Solution of land claims certainly should involve a negotiation process, inspired by principles of equity and justice, favouring those more in need, and taking into consideration the new social conflicts involved in land and natural resources use and land tenure.

2. Cultural factors

The loss of traditional knowledge involves the loss of cultural biodiversity and the potential benefits that traditional knowledge could bring to humankind.

Traditional culture and lifestyles are intimately linked with territory, language, and spirituality. All these elements are equally essential for transmission of knowledge, practices, and values from one generation to the next, and to keep indigenous individuals together as a people. Without the communality, traditional

[76] See Noejovich et al, 2000; Oviedo, 2003.

knowledge is at higher risk since it can survive only when it is transmitted from one generation to another, with the involvement of many individuals and institutions.

The inextricable relation between cultural and biological diversity has been emphasized in several fora and international documents such as the Belem Declaration, the Kumming Action Plan, and the Ethics Code of the International Ethnobiology Society (Oviedo, 2002). One of the principles identified at the 2000 International Congress on Cultural Diversity and Biodiversity held in Yunnan was "the inextricable relation between the cultural diversity, the language, and the biodiversity, that emerges from historical ties with the landscape."[77]

Some studies show that the majority of the remaining pristine areas of the world are inhabited by indigenous peoples (Oviedo, 2002). Is not accidental that most of national protected areas in tropical rainforest in Latin America are inhabited by indigenous peoples. National Parks such as Manu National Park in Peru, Parimá-Tapirapeco National Park in Venezuela, and Yasuni National Park in Ecuador, are home to isolated indigenous groups.

Indigenous peoples' cultures have been shaped by the characteristics of their natural environment. Different peoples started to develop their knowledge and practices related to natural resources within these characteristics, in order to survive (Smith, 2002). The Mayas domesticated the maize in Mesoamerica, and ancient cultures did the same with potato in Peru. In the rainforest, indigenous groups have identified plants for medicine purposes and feeding, and have developed hunting and fishing techniques essentially attuned with the environment.

Nevertheless, traditional knowledge is not only associated with biological diversity. It is also related with a set of beliefs and cultural patterns, with water management, prevention of natural disasters, forest management, and territorial planning (Perafan, 2004).

Multiple factors are the cause and effect of cultural erosion, among which, the loss and degradation of lands, disruption of traditional land patterns, changes in traditional mechanisms for decision-making, and constraints to exercise customary laws. These elements are being altered, either because national laws and regulations do not support or reinforce their maintenance or because foreign influence erode traditional systems. For instance, in the Caribbean countries, modern techniques for fishing are altering and displacing traditional practices, and increasing tourism activities are threatening cultural patterns.

An example of how legislation has contributed to cultural erosion is the legal definition of communities' structure. "Communities" are not the traditional form of organization of indigenous peoples in the Amazon region, although in some cases they may have certain correspondence with the traditional economic unit of an ethnic group. However, most of the time, communities are the result of the conjunction of several traditional economic units, creating a new type of settlement (Smith, 2002).

Illegal mining, drug trafficking, and armed conflicts in the Amazon Region are also important threats to cultural patterns and physical integrity of indigenous peoples of Brazil, Colombia, Venezuela, and Peru. All these factors have forced indigenous peoples from the Amazon Region to reframe their survival strategy, altering their cultural patterns, and traditional systems of forest management, within a new social and environmental order determined by the development tendencies of the "western" culture (Barragán, 2004).

[77] www.grain.org/biodiversidad_files/biodiv287.pdf.

In this sense, a melting pot of new and old traditional practices over natural resources converges to give birth, in many cases, to unsustainable uses. Traditional knowledge and practices transmitted over generation are being abandoned, because either there is no ground for its use or young people do not want to learn from their elders and prefer to work on different activities such as tourism and mining or migrate to urban areas.

In Guatemala, a study by WIPO pointed out that according to indigenous peoples from this country, the balance that indigenous peoples have maintained since pre-Hispanic times, "has been upset by modern cultural influences and pressures, to the point that survival of those traditions and culture is now gravely endangered, and they are concerned that traditional cultures would ultimately be destroys, before any of the teachings of that culture have been assimilated by the foreign cultures" (WIPO, 1999:134).

In Peru and Bolivia, indigenous culture has been affected by discrimination patterns. In both countries, indigenous peasants are reluctant to identify themselves as "indigenous", because of the pejorative connotation that this term have had in the past, and they prefer to be identified only as peasants (Plant and Hvalkof, 2004).

Decades of policies and laws oriented towards ending cultural patterns have had their effect on indigenous communities, having destroyed part of or all of their traditional structures. The most vulnerable to outside influence are young people and children. Traditional hunting, for example, is being altered since youth do not want to go hunting with their fathers, or because the fauna has moved away due to the presence of oil activities or deforestation. As a consequence, communities have experienced a change in their traditional nutritional patterns.

Indigenous peoples' lifestyles and culture are not sufficiently appreciated by national society, and although they have gained recognition of several fundamental rights, discrimination and marginalization continue and very few effective measures to protect their culture have been carried out. For instance, traditional medicine has been largely ignored by health physicians, affecting traditional knowledge and practices associated with healthcare.

At the community level, the essence of the retention of traditional knowledge is inter-generational transmission. The current state of processes of inter-generational transmission of knowledge has not been systematically studied in the region, but there is wide evidence that such processes are under increasing pressure and are experiencing continuous erosion. From the perspective of cultural change, and more in particular the state of retention of traditional knowledge, four types of situations can be distinguished:

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 in other 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.

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. Thus, for preserving traditional knowledge generally the region needs a combination of approaches ranging from defensive protection of cultures, to active recuperation of eroding knowledge through "modern" techniques for knowledge transmission. In the case of the first type of groups, 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 ways are no longer effective as they cannot compete with externally induced cultural processes (schooling, mass media, interpersonal intercultural contact, etc.), and also due to traditional, cultural institutional contexts disappearing, 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 recuperation of disappearing knowledge.

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.

3. Constraints on the exercise of customary laws relevant to the management, conservation, and sustainable use of biological diversity.

Customary laws are essential for indigenous peoples and for many local communities. These sets of rules, applied in a particular territory and related with the characteristics of the natural environment, together with language and territory, are one of the elements that define the identity of each indigenous people. Customary laws refer to their organization, traditional authorities, and mechanisms for decision-making, family relations, land use patterns, natural resources, and spirituality, among others.

Without full recognition of autonomy rights for the application of customary laws within their territories, indigenous peoples would not be able to maintain these sets of rules. Autonomy is essential to exercise their customary norms, to decide their own form of internal government and exercise justice (Roldan, 2004). While several countries of the region have recognized in their constitutions indigenous peoples' rights to exercise their customary laws within their lands, the extent of this right is not always clear and varies from one country to another.

None of the countries of the region has ongoing processes for real integration of customary laws into national legislation. At best, they recognize some sort of autonomy for exercising customary laws within

their territories or lands (Ecuador, Bolivia, Colombia, Chile, Peru, and Panama), to varying degrees. In fact, the issue has received very little attention from policy makers.

However, to incorporate customary laws into national legislation is not an easy task because of their nature: they are not written, not codified, and they vary among the different ethnic groups and even among communities. There is an ongoing debate on how to combine these two legal systems. The challenge for lawyers is how to determine in which conditions customary laws would prevail over national laws and vice versa (Baranyi et al, 2004), and how to connect both systems in a compatible, but respectful way. It is acknowledged that the adoption of legal measures for the protection of traditional knowledge needs the informed participation and approval of indigenous and local communities, and that the procedures for taking such decisions should be based on their own customary mechanisms for decision-making.

Some researchers have highlighted the important role of customary laws of indigenous peoples regarding the protection and preservation of traditional knowledge, particularly for seeking prior informed consent and for benefit-sharing arrangements, recognising at the same time the limitations of exercising customary laws outside indigenous peoples' and local communities' lands and its reduced effectiveness in protecting traditional knowledge (Tobin, 2004). In several countries of the region, the use of customary laws within traditional lands has been recognized in their constitutions and in ILO Convention 169; however, this recognition has not been fully translated into practice in most of the countries of the region.

Customary laws have difficulties in adapting to a changing environment and market economies. They are applicable to the local reality, within the context of a particular cultural setting. Market rules are alien to most of the indigenous cultures, and therefore customary laws do not always have answers to the situations posed by trade rules and mechanisms. Market rules can create dramatic variations to the norms that govern the way in which indigenous peoples manage and protect their traditional knowledge (Barragan, 2004)**.**

There are some efforts to enhance the role of customary laws in the protection of traditional knowledge and practices. One such example is the project "Protecting Community Rights over Traditional Knowledge: Implications of Customary laws and practices" undertaken in Peru, Panama, India, Kenya and China with the involvement of IIED and institutions like Andes (Peru), Dobbo-Yala Foundation (Panama), and University of Panama. The intention of this project is to introduce the concept of Collective Biocultural Heritage[78], and based on indigenous peoples' customary laws, develop protocols for the protection of traditional knowledge and guidelines for prior informed consent. Strengthening traditional governance and cultural values will support the maintenance of traditional knowledge systems; "research on customary laws is being used to guide the development of an inter-community agreement for benefit-sharing linked to the International Potato Centre repatriation agreement with the Potato Park" (IIED et al, 2005). This project has identified the lack of recognition of traditional authorities and introduction of "western" legal systems as the main threats to customary law.

[78] The definition of Collective Biocultural Heritage used in this project is: "knowledge, innovations and practices of indigenous peoples and local communities which are often held collectively and inextricably linked to traditional resources and territories, including the diversity of genes, varieties, species and ecosystems, cultural and spiritual values, and customary laws shaped within the socio-ecological context of communities" (IIED et al, 2005).

In Colombia, indigenous jurisdiction is recognized inside their territories. Jurisprudence of the Constitutional Court has defined a system for connecting customary laws with national justice, based on the principles of minimum intervention and full autonomy. However, it is necessary to link customary norms and administrative procedures, and define coordination mechanisms between indigenous and national authorities such as the Ministries of Environment and Defence. There are also some efforts to articulate traditional management systems for protected areas with national legislation, but is not clear which role would include traditional knowledge.

4. Economic factors

As mentioned in previous sections, economic factors can alter the rules that govern customary laws regarding the protection and use of traditional knowledge. Using again the typology of indigenous groups described earlier in this text, there is on the one hand the case of the traditional economies of hunter-gathering societies, based on the traditional use of a particular territory, and traditional patterns of distribution of production and labour. Such traditional economies are not based on commodity or merchandise production, and they privilege reciprocity and redistribution. Consumption of goods is mainly for subsistence and accumulation is usually not allowed. Social structure determines labour allocation and the rules for the use of resources and their distribution. Land does not belong to anyone and is the sustenance of their culture, livelihood, and of religious practices. Their social structure is based on family relations and solidarity (Perafán, 2000). Humans and nature are closely related in a unique system, where men have developed a particular relation with the natural and supernatural worlds (Smith, 2002).

However, few traditional economies of this kind subsist today; in Latin America, they are practically only restricted to isolated indigenous groups in the Amazon and very few other indigenous groups. This traditional economic model seems to be indeed retreating and giving way to indigenous and rural economies increasingly linked to the market. Indeed, nowadays most indigenous economies are the result of a mixture of traditional economies and market economy, and this is altering the equilibrium between environment and social structures (Perafán, 2000). Many indigenous communities in Latin America and the Caribbean are now fully dependent economically from the market.

Market-oriented processes have important implications at the local level and erode traditional economies. The integration of traditional communities into the market is going on without mechanisms to facilitate their entry in ways that do not threaten their traditions. Trade processes have created neither motivation for conservation of natural resources, nor dis-incentives for unsustainable practices. Some studies have shown how traditional societies have deteriorated in Peru and Colombia, where indigenous peoples are ignoring their traditional rituals in hunting activities, resulting in overexploitation of certain species highly appreciated in the market (Smith, 2002).

Failure to incorporate economic incentives and technical assistance to indigenous and farmer communities for agriculture and forest-related activities has resulted in impoverishment of communities, degradation of lands, unfair agreements for trading forest products, and corruption. Although there are several projects related with land titling and demarcation, it is considered urgent to start solving conflicts over land tenure and providing motivation to the communities for sustaining traditional management, with a strategy to reactivate indigenous economy (Baranyi, 2004).

Various studies have identified a correlation among poverty, inequalities, and environmental degradation. Some analysts argue that inequalities in land tenure force peasants to intensify their agricultural activities, reducing crops cycle and resulting in soil degradation. This also reduces productivity and family income (Baranyi et al, 2004).

Poverty, lack of employment, and introduction of new technologies reduce in some cases the opportunities for young people to remain in their communities and learn traditional knowledge and practices from their elders.

Market expansion is accelerating depopulation of rural areas, particularly in areas less rich in natural resources and more distant from the markets. This process is exacerbated by the demand for labour force for agriculture in lands that are more favourable to agricultural intensification and closer to the markets. Some argue that this may pose a risk for the variety of crops cultivated by farmers in distant areas, and that farmers will replace these crops with more profitable ones (Koohafkan, 1996).

New rules related to intellectual property rights for biotechnology development have the potential to alter traditional systems by giving economic, monetary value to knowledge and practices that were not tradable before, such as traditional knowledge of medicinal plants. IPRs impose restrictions on traditional practices for food production, by which the subsistence and spiritual value of some crops might be altered. Communities that are entering into market economies may get disrupted in their value systems due to the new values and rules governing their economic life. On the other hand, some communities have managed to unroll in both systems at the same time, using their traditional economy for their subsistence activities and the market economy for trading their products in the local markets (Smith, 2002); this is the case, for example, of the Shuar people of the Amazon, who practice cattle ranching as primary market-oriented activity, but still rely on hunting and gathering in the forest for an important part of their subsistence and diet. Studying the conditions and factors for successful combination of such different systems may be useful to provide lessons and tools to communities exposed to economic changes of that type.

As stated in CBD Decision VII/16 on Article 8 (j) and related provisions, development that involves changes in the traditional practices for food production or implies the introduction into the market of certain crop or medicinal plant, can generate a pressure to restructure the traditional land use pattern, and may lead to the expropriation of communities' lands, as well as pressures on the sustainable use of biological diversity, in order to respond to the demands of the market.

5. Social factors

Social factors altering traditional lifestyles and traditional knowledge and practices are the result of development policies, forced integration into national structures, cultural contact, influence of the mass media, and some dynamics internal to the communities. Development projects such as oil and mining, agricultural expansion, construction of dams and tourism incorporate new groups of actors in rural areas, which transform rural social dynamics and bring new values and behaviour. Additionally, migratory processes affect family structures, due to the migration of young people (in some communities mostly men, in other communities mostly women) to urban areas and other countries in search of education, jobs, and better quality of life. Migration affects the role of women and elders in the family, and often poses a threat to intergenerational transmission of traditional knowledge; there is often specialization of knowledge, e.g. women may possess knowledge about agriculture and elders of medicine, and changes due to migration may break the communication channels with younger generations or gender groups.

The impacts over traditional lifestyles particularly affect women's role in the management of natural resources, health care, and transmission of knowledge and practices (Peredo Beltran, 2004). For instance, in the Andean region, women play a key role in the conservation of seeds (Aguilar and Blanco, 2004).

Rural population is not only decreasing at an accelerated pace, but indigenous and local communities are also replacing their traditional activities with others that are more lucrative, such as intensive agriculture, or go to work in mines and in the tourism sector. This also imposes changes in family relations, altering traditional labour distribution among family members.

Family structure is strongly related with food production, where men and women have specific roles. However, national gender policies related with natural resources, e.g. participation of women in development or policy-making processes, are weak and there are few regulations in force to solve gender-based inequalities.

Seasonal migration in Peru is one of the causes of family fragmentation. In Guatemala, migration also affects family unity, with about 40,000 displaced families in this country. The consequences of poverty, exclusion, discrimination, armed conflicts, and lack of access to services are among the most damaging factors affecting young indigenous and children[79].

In addition, extractive activities such as oil and mining have multiple social impacts over indigenous and local communities that are not properly considered in the environmental impact assessment. For instance, in the mining sector, the demand for local work force results in changes in family relations. On the other hand, the introduction of outside workforce into the area alters the local social dynamics and introduces new cultural patters and illnesses, and results in variations in nutritional patterns and traditional economies.

6. Lack of capacity to manage contemporary threats to biological diversity

Traditionally, indigenous peoples have had little or no negative impact on their natural environment. However, recent studies show that this is changing, as the communities are losing their cultural patterns and moving away from their traditional lifestyle.

Development projects (road construction, natural resource exploitation, growth of urban areas, and tourism) result in diminishing agricultural land, soil degradation, and deforestation, among others. Indigenous peoples and local communities also contribute to negatively alter the natural environment resulting from the over-exploitation of their lands and natural forests and the intensification of agriculture in order to increase crop production. Changes in cultural patterns, insufficient amount of land, poverty, increase of market demand on natural resources, pressure over their lands by colonists and private entrepreneurs, are all elements to be considered when analysing the causes of the loss of biodiversity in indigenous territories and of the associated traditional knowledge and practices.

Today, globalization and trade liberalization are generating changes that also affect local practices and institutions, creating new forms of uncertainty and vulnerability. Increases and variations in demand for natural resources add to indigenous and local communities' own demand of resources to meet their needs, as well as their traditional and subsistence practices. Local and non-local management systems often

[79] UNICEF, Fundación Rigoberta Menchu and Flacso Ecuador (2001) Encuentro Sub-regional sobre niñez y juventud indígenas. Memoria del Evento.

overlap with each other, creating ambiguity and uncertainty (Mehta et al, 2002), altering traditional practices and provoking changes in cultural patterns associated with the use of natural resources.

Indigenous peoples' new practices have been identified in some studies as one of the threats to forest conservation in countries such as Bolivia, Ecuador, and Peru, although with less intensity than colonists and logging companies (Sevilla et al, 2004). For instance, the introduction of shotguns has increased the capability of communities to exploit game resources beyond their regenerative capacity, questioning the capability of indigenous peoples in Venezuela to preserve biodiversity (Zent and Zent, 2003). It has been reported also that in countries like Ecuador, Peru and Bolivia, indigenous people are the main suppliers of timber to illegal traders, rapidly depleting forest areas' valuable timber species.

Increases in the use of natural resources and pressure over land, as well as activities resulting from the application of new technologies pose a challenge to traditional practices. Fragmentation of land has been recognized as one of the causes for biodiversity degradation, since this fragmentation alters or stops rotational practices, which are at the root of traditional management, and transforms the nomadic or transhumant nature of indigenous communities. The transformation of indigenous populations into sedentary communities and the increase of population in certain areas increase environmental impacts, such as depletion of wildlife and fragmentation of forests (Zen and Zent, 2003).

The survival of traditional systems depends on the ability of the people to adapt themselves to environmental and social changes (De Castro et al, 2002). Markets create new needs for indigenous peoples to exploit forest for commercial purposes, altering their traditional practices, and creating a contradiction between traditional systems and commercial exploitation.

Some analysts have pointed out that if the pace of change is faster than the capacity of indigenous peoples to respond and adapt their traditional management systems to those changes, traditional systems could be irreversibly undermined (De Castro et al, 2002).

7. Impact of HIV-AIDS and health policies on the maintenance of traditional knowledge systems

Studies about HIV epidemics affecting indigenous populations in the region mainly refer to those living in urban areas, and there is very little and scattered information about HIV incidence in indigenous and local communities in rural areas. Nevertheless, HIV is a major problem in the Caribbean countries. This region is the second most affected region in the world, with HIV being the leading cause of death among adults (between ages 15 to 44) and with higher incidence of the infection in Haiti and Jamaica. In countries with high dependence on tourism, incidence of the infection is also high, such as in Barbados, Bermuda, Dominican Republic, Jamaica, and Trinidad and Tobago[80].

Other type of threats such as malaria, dengue, cholera, and other illnesses, resulting from the incursion of foreigners into indigenous and local communities' lands, have been analysed in depth by many researchers, as it has been the negative effect of "western" medicine in the maintenance and use of traditional medicine.

[80] AIDS epidemic update: December 2004. UNAIDS/WHO

Ethnic discrimination is one of the causes of inequalities in health care for indigenous and local communities (Peredo Beltran, 2004). In the last century, there has been a resurgence of several illnesses among indigenous populations, such as tuberculosis, hepatitis B, and cholera. For instance, in Venezuela, half of Yanomamis living in the Amazon Region have been infected with hepatitis B, which is the third major cause of mortality, after under-nourishment, and malaria (Peredo Beltran, 2004).

A report on Mexico shows that infectious diseases, malnutrition and other illnesses related with poverty and underdevelopment are the major health problems for indigenous people in that country. There has been very little effort in Mexico to develop health programmes specifically for indigenous peoples. So far, government has failed to adapt health systems to indigenous needs by not taking into consideration their cultural characteristics (Paqueo and Gonzalez, 2004). In Colombia, under-nourishment affects indigenous people that have modified their natural environment and lost their traditional source of feeding. On the other hand, indigenous peoples who are relatively isolated have better levels of nutrition (Sánchez and Arango, 2001).

Over the years, different governments have dealt with indigenous and local communities' health problems from a purely "western" perspective, instead of introducing "western" medicine as a complement to traditional medicine. It is only recently that tendencies have started to change, and some governments are introducing different approaches, such as implementing projects that incorporate traditional medicine into national health policies. For example, Nicaragua has an intercultural health commission that promotes traditional medicine; Bolivia has an intercultural communal Health Pilot Programme, and there is an office of traditional medicine within its Ministry of Health.

In Ecuador, there are some efforts to provide indigenous peoples with health services that combine modern and traditional medicine (Hall and Patrinos, 2005).

Several studies have identified the imposition of "western" medicine and its ideas about illness and cure as one of the causes of poor healthcare for indigenous people; this has resulted in the progressive disappearance of traditional medicine, affecting, among others, the role of women in societies where they are in charge of health care, as the Mapuche people of Chile (Peredo Beltran, 2004).

Intellectual property rights do not support the maintenance of traditional medicine, and rather encourage unauthorized uses of traditional knowledge. In the pharmacological sector, a significant number of patents based on genetic resources associated with traditional knowledge have been and continue to be granted without recognition of the contribution of local communities and indigenous peoples (Peredo Beltran, 2004; De la Cruz, 2004).

In most countries of the region, traditional medicine is tolerated, but not formally recognized. Specific health programmes for indigenous peoples are still uncommon and they do not go beyond 10 or 20 years back, and few of these programmes have been evaluated. Nevertheless, if more studies were done, they might demonstrate the effectiveness of such initiatives in improving the health condition of this population (Hall and Patrinos, 2005). In order to improve health services for indigenous peoples, health providers should receive special training to treat indigenous populations, including sensitization and language training when necessary (Hall and Patrinos, 2005).

8. Impact of organized religions on traditional knowledge and practices

It has been stressed that evangelisation have been and still is an important cause of the loss of traditional knowledge and practices. Religious groups have been one of the vehicles of forced assimilation of

indigenous populations since the European conquest and still today (Alywin, 2002), and they have also brought in new diseases into rural areas inhabited by indigenous groups (Smith, 2002).

Measures to stop the impacts of religious groups on indigenous peoples have been scattered and weak; on the contrary, religious institutions, starting with the Catholic church and ending with modern US-originated sects, have generally enjoyed open support from governments and dominant elites. For instance, the Peruvian law for native communities of 1974 has an article that prohibits religious proselytism in indigenous lands, but specific provisions to guarantee its enforcement were never developed.

After several centuries of religious imposition, often violent, by the Catholic church, followed by evangelicalism and many sects, indigenous peoples have largely embraced Catholicism and other religions, and therefore the likelihood of a revival of original indigenous spirituality is very small. This poses a challenge for the definition of measures to avoid further impacts of religion over traditional cultures. Some experts consider that it is still possible to take measures to restore, at least in part, indigenous spirituality, and build a respectful coexistence with foreign religions, and also take measures to prevent isolated indigenous groups from being forced to replace their spiritual believes with "western" religions[81].

CONCLUSIONS

This document of the Second 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 Biodiversity* confirms findings from the first phase and the conclusions from previous studies, in the sense that traditional biodiversity-related knowledge in Latin America and the Caribbean is being rapidly lost, and that 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 gran-parent 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.

[81] Indigenous peoples living in voluntary isolation in the Amazon and Chaco in South America continue to be harassed by religious sects who want to force them into their religions.

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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 Para 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 transmission.

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 report has looked primarily at such drivers, and has concluded 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; 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 correspond 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.

A. National Processes that May Threaten the Maintenance, Preservation, and Application of Traditional Knowledge

Demographic factors
The principal causes of demographic changes related to indigenous and local communities are the result of the transformation of their natural environment, migratory processes, cultural erosion, poverty, and armed conflicts. Inflows of new social groups in rural areas affect the culture and the environment of the inhabiting indigenous and local communities, bringing often unsustainable practices and a different perception of development. On a localized basis, in some countries like El Salvador, the limited availability of land compared to the population size results in high population density, which affects the living conditions, creates additional environmental stress and provokes in turn migration and changes on the structure of age and gender groups.

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 threats 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 multi-national 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 ad 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.
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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 all 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 resources 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.

B. Processes at the Local Community Level that May Threaten the Maintenance, Preservation, and Application 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 HIV-AIDS on the maintenance of traditional knowledge systems
There are very few studies regarding the impact of HIV-AIDS in rural areas and indigenous peoples of the region. Some of the existing 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.

RECOMMENDATIONS

In Decision VII/16, CBD Parties suggested Elements of a Plan of Action for the Retention of Traditional Knowledge, Innovations and Practices of Indigenous and Local Communities Embodying Traditional Lifestyles Relevant for the Conservation and Sustainable Use of Biological Diversity. Identification of such elements was the result of consideration of the conclusions and recommendations of the first phase of the preparation of the Composite Report.

Suggested elements in Decision VII/16 are clustered in five headings:

A. Improved monitoring and reporting process
B. Indicators
C. Research ethics
D. Research on and implementation of mechanisms and measures to address the underlying causes of the decline of traditional knowledge, innovations and practices
E. Capacity-building, education and training

The recommendations of the present report address needs for action under all the indicated headings, based on the findings about national and community-level drivers of the loss and erosion of traditional knowledge. They are addressed primarily to national governments of Latin America and the Caribbean, as they are the ones responsible for most of the actions involved, in particular legal and policy frameworks and implementation of development policies.

For reasons of logical flow from the analytical section of the paper, recommendations are presented in an order different from the headings above. They start addressing heading D on the underlying causes of the decline of traditional knowledge, innovations and practices, as these are the most complex, yet fundamental, measures that should be put in place.

- **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**

Re-define 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 characteristics 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 inter-faith 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.

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Chile, Isabel Mansur.

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Colombia, Ana Maria Hernández, Ministerio de Medio Ambiente. Ministerio del Interior y Justicia.

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ANNEX

Recommendations adopted at the Latin American and the Caribbean Regional Workshop on the Composite Report on the Status and Trends of Traditional Knowledge. New York, 14-15 may 2005.

General

There is a need to strengthen the implementation of the CBD at global, regional, national, and local levels.

Foreign and introduced religions have damaged traditional knowledge systems and inter-Faith dialogues should be promoted to encourage and promote mutual respect and to repair centuries of damage to the traditional knowledge systems of indigenous and local communities.

The right of self-determination of indigenous peoples and the related process of free, prior and informed consent needs to be acknowledged and implemented if indigenous peoples are to be empowered to protect their traditional knowledge.

Local

The introduction and strengthening of Indigenous education programmes including indigenous languages and including the important role of community Elders and indigenous women as holders and transmitters of traditional knowledge, should be encouraged and strengthened to bridge the growing generation gap, to ensure the perpetuation of traditional knowledge.

The extended family, community, and indigenous socio-cultural and political structures should be supported as primary modes of transmittal of traditional knowledge for intergenerational transfer and all modes of intergeneration transfer of traditional knowledge should be strengthened.
Indigenous peoples and local communities require access, control, and ownership of their territories and natural resources to practice, promote and protect their traditional knowledge.

Indigenous and local communities should promote the sustainable use of traditional foods, crop varieties, animals, agricultural and agro-forestry systems and medicines to encourage the retention and use of traditional knowledge.

National

National reporting should incorporate or be complemented by parallel reports submitted by indigenous peoples' organizations and NGOs to more accurately capture what is happening on the national and local levels. Increased cooperation is required between governments and indigenous and local communities in national reporting and more importantly, in the implementation of the CBD.

Traditional knowledge holders at the local level should be responsible for local implementation of protection measures for traditional knowledge. Governments need to support the local implementation through legislation and enforcement of that legislation. Preservation of traditional knowledge cannot be separated from traditional knowledge practices on the ground.

Support for indigenous education is needed to promote traditional knowledge and promotion of such strategies as language schools, mobile schools, cultural awareness programmes, and exchange programmes between indigenous peoples to further promote and protect traditional knowledge.

Indigenous education should also be used to strengthen the intergeneration transmittal of traditional knowledge.

CBD National focal points should be strengthened and strongly encouraged to work with indigenous peoples organizations and networks to distribute information to indigenous and local communities and to other government departments (to build capacity and sensitivity to indigenous issues). An indigenous specific national focal point should be established through indigenous processes to ensure dissemination of information at the community level.

recognise the principles of customary indigenous law applicable to traditional knowledge and incorporate such principles into national legal systems, in equal partnership with traditional knowledge holders and with their prior and informed consent, and respecting the right of indigenous peoples to continue practising these systems without interference or threat.

Indigenous peoples and their traditional territories need to be recognized in order to protect traditional knowledge and ensure the full and effective implementation of the CBD. Recognition should be based on the right to self-identify along with the characteristics as identified in the Cobo report (refer UN document PFII/2004/WS.1/3 and E/CN.4/Sub.2/1986/7 and Add. 1-4).

The full and effective implementation of the Akwe: Kon Guidelines can contribute to the promotion and protection of traditional knowledge.

Capacities of and coordination between national and local bodies responsible for implementing the CBD should be enhanced, including through the full and effective participation of indigenous peoples and local communities.

Special efforts should be made to protect indigenous peoples, who are under immediate threat and face extinction of language, culture and traditional knowledge practices and including indigenous peoples living in voluntary isolation.

Ecological restoration is needed for degraded ecosystems to revitalise traditional knowledge use.

Fragmentation of indigenous territories and privatisation of land may impact of the lost of traditional knowledge. The integrity of indigenous territories should be respected.
Collectiveness of land title can strengthen traditional knowledge.

Introduction of written cultures changes world-views of oral based cultures often to the detriment of traditional knowledge. Intercultural education should be promoted and encouraged as well as the development of technological tools to support the preservation of traditional knowledge.

The usefulness or not of registers for traditional knowledge as a possible protection mechanism for traditional knowledge should be further researched and critically analysed.