BIODIVERSITY, CLIMATE CHANGE, AND LAND DEGRADATION AND DESERTIFICATION IN LATINAMERICA

CAPACITY DEVELOPMENT INITIATIVE

Country Capacity Development Needs and Priorities

Regional Report for Latin America and the Caribbean

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ABSTRACT

Environmental Issues for Development in Latin America and the Caribbean

In general terms, the region is characterized by a still very significant natural wealth of natural resources in general and biodiversity in particular. Likewise, it is evident that a fast-growing increase of stress on natural resources and changes in land-use patterns can be observed, driven by significant population growth and the dissemination of high-impact new technologies.

The factors of greatest concern are:

(a) Resource degradation has increased dramatically in the entire region, including erosion, deforestation, pollution, etc.

(b) The general economic crisis, with its consequent unemployment and poverty, added to population growth, result in growing stress on natural resources and the region's ecosystems. This is in addition to insecurity associated with ownership issues, widespread in the region.

(c) In spite of the fact that social and political awareness of environmental issues has improved in the last 20 years, peaking in the late 80's and early 90's, currently, a declining trend has been observed. This is seen in the drop in environmental topics on political platforms. A good part of the productive sectors and economic policy advisers firmly believe in market advantages and are reluctant to admit to the need for institutions and mechanisms for mitigating negative the impacts of their activities on ecosystems and the environment in general. On the other hand, those who favor social aspects and denounce the inequity of income distribution view concern for biodiversity and the environment as elements that detract from fundamental social issues (employment, salaries, pensions, etc.). Likewise, during the 90's, a general decrease in the range and political influence of governmental agencies has been noted.

(d) Environmental agencies in the region's countries have very limited weight on economic policies and regional planning. On the one hand, their scant power to influence is limited greatly by international commitments, and on the other by the need to maintain acceptable standards in export products.

Biological Diversity

Issues

(a) High biodiversity region increasingly threatened. It is a well-known fact that Latin America and the Caribbean are very rich in biodiversity and endemism. Within this region there are various hot spots of global priority. Likewise, it is clear that regional biodiversity is threatened by processes that affect vast territories, and the intensity of these processes is increasing exponentially.

(b) Issues associated with property and sustainable use of the regions genetic resources, and particularly, recognition of the rights of local communities.

(c) Biodiversity topics are not an effective part of the policies and planning of the region's economic development. Furthermore, environmentally unfriendly macroeconomic and sectoral policies do exist. For example, policies on the opening and internationalization of the economy, with their emphasis on the exploitation of local natural resources, have set off additional and strong processes of degradation and loss of biodiversity. Recent policies for fiscal adjustment have led to a reduction in budgets for environmental protection, often in a more drastic way than in other sectors.

Priorities

(a) Slowing down the degradation process and managing the process of settlements and land-use in the region.

(b) Developing strategies and action plans to implement the Cartagena Protocol.

(c) Integrating biodiversity issues into national and sectoral development plans and policies.

(d) Driving the use of economic and control instruments for sustainable biodiversity management.

(e) Securing capacity of governmental agencies to ensure fulfillment of laws and regulations related to conservation and sustainable use of biodiversity.

(f) Driving the ecosystem approach in the implementation of the different programs that aim at biodiversity conservation, strengthening the research capacity and technological development.

(g) Ensuring capacity of governments to implement international agreements and legislation and internal policies at regional and country levels.

(h) Increasing mechanisms for grass-roots participation, including the capacity of rural and indigenous communities for management of the region by promoting the integration of traditional and scientific knowledge. Driving production and use of biodiversity indicators.

(i) Developing mechanisms to regulate access to genetic resources.

(j) Developing strategies, plans and formal and informal education programs in conservation and sustainable use of biodiversity.

Climate Change

Issues

(a) Region affected significantly by climatic variations such as El Niño (ENSO), especially in Central America, Peru, Ecuador, Chile, Brazil and Argentina.

(b) Significant changes are expected in covered areas for both forests and grasslands in Argentina, Bolivia, Brazil, Costa Rica, Mexico, Nicaragua and Venezuela, mainly for those that are part of

mountain ecosystems and transitional areas between different types of vegetation. For example, changes to the order of 67% of temperate forests in Mexico are foreseen due to drier and warmer conditions.

(c) Climate change could lead to a significant reduction in glaciers and continental ice, primarily in the Peruvian and Venezuelan Andes areas. A reduction in precipitation could also have negative impacts for hydroelectric production in Costa Rica, Panama and Cuyo, Argentina.

(d) As a consequence of the increase in the sea level, heavy losses of coastal lands and biodiversity are foreseen (including coral reefs, mangrove swamps, estuaries, wetlands, marine mammals and birds) as well as damage to the infrastructure and intrusion of sea water in aquifers, mainly in Venezuela, Uruguay, Central America and the Caribbean. All of this may block natural runoff of plains rivers, which could increase the risk of flooding.

(e) A reduction in agricultural production is expected for Argentina, Uruguay, Chile, Mexico and Brazil. A significant reduction in livestock production can also be produced if temperate pastures are adversely affected by droughts caused by higher temperatures.

(f) Climate variability (changes in precipitation patterns and in distribution of moisture, as well as regional warming) could contribute to expanding geographic distribution of vectors and endemic areas of infectious diseases.

(g) As for greenhouse gas emissions, in general, for a low-emissions region, those due to burning of fuels in the region account for less than 4% of global emissions and 7% of emissions in OECD countries (excluding Mexico). The energy system is relatively clean and emissions due to energy production, in particular, are among the lowest on the planet. However, the intense process of deforestation, overgrazing, and agricultural expansion that is seen in almost all countries in the region means carbon release, and most importantly, a decrease in the carbon sequestration capacity because of a decrease in forest coverage.

(h) Gas emissions (taking CO2 emissions from the burning of fuels as an example) reflect a falling trend. Per inhabitant, these are at about 12% of the value for the United States. The intensity of emissions from the burning of fuels is also very low, in fact among the lowest on the planet, at approximately 0.4 tons CO2/ US$ GNP (the global average is approximately 0.8). The region contributes to about 5% of global energy consumption. Thus, energy consumption per inhabitant is below the global average.

(i) A lack of stability and continuity in the application of policies between succeeding governments, a lack of economic and financial resources to apply to adaptation activities and a lack of capacity to influence in decision-making on resource allocation can be observed.

(j) Priorities

(k) Ensuring sustainability of development by seeking an adequate balance between the different dimensions of sustainable development.

(l) Strengthening of capacity should promote complete and systematic training, directed towards a clear understanding of the many linkages within environmental, economic and social systems and the internal and international factors that determine them.

(m) Specific capacity activities are required according to the regional and internal realities of each country.

(n) Regional diagnostics should be developed for a better understanding of functioning, needs and problems, as well as the identification of 'niches' of activities and institutions with greater catalytic and replicating power of the activities implemented.

(o) The scientific, technical and consulting sector should be established as a priority objective for the future program. Gaps observed in capacity for inter- and multi-disciplinary work should be corrected in the areas of analysis instruments (methods, methodologies and models), understanding and importance of the multidimensionality of climate change, understanding of basic concepts of the Convention and policy proposals. They require significant and urgent effort.

(p) Vulnerability issues should find fertile ground in GEF programs. This deals with needs presented by the weakest and areas where the least effort has been made. Increasing capacity development activities in vulnerability and adaptation should be a point kept in mind.

(q) Capacity for the development of adaptation and reduction studies is scant and even has serious deficiencies in concept analysis, the capacity to identify the limitations and incompatibilities of the paradigms and theories used, the development of prospective studies, the application of specific methodologies, the capacity to rate sustainability and potential of scenarios and to identify barriers and restrictions that should be overcome.

(r) The development of a climate change strategy within the framework of a general environmental strategy should be another priority area. Strengthening at the systemic, institutional and individual levels is a clear need for several countries.

(s) Capacity strengthening to reduce asymmetries in international negotiation processes so as to attain equitable and fair solutions requires implementation of specific training programs for negotiators.

(t) Development of knowledge and mechanisms to facilitate the identification of needs, selection of appropriate and adapted technologies and expediting the process of their transfer is another area that should be considered a priority.

(u) Development and strengthening information systems should be promoted. The design and development of an adequate information system for climate change is another priority need.

Land Degradation and Desertification

Issues

(a) A very widespread process of growing intensity in the region.

(b) A disconnect between real planning policies and economic development with regards to the objectives proposed (including the corresponding commitments to international agreements). This indicates a weak understanding and political goodwill for solving problems linked to desertfication.

(c) Very limited capacity of governmental agencies at federal, provincial and local level to implement the objectives, strategies and regulations linked to monitoring of land degradation and desertification. Likewise, excessive fragmentation of mainly unrelated responsibilities between the different governmental agencies.

(d) One particular and critical aspect of such governmental restrictions is linked to the need to execute interventions in cases of extreme conditions and rapid degradation, which could be labeled "environmental emergencies". For example, mountainside erosion that threatens entire water systems can be included here, as can be verified currently in the eastern mountainsides of the Andes from Colombia to Argentina. These types of situations are increasingly frequent and should be contrasted with the predominant paradigm in national and international decision and financing entities that assumes the available time frame for environmental activities is very wide.

Priorities

(a) Achieving a consistent and operational system for planning and implementation of policies for sustainable use of ecosystems at the national, regional and local level.

(b) Effective and coordinated incorporation into governmental policies of the principles to combat desertification, including economic planning.

(c) Inclusion of consideration of environmental and economic costs related to land degradation in economic policies, designing policies that include appropriate economic incentives and eliminate negative incentives.

(d) Avoiding institutional fragmentation of management of land-use planning and natural resources management. In all of Latin America and the Caribbean there is an endless number of institutions linked to this issue, with little or no coordination.

(e) Increasing capacity in effective government control of monitoring and the application of existing laws.

(f) Implementing appropriate mechanisms for integrating areas with indigenous communities into global planning and ensuring sustainable use of these areas.

(g) Achieving effective coordination with regional education, research and expansion entities, as well as with those in charge of management of financial policies and regional planning.

(h) Developing the capacity to intervene in extreme or urgent situations efficiently and quickly, at regional, provincial and local level.

Current Situation and Challenges for Environmental Management at Systemic, Institutional and Individual Levels

With regards to capacity development, the problems linked to implementation of the climate change, biodiversity and land degradation and desertification Conventions are very similar and convergent. In view of the goals of maintaining a holistic approach and not fragmenting an integrating vision, we believe that efforts should focus on the following key points.

(a) In systemic terms, there is no consistent environmental management. Political, legal and institutional frameworks are disjointed and largely incapable of addressing complex environmental problems as a whole or systematically. Mechanisms for initiating dialogues, seeking consensus and achieving greater integration are needed.

(b) Gaps, overlapping and fragmentation of functions hinder integration of environmental benchmarks in sectoral policies and development programs. Several contexts affect this. The institutional and legal sectoralization of natural resources (forests, fishing, water, land, mining, energy, etc.) impedes integrated management. Globalization of the neo-liberal economic model and of capital flows promotes a short-term and basically extractive vision of development. Environmental planning loses weight in the face of any significant investment. The poverty that the majority of the Latin American population faces forces choosing immediate growth options without considering the environmental impacts.

(c) Steps are being taken towards a new institutionality based on more complete and inclusive systems can be seen, but this trend should still be consolidated. Although setting up environmental units within ministries establishes links between sectors, generally such units are weak because of a lack of technical and financial resources. The recent trend of substituting for or complementing conventional environmental authorities (ministries, secretariats) through intersectoral requests, as in the case of the National Commissions on Sustainable Development, reflects a positive contribution. However, many of these commissions are ad hoc groupings created by decree and, therefore, lack permanent legal institutionality. This situation produces both an institutional and budgetary precariousness, weakening the credibility of the commissions that continue to depend on projects and international cooperation to survive.

(d) A weak, incomplete and inconsistently applied legal/regulatory framework predominates. Environmental norms are still recent, undeveloped and inconsistently applied. One remarkable aspect is the general absence of legislation to stop the commercialization and exiting of genetic resources originating in the region. The three diagnostics coincide in highlighting the importance of laws incorporating the concept of environmental costs in macroeconomic policies.

(e) In spite of recent improvements, environmental institutions have still not achieved significant weight as opposed to other sectors that affect decision-making policies.

(f) The sustainability of environmental institutions depends greatly on their internal organization and budgetary solvency. These points should be considered when designing capacity development projects.

(g) Perceptions and attitudes need to be changed at policy decision levels. Currently, the Conventions' implementation strategies do not influence on policy decisions, nor are they federal policy in the majority of the cases. They are only given sporadic consideration to fulfill some of the commitments assumed within the Convention frameworks, but without the necessary continuity and operationality. In the case of land degradation, this problem only has political visibility when it reaches a critical level and results in widespread impoverishment, e.g., the Patagonia region or dry Andean valleys.

(h) The very structures of the Conventions reinforce this pattern. Fragmentation and bureaucratization of management of the Conventions, at both the global and national level, as well as the isolation and institutional separation between Conventions, contribute to overlaps in mandates and duplication of efforts. This reduces the operationality of the process and weakens the total approach needed to achieve significant impacts.

(i) In order to achieve change, public sector participation in the identification of priorities, "advocacy" or lobbying, and the fiscalization of environmental commitments assumed by the government are a priority. The levels of understanding and public awareness are low and declining in provinces and rural districts, reflecting the centralization of information. The lack of public awareness reinforces the low political priority of environmental topics.

(j) The work that non-governmental organizations (NGOs) have been developing in both public awareness raising and the execution of specific environmental initiatives is widely recognized. In spite of this, they need to be given more room to influence in the preparation of policies and strategic decisions.

(k) The private sector is frequently missing from environmental initiatives. Its exclusion reflects and at the same time reinforces the notion of incompatibility between development and conservation. However, market sustainability depends to a great extent on environmental security and sustainable offers for natural resources.

Lessons Learned

(a) There is a need to introduce modifications in how to conceptualize and execute environmental projects. Traditional capacity development projects, which generally addressed technical strengthening of governmental institutions, have not had the desired impact at the political and intersectoral level. With few exceptions, they have also not achieved sustaining change processes. At least in part, this can be influenced by the fact that, to a greater or lesser degree, projects creating a dependency on international funds.

(b) In academic and scientific institutions in the region, projects should make a greater emphasis on ensuring public access to information. One of the limitations to attaining wider application of the conventions is the total lack of didactic material in the national languages.

(c) To optimize local transfer and appropriation of knowledge, a total dependence on external technological assistance should be avoided in favor of a gradual process of developing local autonomy.

(d) It is important move towards a systemic and integrating vision of environmental issues. This should be reflected in the design and execution of the projects. Inasmuch as projects can link the systemic and individual dimension with the institutional area, they will have better perspectives on impact and sustainability. Projects should also facilitate dialogue processes and seek alliances with new stakeholders in legislature, strategic ministries, the business sector, the education sector, communications and, most of all, the public sector.

CHAPTER 1: INTRODUCTION

1.1 Background and Objectives

At the May 1999 meeting, the GEF Council (Global Environment Facility) gave its support to a Strategic Partnership between UNDP and the GEF Secretariat to develop a total approach for developing the needs required of each country to implement required activities to fulfill the commitments assumed at the global environmental level. Of particular relevance within this context are the Biodiversity treaty, the Climate Change agreement and the Convention on desertification and drought mitigation.

The Capacity Development Initiative (CDI) work plan is divided into three stages.

1. Needs assessment for capacity development at the country and regional levels.
2. Development of a strategy to address the identified needs.
3. Action plans for GEF.

The assessment phase of the CDI has the identification of capacity development needs by GEF eligible countries, as well as incorporating lessons learned from GEF-financed activities as well as those resulting from the efforts of other national, multilateral and bilateral agencies.

In this Report, an assessment of capacity needs at the regional level is presented for the Latin American and Caribbean region within the context of national strategies and priorities.

1.2 Conceptual Framework for Capacity Development

In a broad context, “capacity” refers to the ability of individuals and institutions to make and implement decisions and perform functions in an effective, efficient and sustainable manner. At the institutional level, effort is focused on organizational and functioning capacities, as well as institutional ability to adapt to change. It tries to develop institutions as a total system, including individuals, groups and the organization itself.

Traditionally, interventions at the systemic level were simply termed “institutional strengthening.” This reflected the concern for human resources development as well as assisting in the improvement and emergence of organizations. The current concept of capacity development emphasizes the overall policy framework in which individuals and organizations operate and interact with the external environment, as well as the formal and informal relationships of institutions. Thus, capacity development can be viewed at three levels: individual, institutional, and systemic, which are also important to global capacity.

Capacity has relevance in both the short (as, for example, the capacity to address an imminent problem) and long term (the ability to create an environment where a specific change should take place). Critical difficulties or “bottlenecks” can appear at local, national or global levels as well as at those of the individual, group, or interest groups (including individuals, entities, or institutions).

Seen from a more restricted point of view, capacity development can focus on the ability of individuals and entities to act in the exclusive interest of the environment. From a wider and systemic perspective, in which emphasis is placed on attaining circumstances favorable to reaching the proposed objectives at the local, national and regional levels, including regulatory structures, and information, knowledge and technologies that contribute ultimately to an improvement in global environmental management.

1.3 Methodology

The following components were used for needs assessment at the country and regional levels.

1. Questionnaires
2. Preparation of detailed studies of the countries in the region
3. Analysis and synthesis by a regional team of experts
4. Regional analysis workshop for evaluation and preparation of the final document

Questionnaires: Questionnaires were sent to all Governments of the countries in the region, donors Convention focal points, non-governmental organizations, private sector agencies, academic institutions and other relevant speakers. It consisted of three main sections: biodiversity, climate change, and land degradation. Its objective was to help participating countries to assess their own capacity needs and priorities.

Country Studies**:** To obtain a more in-depth analysis of capacity needs at the country level, and taking into account time and budgetary restrictions, certain countries (considered to be representative of situations and contrasting conditions) were chosen from within the region to carry out a detailed study on capacity development needs. These were Colombia and Peru in South America, Guatemala in Central America and Barbados for the Caribbean.

Regional Team of Experts: Four experts from the region were called to analyze and synthesize this information and contribute their own opinions and suggestions. They were in charge of producing individual reports on biodiversity (Manuel Rodriguez), climate change (Daniel Bouille), land degradation and desertification (Enrique H. Bucher), and capacity development (Hugo Navajas), as well as the overall regional report, coordinated by Enrique H. Bucher.

Regional analysis workshop for evaluation and preparation of the final document: A workshop was held in Brazil, from 31 July to 2 August 2000, with participation of representatives of the region's countries and non-governmental organizations, to analyze capacity development needs. The draft version of this report was broadly discussed, and the resultant comments and suggestions were incorporated into it.

CHAPTER 2: CURRENT STATUS AND CHALLENGES FOR ENVIRONMENTAL MANAGEMENT IN LATIN AMERICA AND THE CARIBBEAN

2.1 Environmental Bases for Development in Latin America and the Caribbean

For this analysis, it should be kept in mind that this region has characteristics common to all areas, but it also shows strong regional differences, which require specific consideration. The main subregions are South America, Central America, and the Caribbean.

In overall terms, the region is defined fundamentally as one rich in biodiversity. It has a relatively new history of European technology intervention (four centuries, since the discovery of America), which profoundly altered the land-use patterns of preexisting indigenous cultures, some of them highly culturally and economically developed. Many of them still survive in several of the countries in the region. The recentness of the introduction of technologies and European cultural patterns explains that the expansion process for agriculture and farming is still in full development in large portions of the region.

From the point of view of human settlements, the region is characterized by a great racial and cultural diversity, including a very significant component of indigenous populations. It is also important to note the high urban concentration predominant in almost all countries in the area, among the highest on the planet. Large Latin American cities create highly particular situations, as they are at once the consequence and cause of complex economic, social and political processes that determine large patterns of land-use at the regional level. This is also reflected in the heavy concentration in areas of greatest industrial development, which implies significant atmospheric shift issues. The region also includes petroleum-producing countries, including such as a large-scale global producer as Venezuela.

In terms of biodiversity, the region is defined by the great variety of biomes present, and these are linked to a very rich biodiversity. Among the most geographically extensive ecoregions are rainforest systems. These run from the tropical rainforests that predominate in a good part of South America, to the temperate Patagonian forests and the mountain forests of Central America. Dry forests also cover vast stretches, including for example Gran Chaco, Caatinga, and the dry Andean valleys in South America, and large portions of Mexico in Central America. Lastly, there are large grassland ecoregions, including the plains grasslands such as the Pampas in Argentina, Uruguay and the south of Brazil, transformed today by agriculture, grasslands and high-altitude steppes in mountain chains, and savannahs that can be flooded in the Venezuelan Llanos, the Brazilian Pantanal, and the eastern Chaco in Paraguay, Bolivia and Argentina. Lastly, the Caribbean island ecosystems are another unit clearly separable from the rest, with their own ecological and cultural characteristics.

Land degradation issues have a strong presence in Latin America and the Caribbean, as there are vast expanses under tropical, semiarid and arid rainfall, including significant portions of Mexico, the Brazilian northeast, Chaco, the dry Andean valleys, Monte and Patagonia in Argentina. In these areas, intense desertification processes are seen, including deforestation, erosion of basins,

and land degradation. Among the most severe examples, it is worth highlighting the Brazilian northeast, Patagonia, Chaco, and the dry valleys in the Andes, from Colombia to Argentina. For all of these, overgrazing by subsistence livestock is one of the most powerful and widespread factors.

It is important to indicate that in Latin America and the Caribbean there are land degradation processes linked to tropical regions of high rainfall. This is particularly visible in the mountain regions east of the Andes and other orographic less widespread systems. Therefore, land degradation and desertification benchmarks should be understood in a broader sense than it is generally given in Africa, for example. This implies that the affected areas comprise a high proportion of the region.

Although climate change could contribute benefits in certain regions of Latin America and the Caribbean, growing environmental decline resulting from poor land-use could be aggravated by impacts related to climate change. This would be in terms of availability of water, lands for agricultural use, due to coastal flooding from the increase in sea level and from flooding throughout valleys, rivers and plains. Socioeconomic issues and health could be exacerbated, increasing massive rural and coastal population migrations, and intensifying national and international conflicts. As for greenhouse gas emissions, in general, for a low-emissions region, those due to burning of fuels in the region account for less than 4% of global emissions and 7% of emissions in OECD countries (excluding Mexico). The energy system is relatively clean and emissions due to energy production, in particular, are among the lowest on the planet. However, the intense process of deforestation, overgrazing, and agricultural expansion that is seen in almost all countries in the region means carbon release, and most importantly, a decrease in the carbon sequestration capacity because of a decrease in forest coverage.

From the socioeconomic perspective, it should be pointed out that stress on resources has increased dramatically in the entire region, including erosion, deforestation, and pollution. Social and political awareness of environmental issues has improved in the last 20 years, reaching its peak at the end of the 80’s and early 90’s. From then onwards, an ever-decreasing inclusion of environmental topics on political platforms has been noted. A good part of the productive sectors and economic policy advisers believe firmly in market advantages and are reluctant to recognize institutions or mechanisms that propose measures for mitigating the negative impacts of their activities on ecosystems and the environment in general. On the other hand, those who favor social aspects and denounce inequity in income distribution, view concern for biodiversity and the environment as elements that detract from fundamental social subjects (employment, salary, pensions, etc.).

Likewise, during the 90’s a general reduction in the range and political influence of fragmented governmental agencies has been observed. Furthermore, environmental agencies of the countries in the region have very restricted influence on economic policies and regional planning. Their limited power of influence is fundamentally restricted by international commitments on the one hand and by the need to maintain acceptable standards for export products, on the other.

The general economic crisis with its consequent unemployment and poverty, added to population growth, result in growing stress on the region's natural resources and ecosystems. This is aggravated by the insecurity associated with extensive land ownership issues. On the other hand, the globalization of markets and the unjustified belief that free trade can regulate stress on resources conspire against the implementation of restrictive policies on resources use and subsidies for practices aimed at attaining sustainable development and environmental preservation. Finally, the existence in some countries of extended areas under control of rebel groups complicates environmental policy implementation, as this restricts governmental control of these areas.

In summary, the presence of a still very significant natural wealth of natural resources in general and biodiversity characterize the region in particular. Likewise, a fast-growing process of very rapid change in stress on natural resources and land-use patterns is evident, driven by a considerable population growth and the dissemination of high-impact new technologies is observed.

2.2 Issues and Priorities in Biological Diversity

The key points for maintenance and sustainable use of biological diversity in the region can be summarized as follows:

(a) High biodiversity region. It is well known that the region of Latin America and the Caribbean is very rich in biodiversity and endemisms. Within it there are several "hot spots" of global priority.

(b) Significant and growing threats. Various processes that affect vast areas are increasingly threatening regional biodiversity.

(c) Lastly, biodiversity issues are not an effective part of policies and economic development planning in the region. On the contrary, in many cases negative incentives that facilitate loss of biodiversity, as for example, the promotion of alien forest and fodder species versus native ones, agricultural policies that encourage logging of native forests, or export policies that foment overexploitation of natural renewable resources (fisheries, forest, etc.).

Priorities for action in the region are:

(a) Integrating biodiversity issues into national and sectoral development plans and policies.

(b) Driving the use of economic and control instruments for sustainable biodiversity management, which include economic incentives, the updating of command and control instruments, and the establishment of a system of indicators.

(c) Driving the ecosystem approach in the implementation of the different programs that aim at biodiversity conservation, and strengthening protected areas systems.

(d) Strengthening research capacity and technological development.

(e) Increasing mechanisms for grass-roots participation, including the capacity of rural and indigenous communities for biodiversity management of the region and promoting the integration of traditional and scientific knowledge.

(f) Developing strategies, plans and formal and informal education programs in conservation and sustainable use of biodiversity.

(g) Developing mechanisms to regulate access to genetic resources.

(h) Developing strategies and action plans to implement the Cartagena Protocol.

2.3 Issues and Priorities in Climate Change

The main relevant priorities are linked to:

(a) Vulnerability and adaptation topics should find fertile ground in GEF programs. This deals with the needs presented by the weakest and areas where the least effort has been made. Increasing capacity development activities in vulnerability and adaptation should be a call kept in mind.

(b) Capacity for the development of adaptation and mitigation studies is scant and still has serious deficiencies in the interpretation of concepts, the capacity to discern restrictions and the incompatibilities of the paradigms and theories used, the development of prospective studies, and the application of specific methodologies. This also holds for the capacity to assess the viability and potentiality of scenarios and to identify barriers and restrictions that should be overcome, and most of all, the incorporation of the economic variable.

(c) Development of a Climate Change Strategy is another of the priority areas. Strengthening at the systemic, institutional and individual levels is a clear need for several countries.

(d) Capacity strengthening to increase the capacity for action in international negotiation processes so as to attain equitable and fair solutions requires implementation of specific training programs for negotiators.

(e) Development of knowledge and mechanisms to facilitate the identification of needs, selection of appropriate and adapted technologies and expediting the process of their transfer is another area that should be considered a priority.

On the other hand, needs include:

(a) Ensuring sustainability of development by seeking an adequate balance between its different and the development of knowledge that facilitates finding the path towards ensuring the viability of strategies and execution of sustainability objectives.

(b) Activities in climate change issues are essentially planning and policy implementation activities. They should be linked to sectoral and aggregate planning. Therefore, capacity strengthening should promote complete and systemic training, aimed at a clear understanding of the many cross-cutting issues within environmental, economic and social systems and internal and international conditioning factors.

(c) Specific capacity activities are needed according to the internal realities of each country. Policy and strategy prescriptions in this area require programs designed and adapted to the needs expressed by the possible receivers.

(d) It could be necessary to develop national diagnostics for a better understanding of functioning, needs and barriers, as well as the identification of “niches” of activities and institutions with the greatest catalyzing and replicating power for the activities implemented.

(e) There are significant differences within the region for priorities, needs, restrictions, as well as the degree of domestic capacity development.

(f) The sector linked to scientific and technical capacity should be set as a priority objective of the future program. The gaps in capacity observed for multidisciplinary work, in the area of analysis instruments (methods, methodology and models), understanding of basic concepts of the Convention and policy proposals, require significant and urgent efforts.

2.4 Issues and Priorities in Land Degradation

The fundamental issues for the region can be defined as follows:

(a) A very extensive process of increasing intensity.

(b) A disconnect between actual planning policies and economic development of the proposed objectives at the national level for control of degradation (including the corresponding obligations to international agreements). This indicates very restricted political will in real terms for addressing issues linked to desertification.

(c) Very limited capacity of governmental agencies at federal, provincial and local levels to implement the objectives, strategies, and regulations linked to the issue of land degradation and desertification.

(d) One peculiar and critical aspect of such governmental limitations is linked to the need to carry out interventions in the case of extreme and rapid degradation conditions. These could be labeled “environmental emergencies.” Extreme cases of degradation such as mountainside erosion that threatens complete water systems, as is observed in the eastern mountainsides of the Andes from Colombia to Argentina (especially in the most wet areas covered by tropical forests) could be included here.

The main priorities for action are:

(a) Attaining a consistent and operational system for planning and implementation of policies on the sustainable use of regional ecosystems.

(b) Including a consideration of environmental and economic costs related to land degradation in economic policies.

(c) Incorporating desertification issues effectively into regional development policies.

(d) Incorporating policies to combat desertification into governmental policies effectively and in a coordinated way, including economic planning.

(e) Capacity to ensure coordination of these policies at the federal, provincial, and municipal levels.

(f) Reaching an acceptable degree of efficiency in capacity for monitoring and application of existing laws.

(g) Implementing adequate mechanisms to integrate areas with indigenous communities into global planning.

(h) Achieving effective coordination with regional education, research and extension institutions, as well as those responsible for handling financial policies and regional planning.

(i) Capacity development to intervene in extreme or urgent situations effectively and rapidly at the regional, provincial and local levels.

2.5 Current Status and Challenges for Environmental Management Systems

In terms of capacity, the issues linked to implementation of the climate change, biodiversity and land degradation and desertification Conventions have many similar and convergent aspects. To maintain a holistic approach and not fragment an integrating vision, we believe that efforts for management of Systems at the environmental level should focus on these key points:

(a) Neither public opinion nor policy guidance in the region accord these topics significant priority, thus, i) they are not perceived as critical issues and ii) they appear as potential

sources of conflict with the will to promote rapid economic development and eliminate poverty through the intensive use of natural resources in the region.

(b) The lack of coordination and a holistic approach by international agency proponents and treaty executors, as well as limited follow-up and verification of project field results, do not ease obtaining the results expected from the application of these conventions.

2.6 Current Status and Challenges in Institutional Capacity

At this level, it is worth highlighting these points:

(a) Excessive fragmentation of governmental agency roles and responsibilities impedes a comprehensive and executive vision of environmental issues. In the end, this is reflected in the almost complete lack of effective land-use planning in the region, even in highly critical situations as for example, in highly compromised water zones or critical biodiversity sites.

(b) The organizing and legal structure of institutions in the region lacks effective mechanisms for adaptation to change and the demands of current environmental issues.

(c) Capacity for implementation of the conventions as a field operation is very restricted in almost all countries due to a lack of infrastructure and coordination, excessive administrative fragmentation, and a lack of appropriately trained personnel and of monitoring and statistical systems. Furthermore, the technological and scientific infrastructure needed is limited in resources and disconnected from government management. Corruption is also a negative factor difficult to assess in real terms.

(d) As of approximately 1995, in the region a global trend towards reducing the hierarchy, autonomy and policy power of organizations linked to environmental management has been verified (for example, as in the case of Argentina and Venezuela).

(e) Biodiversity, land degradation and climate change issues and more specifically, priorities and obligations assumed by the countries, have not been incorporated effectively into the countries' educational systems at primary, middle and advanced levels. This contributes very noticeably to a lack of public awareness about this issue.

At this level, the following are the fundamental needs.

(a) Avoid institutional fragmentation of land-use planning and natural resources management. There are an endless number of institutions in all of Latin America and the Caribbean linked to this issue that have very little real and operational impact.

(b) Avoid a disconnect between institutions linked to desertification and financial institutions and policy decision-makers.

(c) Promote effective linkage between applicable governmental agencies and research and development sectors.

(d) Integrating environmental issues, specifically as they relate to treaties and national obligations, into the national education system.

2.7 Competency and Capacity Needs at the Individual Level

Essential needs at the levels of capacity and competency are:

(a) Attaining individual awareness of desertification and land degradation issues is an essential component for Latin America and the Caribbean. As mentioned earlier, for the vast majority of the region's inhabitants, the issue does not exist or is of little significance. Important exceptions are the most developed agricultural regions (the Pampas in Argentina, Uruguay and Brazil) where the introduction of conservationist agricultural practices is now widespread.

(b) Such a lack of awareness, by both rural and urban inhabitants, as already mentioned, is reflected in a low policy priority for the issue. As a result, it only reached the policy level when the degree of degradation becomes obvious and moves towards general impoverishment, as is the case for the Patagonian region in Argentina or the dry Andean valleys from Colombia to Argentina.

(c) Another imperative need for competency and capacity development to fight desertification in Argentina is the training of specialists and leaders with an appropriate theoretical and practical levels, as well as the organization of an efficient extension system that would reach all social levels.

CHAPTER 3: BIOLOGICAL DIVERSITY

3.1 National Obligations within the Framework of the Convention on Biological Diversity

Without exceptions, the countries of Latin America and the Caribbean have ratified the United Nations Convention on Biological Diversity. Therefore, this instrument of international law becomes the framework law for biodiversity at the national level. The Convention is designed such that its objectives, as well as the different decisions of the Conference of the Parties (UNEP, 1994, 1996, 1997, 1998, 2000), are implemented by national governments.

The Convention on Biological Diversity has been developed programmatically and within protocol (UNEP, 1994). In programmatic terms, conservation and sustainable use of biodiversity is framed by marine and coastal ecosystem programs, agro-ecosystems, water, forest, and fragile ecosystems (arid, semiarid, plains, savannas). As to the Cartagena Protocol on Biotechnology Security, it has been agreed to and already signed by 68 countries and will come into effect with the depositing of the fifty-fourth instrument for ratification by the Parties to the Convention.

The general point of reference for national implementation of the obligations of the Convention is the ecosystem approach adopted by the Second Conference of the Parties (UNEP, 1996). This is the main framework for action under the CBD for facilitating balance between the three CBD objectives. This allows for an operational scale for adaptive and decentralized institutional management and, most of all, recognizes that both cultural and biological diversity are essential elements of ecosystems and that institutional management should take this relationship into account.

In the development of its obligations within the framework of the Convention, all countries of Latin America and the Caribbean have been making progress on tasks, in accordance with the sequence of decisions of the Conference of the Parties. Likewise, a growing number of countries already have their strategies, policies and action plans as a first response to the commitments acquired within the framework of the Convention. As a development of Article 15 of the Convention, the collective adoption of Decision 391 (1996) by the Andean Community countries (Bolivia, Colombia, Ecuador, Peru and Venezuela) stands out. It regulates access to genetic resources that originate in these countries.

On the other hand, it is expected that the GEF, an interim financial mechanism of the Convention, support projects that have an ecosystem approach and that capacity development be financed for the different programs as decided upon by the Conference of the Parties (UNEP, 2000).

3.2 National Priorities and Processes for Implementation of Convention Obligations

The following are proposed as the priority lines of action for executing the CBD:

(i) integrating biodiversity into national and sectoral development plans and policies;

(ii) driving the use of economic and command and control instruments for the sustainable management of biodiversity;

(iii) driving production and use of biodiversity indicators;

(iv) strengthening research and technological development capacity;

(v) strengthening the capacity of rural and indigenous peoples for land management;

(vi) promoting mechanisms for grass-roots participation;

(vii) developing education strategies, plans and programs on conservation and sustainable use of biodiversity;

(viii) driving the ecosystem approach in the implementation of the various CBD programs;

(ix) strengthening systems for protected areas;

(x) developing mechanisms for regulation of access to genetic resources; and

(xi) developing strategies and action plans for implementing the Cartagena Protocol.

The assessment centers its attention on the identification within this set of priority lines of action common to all countries in Latin America and the Caribbean necessary for improving their general capacity for conservation and sustainable biodiversity use. The priority lines of action have been selected from the strategic vision that began arising as a result of the fieldwork for this study. It takes as its basis the current state and trends in environmental management in the region and the opportunities that they present to incorporate the CDI.

For each of the priority lines of action, the capacity development needs at the systemic, institutional and individual levels are identified within the context of the current status, efforts and experiences that are made in environmental management in the countries for conservation and sustainable biodiversity use.

3.3 Capacity Development Needs at the Systemic, Institutional and Individual Levels

Integrating Biodiversity into National and Sectoral Development Plans and Policies

Integrating conservation and sustainable biodiversity use in a balanced way into national and sectoral development plans and policies is perhaps the line of action that has gathered the most consensus and taken on the greatest complexity for its development.

Systemic Level:

(i) developing processes for creating political goodwill favorable to the adequate integration of biodiversity into the main policy decisions at the national subnational and local levels;

(ii) giving greater priority to the biodiversity issue within the set of mandates of the regional and subregional integration institutions;

(iii) establishing mechanisms for land-use planning at the national or subnational level that incorporate conservation and sustainable biodiversity use benchmarks;

(iv) creating or consolidating specific mechanisms for intersectoral and interagency coordination for preparing and implementing the national biodiversity strategies (NBS);

(v) developing processes for the creation of synergies between the plans and programs that may be put forward to address global environmental threats;

(vi) incorporating into legislation at the highest level (political constitutions) the need to conserve and use biodiversity sustainably, and harmonizing and updating the laws on administration and renewable natural resources use (forests, water, wild fauna, etc.); and

(vii) updating criminal or penal legislation on the environment, incorporating into it a biodiversity dimension.

Institutional Level:

(i) providing technical capacity on biodiversity use and conservation to macroeconomic policy-making centers, as well as to public agencies responsible for the preparation and execution of sectoral policies at the national, regional and local levels;

(ii) providing technical capacity on biodiversity use and conservation to jurisdictional power at its different levels; and

(iii) providing technical, financial and administrative capacity to the entities responsible for coordination the national implementation of the thematic and programmatic commitments of the CBD.

Individual Level:

(i) training and bringing up to date technically decision-makers at the macroeconomic and national policy levels in terms of the time relevancy for biodiversity and its land aspect;

(ii) training and bringing up to date judges and other conflict resolution petitions on the values, rights, responsibilities and obligations related to the three objectives of the CBD; and

(iii) technically training civil servants of institutions responsible for planning, administration and financing of conservation and sustainable biodiversity use programs.

Current Status and Experiences

Traditionally macroeconomic and sectoral policies (health, education, agriculture, mines, etc) have taken into account the environmental dimension very little (and thus, also biodiversity). Such weak incorporation must be understood in the wider context of the fact that sustainable development still does not hold a position of priority on the agenda of the majority of the population of Latin America and the Caribbean, including the élite and key decision-makers. Nevertheless, the advances observed in this direction will be studied throughout this document. This is a reality that is frequently described as “a lack of political goodwill”. (M. Rodriguez, 1999; UNEP, 1994; Pantin, 1994)

A very incipient integration of sustainable use design and biodiversity conservation can be noted in the different production sectors in all countries in the region, including those that use biodiversity directly, as the agricultural, forestry, fishing and water sectors typically do. Similarly, other productive and service sectors (e.g., energy, transport, tourism) have little regard for biodiversity. This general statement does not deny, however, the hundreds of positive experiences of productive sectors moving conservation and sustainable use forward today. This situation was unthinkable two decades ago.

The countries of Latin America largely have included environmental precautions and considerations on sustainable development in National Constitutions, including specific precautions on biodiversity. Many countries have framework, organic, general or codified environmental norms. These set the basic lines that should be the subject of future legislative or prescribed developments and, in the majority of Latin American countries, widespread legislation has been issued for regulating precisely the concrete aspects provided for in the Constitutions or in the framework norms. It is within this context that laws and norms on biological diversity have

been enacted. Although all countries have legislation on forests, waters, continental wild fauna, fishing, etc., in general, there has been little progress in harmonizing them with the CBD commitments acquired by the countries.

In the last two decades, the countries in the region have given environmental authorities a higher political hierarchy, through the establishment of environmental ministries (e.g., Argentina, Brazil, Colombia, Costa Rica, Cuba, Ecuador, Mexico, Venezuela), national environmental committees (e.g., Chile, Guatemala, Panama, Peru), or specialized institutes (e.g., Jamaica). Almost all of the region's governments have concentrated responsibility for coordinating the national implementation of the CBD in national environmental authorities. Some of these have in turn established national intersectoral biodiversity committees that have frequently had the support of the GEF.

But alongside the main environmental authority there are often numerous public agencies with mandates for biodiversity administration (e.g., fishing, forestry, agricultural ministries, various agencies responsible for water, etc.) that many times overlap or fight amongst themselves. Furthermore, the extractivist vision of these resources continues to predominate. Brazil, for example, underscores it thus: "Natural forests are still seen as 'stockpile' and exploitation corresponds to the liquidation of the natural capital" (Brazil Report, p. 163). To overcome these obstacles, environmental agencies have increasingly taken the command of some natural resources (e.g., in Mexico, fishing and forestry are under the responsibility of the environmental authority).

All of the countries have national environmental policies, but in most of them, apart from the *in situ* protection issue (protected areas), the other obligations entered into under the CBD are weakly included. It would be expected that this situation would change with the National Biodiversity Strategies, approved by many of the countries in the last three years.

The creation of environmental units in the ministries and other governmental agencies is a mechanism that has been used as a means for achieving intersectorality. These units have generally been weaker because of their poor supply of human resources, specialists, and their low political hierarchy. However, in the public agencies responsible for the construction and management of roads there has been a promising development with potential for conservation and good biodiversity use (Quintero and Sanchez, 1998).

The environmental conventions with productive sectors and other voluntary mechanisms that seek that their commitment to environmental protection go beyond what the law requires are being used increasingly in the region (e.g., Colombia, Chile) and have shown to be an effective method for improvement of intersectoral coordination.

In the last decade, Judicial Power of some countries has had a growing and positive role in the defense of the environment and biodiversity. Some have issued integrated legislation on crimes against the environment, as Venezuela's Environmental Penal Law (1992) and Brazil's Environmental Crime Law (1998). The high significance that the establishment of a trusteeship

action in the Constitution of 1991 has had for Colombia should be highlighted, as it has become an effective and very important for the defense of environmental rights in this country.

Lastly, the great potential of regional and subregional institutions for conservation and sustainable biodiversity use should be highlighted. These include: the Organization of American States; the Andean Community; Mercosur; the Amazonian Cooperation Treaty; the Central American Committee on Environment and Development (CCAD) and the Central American Alliance for Sustainable Development (ALIDES); CARICOM; the Convention for the Protection of the Marine Environment and the Coastal Area of the Pacific Southeast; the Cartagena Convention for the Protection of the Marine Environment in the Greater Caribbean. The Mesoamerican Biological Corridor project, coordinated by CCAD and under the auspices of the GEF and other international cooperation agencies, is a good example of the programs that can arise from these institutions.

Promoting the Use of Economic and Command and Control Instruments for the Sustainable Management of Biodiversity

Instruments for environmental management that promote conservation and sustainable biodiversity use need to be developed or updated (including economic incentives, command and control, and others).

Systemic Level:

(i) providing instruments for decision-making that integrate a biodiversity aspect into the processes for the preparation of macroeconomic and sectoral policies at the national, regional and local levels. These include those aimed at identifying and eliminating negative incentives that promote its degradation and destruction;

(ii) updating laws so that command and control instruments (particularly, EIA and the Land Management Plans) take biodiversity as a critical component;

(iii) updating laws so that economic incentives for environmental management develop according to the considerations of the CBD and the NBS. In particular, that laws incorporate economic incentives and provisions for biodiversity; and

(iv) building capacity for the preparation of measures favorable to the production of green markets, in particular, products and services from biodiversity that incorporate the criteria and social equity principles and biological sustainability.

Institutional Level:

(i) providing the public agencies responsible for EIA and Land Management Plans with the technical capacity to integrate the biodiversity dimension adequately into the design and implementation of these environmental management instruments at the national, subnational and local levels;

(ii) building or increasing the technical and operational capacity in the relevant governmental agencies for developing and executing incentives for protection and sustainable biodiversity use, including those aimed at having the private sector dedicate its financial resources and management capacities to this; and

(iii) building or increasing in the relevant governmental agencies technical capacities for developing and executing economic instruments for financial resources production for development of the NBS.

Individual Level:

(i) training experts in the preparation of EIA and Land Management Plans on biodiversity issues; and

(ii) training civil servants in governmental agencies and people in the private sector in the design and use of incentives and other economic and financial instruments.

Current Status and Experiences

In general, legislation in the region anticipates a vast number of management instruments that could be applied to conservation and sustainable biodiversity use.

International agencies have facilitated programs for including an environmental dimension (and thus biodiversity) in the planning processes at the national, regional and local levels. One of the most notable efforts has been perhaps that of the subnational environmental accounts aimed at incorporating natural resources and the environment into national accounts (the greening of national accounts). In many countries efforts were begun and progress of a different sort was made in this direction, but today they seem weakened. They include programs and projects related to the economic assessment of biodiversity, but as with environmental accounts, this does not appear to have sufficient life neither within national planning authorities nor environmental ones.

The elimination of economic instruments adverse to the environment are a part of the strategies leading towards eliminating market defects that make environmental sustainability of given productive activities impossible. Typically it is the very elimination of subsidies that makes renewable natural resources and environmental use inefficient (energy, water, forestry, land, etc.). Progress has been made in their elimination and, in general, the motivation has not been predominantly environmental (e.g., that corresponding to gasoline, electricity, agricultural products); its impact has been positive for the environment.

The environmental impacts assessment (EIA) is the management instrument that has demanded the most attention from government environmental agencies in the last decade. However, its effectiveness has been questioned. However, significant progress in its design and operationalization has been seen (e.g., Brazil, Colombia, Mexico). In general, it is thought that the EIA do not give due consideration to biodiversity. At the same time, they have been

identified as fundamental for denying or producing alternatives for some infrastructure work that is highly detrimental to biodiversity (e.g., highways, hydroelectric) or to foresee and mitigate damage that their establishment would cause (National Reports to the COP; M. Rodriguez, 1999).

The wave of processes of land management planning and environmental zoning is showing the great potential that these instruments have for protecting biodiversity. This is in contrast with the past when they were techo-bureaucratic products without means for making them give results. This is seen in the "Diagnóstico y la zonificación económica y ecológica de la Amazonia en el Brasil" and the "Plan de ordenamiento territorial" recently finished in Colombia.

Alongside command and control instruments, the use of economic instruments for environmental management has increased. Some of these include the rates for use or environmental affection, permits for changeable emissions, green taxes, and payments for environmental services. In Colombia, the repayment rate executed for spills has lowered pollution levels in the rivers of an industrial region of the country (World Bank, 2000). The novel instruments introduced in Costa Rica for payment of environmental services of forest ecosystems (basin protection, carbon sequestration, biodiversity protection) to forest proprietors is well known so that they conserve them (FMMA, Interagency Committee, 2000). Likewise, in Latin America the ecological stamp system is progressing. The most well known one is for forest certification, for both the modality promoted by the Forest Stewardship Council and the ISO 9000 and ISO 14000 modality.

The above are the types of instruments that are being executed to incentivize the creation of green markets (including ecotourism, payment for ecosystem environmental services, modern biotechnology products, etc). During this study, the priority for designing instruments as incentives for the private sector was identified so that this sector would direct its economic resources and management energies towards conservation and sustainable biodiversity use.

The instruments for generating and administrating economic resources for environmental management are those explicitly aimed at these goals and should be distinguished from those mentioned earlier. Colombia has more than two decades worth of experience with instruments for generating income for environmental management and today a substantial part of those resources are for the protection of biodiversity.

Funds for harnessing and administering resources for environmental management is one of the modalities that are of growing use in the region. The so-called national environmental funds in existence today in several countries (FONAM in Brazil was the first to be established in 1989) have widening environmental fields as an objective, but in practice they have predominantly financed projects related to biodiversity conservation. In some countries special funds have been established, such as those for protected areas (e.g., Mexico, Peru).

Driving Production and Use of Biodiversity Indicators

There is high consensus on the importance of information for assessment and decision-making on conservation and sustainable biodiversity use. This is also true for the measurement of policy

performance and programs with this goal, as well as for the organizations responsible for their execution.

Systemic Level:

(i) establishing or strengthening mechanisms for coordination and integration between information-generating institutions for the production of conservation and sustainable biodiversity use indicators, at the regional, national, subnational and local levels;

(ii) establishing or strengthening mechanisms for setting up environmental information systems at the national, subnational and local levels. Within this context, biodiversity information subsystems would be integrated; and

(iii) promoting subregional and regional information systems that facilitate the development of community policies and technical and scientific cooperation programs.

Institutional Level:

(i) providing the responsible entities with the human resources and specialists required for establishing the base lines for the environmental situation and the production of systems for biodiversity indicators that include their expediting and periodic monitoring;

(ii) generating processes for the design of indicators that would serve all countries in the region; and

(iii) strengthening or establishing mechanisms for the broad and timely dissemination of indicators, including the public and public decision-makers.

Individual Level:

(i) training expert personnel in the design of indicators so that these are linked to the ecosystem and programmatic approach of the CBD; and

(ii) training communicators and other information professionalism the techniques and dissemination means for biodiversity indicators.

Current Status and Experiences

All of the countries produce information on biodiversity through the agencies and public institutions directly responsible for its management, as well as through research centers and other governmental and non-governmental institutions. The information produced within the countries often seems abundant, but it is not always of the best quality. Furthermore, often within the same country data is generated on the same issue from different conceptual approaches and methodologies without due harmonization. In general, there is no base line on the environmental situation at either national or regional levels.

The above becomes one of the limitations for setting up integrated biodiversity indicator systems at the national or subnational levels (indicators on status, impact, response, etc.) that would help decision-makers to define, evaluate and monitor policies. Furthermore, because of the definition and monitoring of these policies, having indicators on the performance of the responsible entities is exceptional.

Basic information production has shown relevant progress as seen in national reports on the state of biodiversity. These reports were presented within the last decade and had the support of international agencies for their preparation. Progress has been made in the conceptualization and methodologies for the preparation of indicators. However, in many cases this has not led to carrying out pilot programs for their implementation or, when this has occurred it has not been generalized.

Strengthening Research Capacity and Technological Development

Several articles of the CBD establish the need to promote and increase research and technological development to contribute to conservation and sustainable biodiversity use. The Parties consider access and technology transfer to be one of the means for strengthening the research and technological capacity of the countries. The creation of conditions favorable to research on biotechnology is another means, so that countries that provide genetic resources, in particular developing countries, can participate in it.

Systemic Level:

(i) increasing a favorable public awareness for strengthening scientific and technological institutions linked to biodiversity, including the recovery of lost capacity in the agricultural sector;

(ii) providing additional economic for scientific and technological development in conservation and sustainable biodiversity use;

(iii) strengthening research centers on *in situ* and *ex situ* genetic resources at both national and subregional levels;

(iv) promoting dialogue on traditional and scientific knowledge and incorporating it into conservation and biodiversity use strategies, policies and action plans; and

(v) establishing or strengthening biodiversity technology transfer horizontally (in particular between countries in the region) as well as vertically (between developed and developing countries within the region).

Institutional Level:

(i) providing research and technology development institutions with qualified human resources;

(ii) providing specialized research centers with a better infrastructure for equipment and laboratories for research and technology development;

(iii) providing community research centers with sufficient qualified human resources; and

(iv) logistically supporting indigenous and local communities' research centers or programs.

Individual Level:

(i) assessing human resources in research and technological development institutions specialized in conservation and sustainable biodiversity use;

(ii) training decision-makers on financial resource allocation for research projects on biodiversity; and

(iii) assessing human resources in indigenous and local communities.

In the last two decades there are contradictory trends seen in scientific and technological capacity development on biodiversity in the region, that in balance seem negative. During the last decade national budgets for research and technological development has declined, with serious impacts for activities in university research centers that has reduced biodiversity capacity. This has contributed to a further weakening of research and technological capacity in agriculture. Brom 1977 to 1992 investment in research on agriculture only increased 1.5% annually, as compared to the average rate of 6% for the period 1967-1977.

Nevertheless, within this general trend, some positive developments can be observed:

(i) numerous projects in sustainable agriculture and genetic resources, as those reported for Brazil in EMBRAPA (269 projects under implementation and 830 researchers linked to them), or those of the Research Center on Coffee in Colombia. The successful projects in Mexico, Brazil and other countries focused on the interface between biodiversity and agriculture show great prospects for this area of research;

(ii) creating and strengthening programs and research centers for acquiring greater knowledge of the natural ecosystems in the region, and biotechnological development (e.g., the National Program on Biodiversity Research in Peru, the INBio in Costa Rica, the National Institute for Amazonian Research in Brazil, the Humboldt Institute in Colombia, and the biotechnology research programs in Cuba that show impressive results to date); and

(iii) the programs and self-managed research centers of indigenous and rural communities that seek to recover and systematize their traditional knowledge and prepare community specialists and co-researchers. These activities have as a goal to reinforce cultural practices based on conservation and sustainable biodiversity use systems. With regards to this last point, the Andean Community, in the above-mentioned Decision 391 has urged member countries of the Cartagena Agreement to recognize the historic contribution of indigenous, Afro-American and local communities to biological diversity and the need to protect knowledge and traditional practices.

Strengthening Rural and Indigenous Capacity in Biodiversity Management

It is necessary to develop the capacity of town and indigenous community organizations, as well as that of rural and other local communities for the preparation and implementation of land development plans, including community management of ecosystems, as well as institutional capacity development at the national, provincial and local levels that responds to and supports land plans and the community management of ecosystems.

Systemic Level:

(i) incorporating or updating laws on areas and regions that indigenous peoples have occupied ancestrally, in particular those related to property rights or their use;

(ii) incorporating or updating laws on protecting knowledge, innovations and the traditional practices of indigenous peoples and other local communities;

(iii) building or consolidating mechanisms for intersectoral and interagency coordination specified to supporting the preparation and implementation of biodiversity management plans in indigenous areas and regions; and

(iv) creating or strengthening financing mechanisms for rural and indigenous projects for conservation and sustainable biodiversity management.

Institutional Level:

(i) establishing or strengthening governmental agencies for offering technical assistance to indigenous populations for the planning and management of biological resources in their zones and regions;

(ii) establishing or strengthening specialized institutions for providing technical assistance on agricultural, forest and other projects, focused on the conservation and sustainable biodiversity use in indigenous areas and regions and lands for rural production;

(iii) promoting or strengthening biodiversity management systems in indigenous and local community areas and lands, including self-management modalities in those regions that are community-owned by indigenous towns and communities.

Individual Level:

(i) training community and rural specialists in the management of their lands; and

(ii) training civil servants of the entities related to community and rural lands in biodiversity and regional management.

Current Status and Experiences

The recognition of the rights of indigenous populations on the areas and lands that they have occupied ancestrally has a long history in the region, as seen for example in Mexico and Panama. In the last two decades the indigenous populations in many of the countries has progressed in winning territorial, cultural and policy rights. Thus, for example, lands legally transferred to indigenous groups in the countries of the Amazonian river basin consist of almost 110 million hectares: Brazil, 71,870,000; Colombia, 20, 700,000; Peru, 3,900,000; Ecuador, 3,500,000; Bolivia, 2,500,000; Venezuela, 1,306,000; Guyana, 530,000 (Roldan, 1996).

Effective control by indigenous groups of their territories faces multiple threats, such as: different flaws in laws and other institutions for indigenous peoples; the attempt by landless rural groups to settle in these areas; illegal incursions by timber dealers to exploit their forests. Most pressure is produced by road construction and the exploration and exploitation of petroleum and various mineral resources. As these threats increase and become more of a reality, biodiversity there deteriorates and is degraded.

One of the greatest existing restrictions for the consolidation of indigenous territories is insufficient capacity of indigenous organizations to defend and develop their rights and to execute processes for their planning and management that incorporate centrally a biodiversity component. In turn, the government agencies responsible for indigenous affairs, including environmental ones, seem to be increasingly less capable to adequately address the growing pressures on indigenous cultures and to make their rights effective.

In the countries of the region various projects for consolidating indigenous territories can be pointed out. Many of these have the support of governmental and non-governmental organizations. There are many examples of successful projects for the preparation and execution of management plans that are based on traditional knowledge of biodiversity, complemented when relevant by Western technologies. Likewise, there are numerous projects that, from the perspective of environmental sustainability, have made progress in rural communities in forestry, agriculture and fishing. Rural and community base partnerships in the region have several protected areas, organic products (e.g., organic coffee), and forestry and craft fishing projects.

Increasing Mechanisms for Grass Roots Participation

In the last few decades the direct participation of citizens in public life has been promoted, as a necessary complement to traditional representation systems, through two strategies: the introduction of legal mechanisms for the people to participate in the decisions that affect them, and the establishment of non-governmental organizations that besides forwarding their traditional solidarity activities, increasingly lend public services that had previously been the exclusive area of the government (World Bank, 1997).

Systemic Level:

(i) incorporating or broadening in legislation the rights and mechanisms for grass-roots participation in the decisions that can affect environmental quality and in particular conservation and sustainable biodiversity use, as well as norms that facilitate the strengthening of non-governmental organizations and other public sector groups that work on biodiversity;

(ii) raising public awareness as well as for public sector organizations on the need to exercise participation rights given to them by law; and

(iii) providing or channeling new economic resources for the financing of NGO and community base activities for biodiversity.

Institutional Level:

(i) strengthening mechanisms for obtaining economic resources for NGO's and organized community base groups that, as with environmental funds, facilitate more efficient allocation and the greater qualification of recipients; and

(ii) creating and strengthening mechanisms for training technically and administratively members of NGO's in biodiversity so that they have greater capacity to execute the projects they are responsible for handling.

Individual Level:

(i) training leaders and NGO representative and organized communities in the rights, responsibilities and obligations of citizens in conservation and sustainable biodiversity use; and

(ii) creating and strengthening mechanisms for training technically and administratively leaders and NGO representatives and organized communities in the design and execution of biodiversity projects.

Current Status and Experiences

Many national environmental laws establish rights of environmental participation, such as public access to information at different public decision-making levels, for intervening in public hearings to agree or consult on environmental impact assessments (EIAs) or on given permits for use of forests or fishing, etc. Some laws provide legal instruments or public agencies for the defense of citizen environmental rights, as for example the shelter, trusteeship and community actions. These have proven to be especially effective in Brazil and Colombia for ensuring compliance with the law. Other functions can be identified that have been granted to prosecutors' offices and public defenders for this, manifesting themselves at times in the establishment of entities specialized in these measures.

There are difficulties to making these rights and grass roots participation mechanisms fully effective. They hit various hurdles such as the resistance of public bureaucracies to "losing discretionality" for decision-making, traditionally favored opposition interest groups, and a lack of public education in the participation exercise.

Both NGO's and community-based organizations have an impressive set of accomplishments, but often these have seen limited action not only in financial resources restrictions but also because of technical and adequate administrative capacity gaps for project execution.

Developing Strategies, Plans and Education Programs on Conservation and Sustainable Biodiversity Use

Systemic Level:

(i) increasing the degree of awareness on the value of biodiversity and the need for its conservation and sustainable use;

(ii) creating and strengthening legal provisions for environmental education, in particular, that related to biodiversity;

(iii) developing and improving mechanisms for cooperation between different educational entities at different levels to guarantee the replication and dissemination of advances in the numerous experiences in biodiversity.

Institutional Level:

(i) improving the supply of human resources with the capacity to incorporate biodiversity at the different levels of formal and informal education, in particular, those who will prepare teaching materials specific to the different ecosystems at the national, subnational and local levels and the training of trainers; and

(ii) increasing the post-secondary system capacity to prepare conservation and sustainable biodiversity use specialists.

Individual Level:

(i) training trainers and mentors in issues that relate active learning with biodiversity projects; and

(ii) designing and starting up a system for increasing the numbers of trainers and mentors.

Current Status and Experiences

In the region, a good part of the countries have included environmental education in strategies, policies and action plans on biodiversity. In turn, in many cases, environmental education has been incorporated into Education Ministries and even in national development plans. In practice, however, the capacity of educational institutions is still precarious for modifying the curriculum at the school, technical and university levels, as well as programming of mass media and initiatives for decision-making groups. Furthermore, the relationship between these efforts and advances and challenges of the institutions responsible for biodiversity practically does not exist.

A good part of the problems in education and training of citizens aware of the importance of biodiversity are related to the restrictions of national situations, especially to political and economic models that exclude this issue from their concerns and decisions. In Brazil, some research shows that the people, independently of the level of education or the region where they live, cannot link national development models to environmental degradation. This emphasizes the problem entailed with incorporating biodiversity into educational programs, which goes beyond the physical, chemical and biological sciences, and its social, cultural and economic aspects.

Driving the Ecosystem Approach in the Implementation of the Different Programs of the CBD

The Forum of Environmental Ministers of Latin America and the Caribbean has pointed to the convenience of promoting a bioregional planning approach as an appropriate strategy for attaining at the same time conservation and sustainable biodiversity use and fulfillment of the population’s basic needs. The rigorous application of this approach is consistent with the ecosystem approach that the Conference of the Parties has recommended using (Nairobi, 2000) in the programs that develop the Convention’s objectives.

Systemic Level:

(i) creating a politically favorable climate for incorporating the ecosystem approach of the CBD or similar approaches, such as the bioregional one, into the development of marine and coastal, water and forest, agriculture and edaphic biodiversity programs; and

(ii) creating or consolidating mechanisms for the integrated management of bioregions that include areas that can guarantee the respresentativity of the ecological processes in

protected areas and also include buffer zone space along with private or local community economic activities.

Institutional Level:

(i) facilitating the process of adaptation to the CBD ecosystem approach and its thematic and programmatic developments for the entities responsible for biodiversity;

(ii) providing the entities responsible for biodiversity with civil servants more knowledgeable of the potential of bioregions and the ecosystems in biodiversity management; and

(iii) strengthening the capacity of agriculture and protected areas systems in human resources and specialists to drive their management through the ecosystem approach.

Individual Level:

(i) training researcher in ecosystem management in areas such as ecology, biogeography, social sciences and ecosystem management;

(ii) preparing or solidifying knowledge and practices of community specialists in management of biodiversity lands and its biophysical, socio-economic and cultural components; and

(iii) training civil servants of the relevant entities in the ecosystem approach and bioregional management of lands.

Current Status and Experiences

The use of the bioregional planning approach shows a multitude of positive experiences in the region as illustrated by the “Mesoamerican Biological Corridor, the “Special Regions in Sustainable Development” (REDS) defined in Cuba, and the ecoregional planning undertaken in Colombia.

The strategy of relating cultural diversity and the ecosystem approach have mixed experiences, positive and problematic, in Brazil, Bolivia, Colombia, Ecuador, Peru and Mexico, among other countries in the region. In Brazil, for example, it is recognized that the majority of ecosystems in indigenous lands remain relatively intact. This increases their importance because the extent of these lands under community ownership allows for preservation of the reproductive cycles and the trophic chains required for biodiversity conservation. At the same time, experience has demonstrated that the complexity and variety of ecosystems added to the penetration by population groups with different values and practices tends to transform local traditions and introduce extractive and productive systems with negative effects on ecosystems (Brazil Report, 1997).

As to ecological restoration efforts in Peru, authorities consider that progress has been made in that direction but that, in practice, monitoring is uncommon as it is an expensive alternative and does not produce direct benefits. In Mexico, the national biodiversity strategy directs some of its actions towards restoration and rehabilitation of land, water and island ecosystems in order to complement other protection and conservation *in situ* efforts (protected areas, land management plans), so that fragmented ecosystems can be linked to populations of flora and fauna currently divided or isolated.

Lastly, it should be highlighted that the ecosystem approach is being proposed as one of the basic strategies for delimiting and consolidating protected areas systems. The latter are the biodiversity conservation effort of great significance and consistency across the years in the majority of the countries in the region. In particular, the ecosystem approach is a means: (i) so that in protected areas systems the variety of the main ecosystems located in national territories be represented; most of the countries do not fulfill this goal; (ii) for facilitating institutional and interagency capacity building for the integrated management of protected areas, buffer zones and management of biodiversity lands, given the existing interdependency between adjacent ecosystems.

Strengthening Protected Areas Systems

In situ conservation is one of the modalities considered in the CBD and within it, protected areas have an essential role.

Systemic Level:

(i) Updating laws to facilitate executing new modalities that include the establishment of biological corridors;

(ii) setting conditions for the creation of private sector protected areas;

(iii) strengthening the cross-sectoral transfer of capacity between entities in charge of protected areas and shared ecosystem management at the subregional and cross borders levels.

Institutional Level:

(i) bringing up to date the technical capacity of the responsible institutions so that they are able to increase new management modalities such as private sector protected areas, or executing those that assume a greater participation by local communities in the case of public nature areas; and

(ii) providing greater capacity to protected areas authorities so that they can design and implement self-financing plans.

Current Status and Experiences

Protected areas face very different types of issues: those derived from impacts that tourism has been having on parks and highly sensitive nature reserves; those associated with permanent human settlements and problems with reconciling productive activities with an environmental and ecological protection framework; and those pertaining to the new processes of colonization by poor groups in the population. Furthermore, because of the size, isolation or degree of degradation some parks are being turned into islands with an uncertain future inasmuch as they are not connected ecosystemmically with buffer zones and other protection and production areas.

Nevertheless, protected areas have been a relatively successful forest management policy and, without a doubt, the most relevant *in situ* biodiversity conservation strategy. It has been pointed out that "there is not a single area of protected forests in Latin America that has been completely deforested," on comparing this modality with other unsuccessful conservation and sustainable use policies (Dourojeanni, p. 81; 1999).

In all of the countries, the economic resources for administration of parks and other protected areas has been inadequate. This situation has become more drastic in recent years as a result of measures for reducing fiscal deficits and policies for reducing government. This has manifested itself in many countries in a freeze on the number of park agency personnel, or in increases that are far from responding to the growth in protected areas in the last two decades. This includes in some cases a reduction in the personnel list. Similarly, budgets for research, environmental education, and work with communities in the parks and its buffer zones have suffered a relative reduction. This situation has influenced in the promotion of the self-financing design for protected areas through the financial acknowledgment of the services rendered. Attempts to test the protected areas approach are being made as the key to their salvation may lie in the adequate appraisal of the environmental and social services of forests. In the case of national parks, of particular significance are hydrological services, carbon sequestration, the supply of genetic resources and ecotourism.

Finally, the promising movement for establishing parks and other public sector protected areas is highlighted. It shows up in almost all countries in the region and required the establishment of mechanisms for its consolidation.

Developing Mechanisms for Genetic Resources Access

At the bottom of the relationship between genetic resources and biotechnology is one of the most promising industries of the next decades in various fields of economic activity (pharmaceutics, agro-industry, cosmetics, etc.). Behind this issue is also the consistency between the obligations entered into by the countries under the framework of the CBD and in the agreement on Intellectual Property Rights for Trade (TRIPs) and in the case of *ex situ* collections acquired before the CBD and that are not being regulated by the FAO's Commission on Genetic Resources for Agriculture and Nutrition.

Systemic Level:

(i) developing systems for access to genetic resources for which the countries in the region are the country of origin in fulfillment of the commitments arising from Article 15 of the CBD;

(ii) bringing up to date or harmonizing laws that already have norms for regulating access to genetic resources nationally or subregionally;

(iii) establishing special plans for guaranteeing and protecting the knowledge, use and exchange of genetic resources as the customary practices of indigenous and rural communities;

(iv) updating laws on intellectual property;

(v) generating information mechanisms and public education on the importance of genetic resources, from the perspective of country of origin and individual, community and institutional responsibilities for protecting the national genetic heritage.

Institutional Level:

(i) providing technical and administrative capacity to the relevant national authorities to regulate access to genetic resources;

(ii) providing technical and legal capacity to the relevant national agencies that negotiate contracts on access to national genetic resources, including the transfer of biotechnologies that conserve and use biodiversity sustainably;

(iii) establishing mechanisms for scientific and technological cooperation between the countries in the region and these and the Parties to the CBD that contribute to the fulfillment of local and regional needs;

(iv) creating mechanisms for institutional support for the habitual practices of indigenous people's and rural communities that include knowledge, use and exchange of genetic resources.

Individual Level:

(i) training civil servants from the relevant national authority and other relevant instances in the technical, administrative and legal aspects of access to genetic resources, including the issue of intellectual property;

(ii) training and updating teams of people with job of negotiating and following up on access to genetic resources contracts;

(iii) sponsoring research programs on *in situ* and *ex situ* genetic resources conservation for agriculture and nutrition;

(iv) training reporters and social communication experts that disseminate news on the status and progress of contracts for regulating access to genetic resources; and

(v) training community specialists in *in situ* conservation and the sustainable use of genetic resources.

Current Status and Experiences

The issue of access to genetic resources has limitations common to most of the countries in the region. First, existing capacity for integrated management and complementary of genetic resources is very restricted in general, and in particular for agricultural and nutrition genetic resources. Likewise appropriate relational structures are lacking between the conservation of *in situ* and *ex situ* genetic resources (plants, animals, microbes) and conservation and sustainable biodiversity use. These conditions demand joint capacity development of the sectors and institutions that utilize genetic resources or are in charge of regulating their access or distributing their benefits.

Another limitation arises from the lack of negotiation skills for contractual plans, well-supported legally, that allow for an adequate distribution of costs and benefits of double-linked access: to genetic resources and to biotechnologies. The region also does not have enough experts in negotiation and a body of specialized lawyers who know the issues in-depth and assist authorities in the contractual processes for genetic resources access and biotechnology. A third limitation links the issue of fair and equitable participation of the benefits from the use of genetic resources with means for protecting knowledge, innovation and traditional practices related to genetic resources, and the incorporation of this knowledge into cooperative research plans and modern and traditional technology development.

As to advances in regulation, the effort of the Andean Community stands out. It issued a decision that has the strength of a framework law. In Brazil the issue of regulation and monitoring instruments for genetic resources access, the project from Law 306/95, has been under discussion since 1995. The countries of the Southern Cone and most of the Caribbean countries have not developed their national systems for regulation of access to genetic resources for which they are they country of origin. In its national conservation and sustainable biodiversity use strategy, Costa Rica proposes the harmonization of national and international legislation on access, technology transfer and intellectual rights on genetic resources.

Developing Strategies and Action Plans for the Implementation of the Cartagena Protocol

There is an abundance of considerations of this subject, stating that:
The Biosafety Protocol or safety of biotechnology corresponds to an evolution in protocol of the CBD. The scope of Protocol is applied exclusively to the cross-border movement, traffic,

handling and use of all modified live organisms that can have negative impacts for conservation and sustainable biodiversity use, taking into account also the risks for human health.

Systemic Level:

(i) updating or harmonizing national or subregional laws within the framework of the Cartagena Protocol on Biotechnology Safety;

(ii) developing national laws on biosafety in research, development, production, commercialization and final disposal of live organisms modified by modern biotechnology; and

(iii) promoting the incorporation of the biosafety issue into conservation and sustainable biodiversity use strategies, policies and action plans.

Institutional Level:

(i) providing technical and financial capacity to the relevant national authorities, national focal points and other relevant instances in the implementation of the commitments of the Cartagena Protocol on the cross-borders movement of live organisms modified by modern biotechnology;

(ii) providing technical and financial capacity to the relevant national authorities, national focal points and other relevant instances on production and management safety within national borders of live organisms modified by modern biotechnology; and

(iii) establishing mechanisms for scientific and technological cooperation between countries in the region and between these and the Parties of the CBD and with the private sector that contribute to improving biosafety conditions at the regional, national, subnational and local levels.

Individual Level:

(i) training civil servants on the application of the Prior Founded Agreement Procedures of the Cartagena Protocol and in the management transactions for the import of live organisms modified by modern biotechnology; and

(ii) training technical and scientific personnel on safety and biotechnology transfer, including the risk analysis and management, as well as on the handling, transport, packaging and identification of transgenic organisms.

Current Status and Experiences

The countries in the region need to develop a set of strategies, policies, action plans and mechanisms for the implementation of the Cartagena Protocol on Biotechnology Safety, complemented by national systems on biosafety.

A prime priority of national capacity need is to address the establishment of institutional arrangements that facilitate the adoption of policies, action plans and national research procedures, production, import and biotechnology product distribution, within the framework of the obligations acquired under the Protocol.

At the national level assessment and risk management is also crucial during the life cycle of live organisms modified by modern biotechnology. For this task, an increasing capacity needs to be developed that allows for the identification and exchange of experiences and knowledge required, a critical mass of the required human resources, defining the assessment levels and methods, information systems, benchmarks and indicators, identification of priorities, appropriate installations and technical resources and preventive actions, among other points.

The limitations of the region to attend to the double obligation of implementing future commitments of the Cartagena Protocol and the development of a national biosafety system are disproportionate to the problem of the uncontrolled diffusion of biotechnology methods and scant institutional experience. There are also no social controls or public alarm systems because this concerns issues unknown to most people, sectors, institutions and local communities.

The efforts made in almost all countries in the region are limited to the agricultural and livestock authorities' sanitary measures for blocking the cross-border movement of biological elements that threaten to become plagues, undergrowth, diseases or exotic species that can affect national production. A few, as in the case of Brazil, have updated their norms for regulation of access to vegetable germ plasma and live land or water organisms, including insects and microorganisms that can endanger national biodiversity.

While Argentina was one of the first countries to establish a National Commission on Agricultural Biotechnology, Brazil has created the National Technical Committee on Biosafety. Other Latin American countries such as Argentina, Cuba and Mexico have developed monitoring procedures for biosafety. Costa Rica, on the other hand, includes policy guidelines in its national biodiversity strategy to guarantee the development of institutional and normative capacity necessary for biosafety.

3.4 Lessons Learned

The identification of capacity development needs for conservation and sustainable biodiversity use was done for the systemic, institutional and individual levels in accordance with the conceptual framework that guides the evaluation project. But the needs refer to eleven priority action lines, an approach that came about during the study as a result of the fact that almost all

countries have already defined their national biodiversity strategies. This led those surveyed and interviewed to refer concretely to the deficiencies faced for their execution.

Development Plans, Sectoral and Biodiversity Policies

In Latin America national development plans and sectoral policies take biodiversity into account very little and, in general, the environmental dimension. Nevertheless, in the last decade efforts can be observed in that direction: the high ranking granted to the environmental issue in the Constitution and the Law; a wider political range for environmental institutions; progress in the preparation of biodiversity policies and strategies that incorporate in some way the sectoral dimension, etc. Furthermore, in the productive and public sectors hundreds of positive experiences in conservation and the good use of the environment, including biodiversity, have been brought forward.

However, this last verified item should not make us lose sight of the fact that the impact of those efforts is lost or reduced as a result of macroeconomic and sectoral policies that are not biodiversity friendly. There is much evidence of this: policies on the opening and internationalization of the economy, with their emphasis on the exploitation of local natural resources, have set off additional and strong processes of degradation and loss of biodiversity; recent policies for fiscal adjustment have led to a reduction in budgets for environmental protection, often in a more drastic way than in other sectors; and economic and social policies of the last decade have not eradicated inequity and poverty, and their persistence limits and in many cases make impossible conservation and sustainable biodiversity use.

One of the greatest obstacles to the integration of ecosystem protection in national plans and sectoral policies is frequently explained as a “lack of political goodwill’, a concern also held by those interviewed for this study. The creation of such political goodwill should play an important role: strategies for awareness-raising and training key players in the public and private sector, most of whom still seem removed from biodiversity issues; strategies for strengthening public awareness-raising in general to situate biodiversity as a priority policy issue; the development or strengthening of a set of instruments for integrating biodiversity into macro and sectoral policies as with those already mentioned, or as in the case of environmental indicators; increasing grass-roots participation en the decisions that affect ecosystem integrity and field actions for protecting biodiversity. These are strategies that should have as a point of reference national, regional and local levels.

The fact that Judicial Power is playing a role in some countries in ecosystem protection points to the great potential that this particular player has. In general, this is not taken into account in institutional strengthening processes that support international agencies. Many countries have legal frameworks and norms that enable the legal sector as an effective means for forcing fulfillment of environmental legislation, but they still do not have an adequate infrastructure or training for judges for this. Others need to adopt laws that will enable them to follow the positive path of the countries more advanced in this area.

The execution of some of the mechanisms for intersectoral biodiversity management provided for in the laws and policies of the countries have been encouraged by international agencies. This is illustrated in the case of the consolidation of the sectoral environmental unit in a good number of public agencies responsible for roads and other physical infrastructures. It is also necessary to strengthen or establish environmental units in other ministries or their equivalents (agriculture, fishing, energy, mines and tourism) at the subnational level, giving them greater political ranking in comparison with what is current and a clear mission for biodiversity protection.

National biodiversity commissions, created in many of the region's countries, have been effective in the preparation of National Strategies, but need to be strengthened to the point where they can have real influence on their implementation at the sectoral level. The possibility of promoting their establishment, or that of similar mechanisms where they do not exist, and of creating the conditions for them to function where their presence is barely symbolic is recommended.

Management Instruments

Various lessons can be derived from more than three decades of experience with several environmental management instruments in Latin America and the Caribbean that have been enriched following the Rio Conference in 1992 and that show great potential for ecosystem protection.

There is a positive dynamic in the evolution of command and control instruments, with high potentials for biodiversity. This in particular is indicated in the Environmental Impacts Assessments (EIA), and in the land management plans. In all countries, preparing and implementing strategies for centrally incorporating a biodiversity component into these two instruments is needed.

The application of economic instruments for conservation and sustainable biodiversity use and, in general, for environmental management, is incipient in most of the region's countries, with few exceptions. It has been assumed that the establishment of economic instruments as substitutes for those of command and control would imply fewer demands on personnel and resources in their implementation. However, with time it has been demonstrated that economic instruments have equal requirements in human and technical resources for their design and execution, which most of the countries lack or only have inadequately (CEPAL, 1998; World Bank, 1997; Rodriguez et al., 1996).

Highlighted is the urgency of having instruments so that the banking sector is incorporated into the business of financing biodiversity and businessmen can contribute to the forming and consolidation of green markets. This is an area that offers many opportunities for poverty eradication in the populations that frequently live in natural ecosystems of great wealth. Because of this, the design of these instruments should have as a basic criterion having a fair and equitable distribution of benefits derived from sustainable biodiversity use. The positive and negative experiences with ecotourism and the exploitation of forests and fisheries should serve as a guide for designing new instruments.

The economic instruments for generating sources of income for ecosystem protection and, in general, for environmental management have been experienced in few countries, but their results are highly promising for the amount of resources produced and the possibilities that they can be used to leverage international resources.

In many countries environmental funds have become an excellent instrument for the harnessing and cost-effective allocation of economic resources for environmental management and in general have favored biodiversity projects.

Another critical instrument for biodiversity management are indicators, that in this assessment have been singled out by virtue of the importance accorded them in the region. Promoting the establishment of a system of conservation and sustainable biodiversity use indicators at the national, regional and local levels is needed. This is a highly urgent objective as an instrument for creating awareness among various sectors and decision-makers and for establishing priorities, and the preparation and monitoring of policies.

Ecosystem Approach, Protected Areas and Community Territories

The ecosystem approach stands out as one of the most powerful management instruments for integrating conservation and sustainable biodiversity use into national plans and sectoral policies. Given the nature of the approach, this could have a national and provincial reference or it could also have one on a much more local and decentralized scale, from a microbasin to a path.

According to the diverse experiences of the region, it is an approach that can overcome the diffuse way that renewable natural resources have been managed. In its application the potential provided by knowledge, innovations and indigenous and local community practices in management of community property lands should be adequately exploited.

An allusion has been made to national efforts in the creation and consolidation of protected areas systems. The statement of the “relative success” of incorporating ecosystem criteria into the formation and expansion of the protected areas system in the region’s countries would not coincide with the common designation of these systems as paper creations, backed by the recorded decay, or the confirmation of little or no state presence in some of them. Although it is true that many protected areas are being affected by action by poor peasants who extract wood or set up their agricultural activities there, the deforestation of forest degradation this causes is relatively little in comparison with the deforestation that occurs outside of such activities. The indigenous territories and areas provide enormous potential to consolidate conservation and sustainable biodiversity use projects. But to attain this it is necessary to slow down and reverse the threats (some mentioned earlier) that surround them.

Diverse experiences indicate the existence of indigenous and rural communities with high capacity for ecological zoning and land-use planning that often needs to be complemented and consolidated, including transfer and adaptation technologies. Organized communities should be one of the fundamental cruxes for land planning through the ecosystem approach. Consequently, they should be provided with the means to contribute to achieving this goal. The greatest

opportunity lies in producing the conditions so that the very communities develop capacity for planning their own plans for territorial life, supported by institutions with clear ideas about their responsibility for decentralized ecosystem management.

But as suggested above, in protected areas (rural production areas, and indigenous population territories and areas) many of the problems go beyond a merely instrumental approach. Thus, the future of these areas is linked to the substantive increase in government and non-governmental agency commitment, at the domestic and international level, so as to confront the various threats work against their conservation. This means the future of a large proportion of the territory, where the majority of the countries they cover 20 per cent or more of the national territory.

Lastly, it can be underscored that the ecosystem approach is a means for the integrated development of national, subnational and local policies. These are required to address global environmental threats, including loss of biodiversity, climate change, desertification and land degradation, ozone loss, degradation of continental waters, deforestation, unsustainable forest use, marine environment and its resources degradation, and persistent organic pollutants. Addressing global environmental threats in an integrated way can be achieved through the use of the same technologies and policy instruments that are used to fight these threats separately, but in different combinations, and through the creation of synergies for efforts moved forward in isolation.

Research Capacity and Technological Development

The region has a history of discontinuity in scientific and technological development that should not be repeated so as to not frustrate advances in the last decade in biodiversity research.

The new programs and biodiversity research centers in the region are demonstrating that they have high potentialities but need to be increased and consolidated. These types of centers and programs also need to be created in countries where biodiversity research is hardly visible. But the guidance of this support should be made according to the different capacities observed in the region’s countries. Many of the smaller states (e.g., some Caribbean and Central American countries) have gaps in specialized resources and infrastructures in basic areas such as land and marine species taxonomy. By contrast, larger and relatively developed countries (e.g., Brazil, Mexico, Argentina) have comparable specialists and biodiversity research infrastructures and in some ways even stronger than those of industrial countries. However, they need significant resources investment that will leverage that capacity. At subnational levels there is also an imbalanced distribution of that capacity of significance in some locations important for their biodiversity.

All countries, independently of their size and relative development need technology transfer mechanisms that facilitate cross-sectoral cooperation and partnerships with technologically advanced countries. In the latter case, this is mainly concerned with expediting processes of national biotechnology development, within the framework of the three objectives of the CBD.

In all of the countries in the region, it is essential to strengthen basic research on the functioning of ecosystems (natural, degraded, transformed), and on responses to the human aspect of global change, including natural and anthropic consequences of climate change and El Niño. But emphasis is also made on the high significance that taxonomic studies continue to hold.

It is becoming necessary also to recover capacity in agricultural research, reduced in recent years due to models for opening. Emphasis is particularly on the adaptability of local ecosystems to new biotechnologies for the development of sustainable production systems, the strengthening of action plans on genetic resources for agriculture and nutrition and, the sustainable exploitation of natural renewable resources.

Grass Roots Participation, Education and Biodiversity

Culture, education and participatory democracy go hand in hand. The Environmental Ministries and other environmental authorities need to work in alliance with the biodiversity research institutions and Education Ministries to advance coordinated and proactive programs that establish the bases for preventive thinking, some knowledge on national biodiversity and its significance in the global context and positive attitudes that can produce changes in personal and group behavior.

Among the clearest opportunities is providing continuous education programs at the national, regional and local levels in order to consolidate a critical mass of people responsible for biodiversity management. Such an effort assumes integrating university, institutional and research center efforts in human resources capacity development through courses and specialized workshops, field work, participation in projects, exchange of experiences and grant and internship programs.

The lessons learned about grass-roots participation and education go through processes for conflict resolution among diverse interests that can translate into coordinated biodiversity projects that define responsibilities and means of action. Without a decentralized, transparent, responsible, informed and open process, it is difficult to build institutionality for biodiversity and the environment that gains social legitimacy and local commitment.

Access to Genetic Resources and Biotechnology Safety

In countries where norms already exist on access to genetic resources and biosafety, an administrative capacity that allows for executing them is also urgent. Such an approach assumes a policy framework and defined action plans in a coordinated way with regional and local environmental authorities and the prior informed consent of the relevant national actors. This capacity has to develop more expedited procedures for guaranteeing access to genetic resources and biotechnology transfer and products under secure conditions. In the same way, greater capacity is needed to increase dissemination strategies on the significance of these matters and their relation to conservation and sustainable biodiversity use. Likewise, education and training processes should be encouraged to avoid use of biotechnology and genetic resources unduly and in opposition to the law.

In cases where there are no norms, or where they are precarious, that is unfortunately the situation for a good part of the countries of Latin America and the Caribbean, capacity needs are for the moment more of a judicial-legal order, that is, the development of rules and regulations on norms. The lessons learned about access to genetic resources on safe biotechnology practices are not many if it is considered that research, development and commercialization of genetic resources and other live organisms modified by modern biotechnology is an unprecedented activity. It does not have adequate experiences and moves in an atmosphere of uncertainty about the medium and long-term impacts of these organisms on biodiversity and human health. To illustrate the problem it is sufficient to point to problems with using forms of identification and packaging of transgenic products.

However, from the perspective of opportunities, the introduction of norms and procedures that regulate access to genetic resources and the eventual entry into force of the Cartagena Protocol on biosafety will create an institutional culture and an adaptive risk management and its evaluation. But the most obvious of the opportunities comes from the development of participation strategies for the benefits derived from conservation and sustainable use of genetic resources, as well as of safe biotechnology goods and services that generate social benefits and minimize undesirable impacts.

New GEF Priorities for Conservation and Sustainable Biodiversity Use

The totality of lessons learned signal a need for the GEF (simultaneously with traditional financing of projects that conform with its portfolio) to support capacity activities that contribute, among others, to incorporating the biodiversity issue into macroeconomic policies and in fundamental sectoral policies; reinforcing very positive trends that are occurring in some countries in judicial power as a means for combating the high existing impunity in the region for environmental crime; supporting national environmental authorities so that they can design and execute economic instruments that serve as incentives for bankers and businessmen to participate in conservation and sustainable biodiversity use projects, because of their good business sense. Naturally, opting for this direction requires capacity development at systemic, institutional and individual levels.

These are only a few illustrations that are not intended to suggest that the GEF stop financing the types of successful projects that predominate in its portfolio. Many of these have demonstrated amply their relevance. However, if the impact of some of them is being highlighted, this could end up being ephemeral if changes are not promoted that, like previous ones, are imperative.

CHAPTER 4: CLIMATE CHANGE

4.1 Commitments Assumed by the Non-Annex I Parties to the Convention

The Framework Convention on Climate Change establishes that the Parties that comprise it should carry out actions for stabilizing the degree of concentration of greenhouse gases at acceptable levels. The main action of the Non-Annex I Parties is to communicate to the Conference of the Parties information on: national inventories, a general description of the steps developed to implement the Convention and any other relevant information to achieve the objectives of the Convention.

Taking into account their common though differentiated responsibilities, the Convention recognizes that all of the Parties, besides presenting their corresponding national communications, should develop actions on climate change. These actions are linked to the fulfillment of Articles 4,5,6, and 12 of the Convention and among the most important elements include:

(a) Preparation and implementation of mitigation plans on climate change.

(b) Integration of climate change considerations into the development of environmental, social, and economic policies, that is, in development policies.

(c) Promoting the sustainable management of sinks and GHG reservoirs.

(d) Promoting research and cooperation in information exchange.

(e) Development of education, training and public awareness raising programs.

(f) Preparation of reports and communications to the Convention on the actions developed or on development.

(g) Promoting and developing research and systematic observation.

These activities are related to seeking and processing of information, building long-term scenarios, identification and evaluation of mitigation options and strategies, climate change vulnerability evaluation of the most likely scenarios, policy design for the implementation of mitigation and/or adaptation activities, evaluating the social and economic impacts of activities that are to be implemented and integrating them into the global and sectoral development objectives, evaluating the viability of the scenarios foreseen. The execution of these obligations implies that the country should have the human, organizational, institutional and scientific resources for developing the tasks and functions on a permanent basis.

The Socio-Economic, Educational and Environmental Context

The capacity strengthening needs analysis for confronting climate change issues (as complex and with such broad ramifications that touch almost all human activities) requires that these issues be placed in a wider context. The points on economic and social, environmental and the very context of educational, scientific and technical development should be a part of this framework.

Development Status

Growth in Latin America and the Caribbean in recent years has been unsatisfactory and it can be seen that efforts made have not been adequate to address critical issues such as meager labor opportunities, lack of education, poverty, corruption and crime. There is even a sense (shared by many) that the very activities and efforts for achieving macroeconomic stability has done nothing more than worsen many or all of the problems mentioned. The last two years, the so-called "lost decade" (the 80's), and the decade of transformations and big changes (the 90's) have one element in common: high political, economic and social turbulence.

It is true that for economic development this can be considered a region of median income but, worldwide, it holds *fifth place* in income per inhabitant[1], after developed countries, Southeast Asia, the Middle East and the Economies in Transition. Only the countries in the rest of Asia and Africa have lower incomes. It should be highlighted that have a century ago, Latin America was surpassed only by developed countries, holding second place in terms of income per inhabitant.

Additionally, together with a modest and unstable economic growth, one of the critical elements of the region's development pattern was exacerbated: inequity in income distribution. Some of the countries with the worst income distribution in the world and concentration rates that surpass the world average[2] are found in Latin America. Although other encouraging indicators are present, such as higher life expectancy, reduced infant mortality rates and high literacy rates in many countries, there are serious deficiencies in these areas in other countries.

One of the indicators to highlight is that high literacy rates do not imply significant educational progress. Although access to education at early stages has grown, there is a significant gap and the years of education do not differ substantially from the figures of more than twenty years ago. That is, there has been practically no progress in this area.

Another of the areas that reflects the most worrisome contrasts is that related to social cohabitation. Progress in democratization and the reduction of arbitrariness, discrimination and injustice have not had the same effect on criminality. In the opinion of many experts, the evolution of criminality rates has its greatest cause in the lack of opportunities for their social and work integration or the low levels of remuneration offered by "flexible markets" or "precarious" working conditions.

[1] IDB -Development, Beyond the Economy. (Report 2000)
[2] IDB -Work cited.

Surveys and studies show the concern by the region's inhabitants for development issues and, in particular, for the instability of the economy, scant work opportunities, uncertainty about the future and the lack of justice in income distribution. Unemployment, low wages, inflation, poverty and employment insecurity are some of the issues that Latin Americans underscore as being the most important. Education, corruption, and crime are concerns that go beyond the economic aspect and that are also frequently mentioned.

The characteristics of Latin American development have been heightened (worsened) in the last decade as a result of changes in the global context and national reforms and transformations. Globalization and neoliberal policies are frequently mentioned as facts that have deepened the process of low growth, instability and income concentration. However, it is true that the region shows and has shown structural factors that affect development and are added to those that have arisen most recently. Although it is not the aim of this report to present development indicators and their causes, it is important to describe and highlight the aspects of this context that act as conditioners, and even determiners, of general policies (education, science and technology), sectoral (environment, energy, agriculture) and specific (activities in climate change, for example). A better knowledge of the surrounding conditions (international and domestic) and of general and sectoral policies on the most severe problems can shed understanding and serve as an explanation of the priorities and needs for capacity strengthening.

With such an overview, the conclusions are obvious: the economic dimension and, most of all, the social aspect of sustainable human development reflect outstanding matters of great importance. Growth, which while modest has not been well distributed, faces the need to identify priorities and policies leading to a reversal of that trend and acts as a conditioning factor for policy implementation and the determination of environmental and particularly climate change activities.

The Environmental Dimension

With regards to the environment, UNEP highlights three problems:

(a) Pollution and scarcity of water in urban areas.

(b) Exhaustion and destruction of forest resources.

(c) Regional impact of climate change.

Poverty and income inequality are the main cause of environmental decay, states the recently presented report "GEO América Latina y el Caribe: Perspectivas del medio ambiente 2000".

This has led Ricardo Sánchez, UNEP Regional Director to state: "The first priority in Latin America and the Caribbean is the high degree of poverty and the extreme differences. This is incompatible with sustainable development." The relationship poverty-environment creates a vicious cycle that feeds itself.

Persistent deforestation and fragmentation of forests. Progress in agriculture, the reconversion of forestlands into agricultural-use lands, timber extraction, mining and other large-scale projects continue to drive the loss of forest cover. Impact on biodiversity. Various phenomena seen in the region could be attributed to the global process of climate change; hurricanes, forest fires, the increasing intensity of El Niño, the increase in ocean water temperature, etc.

The urbanization process is unsustainable. Almost 75% of the population of Latin America and the Caribbean are in urban zones and it is estimated that this percentage could increase to 85% in 2025. Pollution and the depletion of aquifers are alarming, as are pollution from heavy metals and inadequate treatment of solid waste.

It is difficult to ensure execution of norms and laws because many institutions can not audit the execution of multilateral environmental agreements, and because ensuring their systematic execution can have negative economic impacts. “Environmental structures are being created in the countries at a time of a slimming down of the State.” This implies a minimized government with limited resources. In fact, the environmental issue continues to be a secondary topic on economic and development agendas. Regional reports conclude that environmental priorities seem to be an “unheeded issue” in Latin America. “Only a very decisive effort in institutional and management plans, and the adoption of public policies that substantially improve their efficiency could counteract these trends.” A positive note is that growing grass roots and international pressure is observed.

A Relevant Structural Factor: The Educational and Research Context

Educational progress in Latin America has been slower than for other groups of countries, especially in Southeastern Asia. This slowness is not linked only to literacy levels, but rather to the very low proportion of people with secondary and higher education. In spite of the high access to primary education, a great percentage leaves it without getting to the secondary level. In addition, average levels of education have seen a significant decline and those who leave those levels arrive at universities with scant or inadequate training to face the challenges of higher education.

Although primary and secondary education are the basis any complete education system, for the purposes of the goals of this report, the quality of university education is vital and, in fact, is influenced by the quality of the “raw materials” that enter into its walls.

The university enrollment rate is high and above the thresholds for a mass education level. However, diversity and the extent of higher education do not imply a satisfactory response to education demands and training of the public and private sectors. This layout responds to doubts on the effective execution of objectives such as theoretical research, technological development, training of leaders or the building of critical and creative analysts.

It can be stated that the most notable gaps in the system arise from a lack of appropriate incentives for the functioning of public universities and the promotion of quality standards in public and private universities.[1]

These include training for *academic leadership* (intellectual élites), where the lack of incentives and controls has caused a drop in the effectiveness of the training of leaders. The search for solutions is an issue, in addition to the need to introduce adjustments by decreasing research and teaching budgets, has led to the introduction of mechanisms for competing for public funds based on academic performance and the production of research results with international standards.

The demand for "international excellence" as a condition for promotion creates two worrisome consequences: on the one hand, there is a risk of a "false scientific university,"[2] because the need to obtain resources for financing research or fulfilling the demands of international publications makes much research respond to the regional interests of those with cutting-edge research and technology. This implies research with alien interests for the region and driven by commercial objectives. In addition, strictly national or local studies of issues, or those that do not find an "apt" market for their resource lose their immediacy or lack resources.

In many countries in the region a lack of precise scientific policy is observed. Investments are not made. Interest in research is not promoted. Trained scientists are not retained, nor are those who have emigrated recovered. Although the issues of global change are of relative importance in the research plans of many of the region's countries, the absence of an adequate technical/scientific policy acts as a limitation for developing knowledge in an area where inter and multidisciplines are the most fertile ground for development.

The gap mentioned, along with a predominance of certain paradigms in the social sciences (especially in the economic ones), are the "surrounding conditions" that need to be addressed and considered in technical assistance and financial programs for capacity development. If the objective is to implement effective programs and activities for the end goal of achieving adequate consideration, a proposal with solutions and the design and implementation of climate change policies, then activities for institutional strengthening of scientific/technical policy development should seriously be considered.

4.2 National Priorities to Respond to the Obligations of the Convention

Consideration of the region as a whole allows stating that the areas of greatest priority are in better awareness of the degree of climate change vulnerability in the countries, and of the development of activities to adapt to this. It could be stated that the priority given to vulnerability and adaptation rests on the following points:

[1] "In general (with few exceptions), it can be said that institutions have lost capacity to carry out studies in comparison with the better level reached in the past. Inadequate budgets have ended up disbanding research groups, some of whose most experienced members emigrate and are replaced by less-trained and expert personnel." B. Marticorena Capacity Development Initiative Report, Climate Change, Peru. First Draft (June 2000).
[2] Esther Díaz. Philosopher, CONICET Researcher (Argentina). Newspaper interview, 18/06/2000.

(a) The notion that mitigation activities that are developed will be inadequate to avoid in some measure that climate change occurs.

(b) Several studies indicate that the region, and some countries in particular, may be very vulnerable to climate change.

(c) Studies and knowledge are inadequate and there is a high degree of uncertainty as to the magnitude of direct and indirect impacts.

(d) Capacity to analyze all aspects of vulnerability is limited.

The priority of vulnerability is not exclusively linked to the measurement of biophysical impacts, rather mostly to economic and social impacts and the effects that internal and external activities in vulnerability can cause.

In the reports prepared on the region, there is scant reference to economic vulnerability to climate change and, particularly, the lacking is the capacity to evaluate the response expected from the affected or interested parties. Knowledge of the relevance of indirect effects and a mistaken evaluation of the decision approach are a priority.[1]

The information discovered implies also the need to complement or revise the Guidelines for the preparation of national communications, especially for the identification of adaptation options and the standardization of methodologies and models for future national communications.

With respect to sectors, practically all of them are identified and in particular:

(a) Water resources
(b) Agriculture
(c) Coastal zones
(d) Fishing
(e) Health and human settlements
(f) LULUCF/ Ecosystems
(g) Deforestation and land degradation
(h) Industry and energy
(i) Natural disasters

The occurrence of extreme events has provided valuable information for evaluating the socio-economic costs and allows for estimating future climate change sectoral impacts. A better capacity for evaluating the impacts of such events is a priority for many of the countries in the region.

[1] A common interpretation is that if the potential affected sector has economic or technical capacity, then there is no need for concern because it would initiate self-contained adaptation. The viewpoint of the agent is confused with that of the country. It is possible that the agent "adapt" by abandoning production or transferring its investments to another region, country or activity. It is evident that this would not be the adaptation that would be expected from a national perspective.

Although vulnerability issues have been included in this list of priorities by most of the countries, mitigation activities figure as relatively priority for a good portion of them. In mitigation-related issues, the main priority is linked to a better understanding of the economic aspect of activities, that is, estimates of costs related to such options.

Sectors or activities considered relevant are:

(a) Development of sinks
(b) Transport sector
(c) Role of biomass as an energy source and its relationship to deforestation
(d) Energy production
(e) Energy efficiency
(f) Agriculture and livestock

Lastly, it is important to recall that adaptation or mitigation activities require a good understanding of climate change, its dynamic and effects. It is not strange then, that understanding, observation and measurement have also been considered to be a high priority area. Included here are:

(a) Development of emission coefficients for the region, especially those related to land-use change and agricultural and farming activities.

(b) Strengthening for the preparation of national communications and inventories and development of IPCC methodologies.

(c) Ensuring the continuity of preparation activities and updating of inventories and communications by providing adequate financing.

(d) The absence of systematic observation networks for hydro-meteorological phenomena.

(e) Capacity for identifying phenomena and impacts attributable to climate change and their separation from impacts caused by other events (climatic variability, socio-economic conditions).

Although it is accorded a lesser degree of priority, there is abundant reference to the Kyoto Protocol as the Clean Development Mechanism, in particular, for issues linked to sequestration or carbon from forestry activities or for example, land-use.

Other thematic areas considered relevant are:

(a) Design and implementation of the National Climate Change Strategy and strengthening national programs and the modification or establishment of new institutional structures.
(b) A better understanding and development of approaches, instruments and activities for producing and broadening effective technology transfer and environmentally clean activities.

This reference is situated within the context of the recent special IPCC report on technology transfer and its consideration in the widest sense, including the promotion of existing technologies and the technology development cycle as a whole. References to this issue have been fed by the conclusions and recommendations of the regional workshops on this issue recently organized by the Convention Secretariat.

(c) Capacity development for reducing asymmetries and forming high level work teams that will strengthen negotiating capacity and guarantee effective participation in international events such as the Convention, its subsidiary bodies and the Conference of the Parties.

(d) Generating and consolidating a national critical mass as part of the consultative processes and multisectoral participation in the preparation, discussion and policy processes.

(e) A better understanding of the interfaces between possible activities in response to the mandates and commitments of the different Conventions (Biodiversity, Climate Change, Ozone).

4.3 Capacity Development Needs at the Systemic Level

The first challenge for capacity development is to succeed in having the objectives of the Convention be accepted by the policy decision-makers and incorporated as a legitimate objective within the global and sectoral development objectives. The incorporation of the concept of Sustainable Development and its effective linkage to developmental policies should be a part of the objective vector. The lack of priority or awareness of the importance and implications of not seriously addressing the negotiation processes for climate change should be presented at the highest echelons. To start with the assumption that the issue is high on the political agenda and that it is only necessary to determine country capacity needs in order to comply with the commitments of the Convention could be a serious mistake and give rise to inapplicable or empty proposals.

The second element of “context” is associated with the introduction and acceptance of new concepts, methods and ideas, since the approaches used in the past for sectoral analysis are inadequate for incorporating new environmental dilemmas and their impacts on the economic system as a whole.

Finally, the capacity development for studying and evaluating climate change policy actions should be strategically applied, so that this strengthening process is not a fragmented activity that does not fulfill its objective. Such application is related to research, capacity and formal and informal educational systems, and their integration into scientific/technical and educational policies and with the needs set by development policies.

This report analyzes the concept of systemic level (as it relates to capacities) as a framework for the general context in which the different “categories” can be classified as favorable or unfavorable, adequate or inadequate. These categories are related to a political, legal and

regulatory framework. Thus, institutional responsibilities are assigned and managed (there is an adequate institutional structure): how do economic activities work and how are they regulated, what is the level of resources and how are these assigned, or how are the various institutions, levels and sectors of society interrelated.

For each on of these categories we have tried to identify and synthesize in a representative way at a regional level as a whole which are the problems associated with each of them, and which capacity development needs are revealed or suggested by the deficiencies detected. If the findings or statements of the introduction are accepted, then it should be accepted that the process does not fit into an adequate or favorable political framework, as climate change issues are secondary to short term development priorities. The lack of priority or understanding of the relevance of climate change and, especially the incompatibilities of the process of international negotiations, is the first problem or restriction to the implementation and development of a capacity program in climate change.

This restriction gives rise to a prime need or recommendation to be addressed at this level:

- Develop dissemination activities, actions or programs geared towards demonstrating the importance of the issue at policy decision-making levels and, above all, show that climate change (the environment in general) should become “State Policy.”

Such activity should be directed largely towards making explicit the consequences that its absence from the negotiation processes or not participating actively in the discussion of global actions and policies could have on the national economy. One element of even more complexity is the absence of a clear understanding of the interfaces between the different environmental problems. If aggregate and sectoral public policies have not yet incorporated these issues, the path to integrating the many cross-cutting issues between them is even less clear.

- Implementing actions that promote genuine linkage and a full understanding at least of the most relevant problems (climate change, biodiversity and land degradation) and a consideration of these interfaces in internal policies presents an additional challenge.

Returning to climate change, even if it is considered relevant and the need to move forward specific policies is assumed, the question of adequate capacity arises with respect to policy design, formulation and implementation.

The capacity developed in the past for the preparation and implementation of policies and plans (especially during the seventies in response to the so-called “Oil Price Crisis”) was abandoned within the framework of the liberalization processes from the eighties. Consequently, it could not evolve by following the transformations of economic systems. This is particularly so, taking into account that the system on which action is desired is far more complex than in the past, and that it requires indirect actions for which there is very little experience.

This weakness in finding the adequate instruments and tools suggests additional needs:

- *Training in the design and implementation of policies that allow acting on undesired trends effectively.*

Capacity building for the design and implementation of policies implies a better knowledge of planning techniques, specifically, the management of instruments, preparation of diagnostics, definition of the objectives, prospective analysis, identification of viable scenarios, explicit presentation of tools, design of strategies and preparation of action plans. As to the Legal and Regulatory Framework, the documentation analyzed presents different kinds of errors, different documents. The legal frameworks are non-existent, inadequate, partial, incomplete or inapplicable. In many cases, the existence of legal frameworks is accompanied by an absence of regulation or the actual incapacity of the State to apply the existing norms (monitoring, audits, control) due to the lack of human or financial resources.

A suitable regulatory environment is lacking for moving forward with conscious and committed planning, and there are problems of overlaps in thematic areas, jurisdictions and areas of responsibility. The development of specific legal frameworks is also necessary inasmuch as their specificity meets the needs derived from commitments to the Convention, and they lead to supporting concrete actions through the law.

Sectoral laws and regulations are partial and do not cover the totality of the effects and the dimensions of climate change. Furthermore, there is no legal framework that considers and analyzes the interrelationships between the various environmental issues and problems. As a consequence, opportunities arise for capacity development in the development of legal frameworks such as:

(a) A national legal framework that specifies responsibility and jurisdictions.

(b) Linked and consistent provincial laws of adhesion that do not contradict national laws.

(c) Standards for minimum demands with which all legal frameworks must comply.

(d) Specific laws related to the impacts on the physical, live and anthropogenic environment.

(e) Laws that give constitutional ranking to the environmental commitments taken upon by the country (existence of the right to a healthy environment).

(f) The development of a legal framework for compliance with the obligations assumed under the International Conventions.

(g) The existence of a legal framework that establishes clear ownership and authority rights over the natural environment, and that sets the existence of superior instances to assaults that are not considered, or are inadequately so, in the provincial legal frameworks.
(h) The recognition of diffuse rights and the right of each agent to act legally against those that are causing damage to the general environment.

The regulations and capacity to apply and enforce the existent legal and regulatory frameworks is more than obvious need. The administrative framework of institutional responsibilities or, better stated, the institutional structure and the placement of the level of policy decision for environmental topics has not had an adequate response.

The reference to the development of a national institutionality that allows for the coordination of actions internally for policy actions stands out as a weakness. There are few cases where the relationship of the environmental issue to the long term is recognized. This is also true for the planning and the multi-dimensionality of the issues and sectors to which climate change is related. In these cases, such recognition goes hand in hand with an institutionality adjusted to the issue in question.

The non-existence or the lack of capacity to operate from the institutional structures has as its cause the framework of the agenda of priorities, in the definition of the policy agenda and the areas of responsibility of the different governmental instances. In many cases, the institutional structure is a clear indicator of the scant importance that is given to the sectoral multi-dimensionality of environmental issues and, above all, of its importance as an economic resource. The absence of a clear vision from an economic viewpoint of the environment and the inability to identify its role as a product, fulfiller of end needs and conduit for the activities of productive and end-user sectors, leads to placing the issues in government institutions that do not attach significance to it as a resource and acts as a barrier to the implementation of effective policies. Its importance as an economic resource for all activity sectors and its growing shortage and value is not understood.

Furthermore, the non-existence of clear mandates creates diffuse institutional responsibility that can make assigning concrete responsibilities and monitoring the results impossible.

- Technical assistance and capacity development in order to define an adequate institutional structure for the demands that the problem of climate change presents, and its insertion into the general environmental issue and into the socioeconomic system, appear to be a general need.

This challenge assumes:

(a) Defining the scope of importance of the institution responsible for the design en implementation of policies in the environmental field.

(b) Clearly specifying their objectives, functions, areas of responsibility, sectors involved.

(c) Identifying the need and the framework of the institutional interactions and the hierarchy or instance for the existence of the conflicting or uncoordinated policy objectives.
(d) Situating the mechanisms for coordination, monitoring and exchange and the transparency of information within the different bodies.

(e) Structuring the climate change institutions and defining the reach of its functions, the obligatory nature of the execution of its decisions, capacity for public assemblies and the implementation of the mechanisms, activities and decisions for compliance with international commitments or the implementation of internal policies.

From the economic viewpoint, there is a clear perception that climate change is an additional problem for the productive sectors involved. In order to promote economic growth and create jobs, countries try to offer opportunities and suitable frameworks for the placement of capital, and making more flexible fiscal, economic, social and environmental conditions. Knowing that they compete with other regions that can offer more favorable conditions to capital with no borders, and in the absence of other advantages, they base their "relative competitiveness" on reducing the "demands" on these investments.

The new institutional and regulatory context that exists in many sectors related to climate change (energy, for example) is an important barrier to the implementation of environmentally healthy policies. The (legitimate) rationality of decentralized actors is aimed at avoiding risks and uncertainty, minimizing investment, expediting payback, guaranteeing reasonable cost-efficiency and maximizing their competitiveness leads them to decisions that produce options for increasing emissions.

The presence of different types of aid (with fair social objectives) that end up promoting solutions that are inefficient, unfair and harmful to the environment, are also common examples. The reference to the economic dimension reveals market and behavioral barriers that are very difficult to overcome through policy options and extremely complex to address in terms of the capacity needs that they create.

Actually, incorporating this issue at the systemic level or context reveals the more complex endemic conflict, the one related to the search for an appropriate and balanced answer to the economic, social and environmental dimensions of development.

Likewise, it creates a need that introduces greater challenges:

- Capacity development for the identification of which economics costs are associated with adaptation and mitigation options, and the knowledge to identify existent barriers and design policy actions for overcoming them.

Actually, it could be stated that the problem or limitation associated with market functioning and the behavior and decision mechanism for the actors, suggests the need to progress in the use of theoretical approaches with less regulatory content for market behavior, and more explanation of decision mechanisms. A broader space for alternate views to the well-known New Economy of Wellbeing could probably shed light on the search for solutions.

At the system resources level, it almost seems obvious to say that they are inadequate and what is available is designated for areas of highest priority according to the current administrative view or the policy objectives defined as priority. The possibility of accessing moderately abundant

resources that allow the development of the information required, having human resources and guaranteeing permanence and continuity of activities depends on the priority assigned to climate change.

In general, at the governmental level the human resources trained to guide and define policies are scarce, not well qualified or lack an appropriate hierarchical ranking. The capacity to identify issues, define objectives, realize diagnostics, define strategies, identify and overcome conflicts, prepare feasible scenarios and design the instruments and tools necessary to achieve them is not an abundant resource in the region.

There are state and private centers of excellence at a regional level and in many countries that have developed adequate technical knowledge. They can play an important role in the learning process and the dissemination of knowledge and skill throughout the region, but they do not always have the support and necessary level of resources to assume the complex range of activities. This would involve offering a complete response for climate change issues throughout the region.

(a) The need for a greater volume of financial resources and to develop professional capacity within governmental and non-governmental sectors is well known.

(b) It is necessary to identify the types of capacity that civil servants and decision-makers require according to their decision-making level, specific field and function. Clear identification of the recipients of any training process and the purpose of such training is generally not clearly understood.

The absence of long term vision becomes possible due to the lack of coordination and linkage between different sectors, and between sectoral and global policies as well as interaction with the public sector, as reflected by their interest, community action, and environmental groups, etc.

- There is the need to strengthen communication channels and information flow between the different areas of Government responsible for climate change or those that are relevant for the definition and implementation of policies.

Though the process of negotiation and definition of policies is concentrated at the national Government level, the impacts and the possible implementation of actions require actions across the entire country. Therefore, it is important to have an appropriate level of capacity and knowledge among the provincial and municipal interlocutors in order to be linked appropriately and participate in the definition of policies on the issue.

- The need for a better linkage and interaction between the public, national, provincial and municipal spheres, and their linkage with non-governmental environmental organizations and private and technical-scientific sectors, is acknowledged.

A certain centralization of the decision-making process and concentration of knowledge is observed. Despite the existence of federal systems, the countries' inland areas show relatively greater weaknesses than those found in central governments, except in exceptional cases. The reality of provincial and municipal levels is alarming. There are no resources designated for global issues. Provincial and municipal levels lack the human resources capable of evaluating the way in which global issues influence, impact or affect the local situation.

The above considerations can be complemented with the diverse needs of this level, including:

(a) Directing the dissemination of the issue to leaders and organizations representative of the national economic activities. The clear understanding of the importance of the economic dimension associated with climate change is essential so that those sectors integrate climate change elements into private strategic planning.

(b) Facilitating resources to promote and maintain the continuity and a systemic approach for activities in the presentation of climate change and the widening of internal discussions.

(c) Developing capacity activities for an effective evaluation of the incompatibilities of integrating climate change with sectoral policies. These policies show excessive shortsightedness and do not consider the medium and long term effects of defined actions and the incompatibilities of the absence the environmental variable for their own sector and the national economy. It seems necessary to have environmental policies integrated with all sectoral public policies. The implementation of a broad dissemination program (development of workshops, seminars, discussion meetings) aimed at intermediate level employees of Ministries and Secretariats, where the economic significance of climate change is explained and highlighted, and the need to incorporate it to the sector's agenda is emphasized.

(d) A need for greater knowledge of intersectoral impacts and effects is noted. The multidimensionality of climate change is not yet clearly understood. Climate change is usually considered in isolation, by not incorporating a clear evaluation of the close interaction with other important development factors, such as land use practices, population growth, the economic situation and community behavior. Capacity development to identify, evaluate (degree of importance) and explain the process of interrelationships between impacts on the environment and the objectives of general and sectoral policies are another obvious gap in knowledge.

(e) An absence of environmental problems in educational curricula at all levels is seen. There are few countries that have climate change at the primary and secondary educational levels. In general, the treatment is also incomplete and inadequate, except for specific careers or specializations in this area. There is scant or no reference to the importance of the environmental dimension and its relevance to all scientific disciplines in the rest of university or tertiary careers. It would be advisable to evaluate how educational policy can incorporate these aspects, as this deals with the earliest incorporation of an issue that is still absent from the culture of a large part of the population. Its significance is also almost absolutely

unknown even at the highest educational levels. The implementation of actions would require the development of a program on training the trainers.

(f) An inappropriate or non-existent scientific and technical policy, without a clear identification of priorities and their linkage to national development needs, makes it difficult to promote environmental research projects and all their sectoral incompatibilities.

(g) The smaller states, such as those in AOSIS, have additional difficulties, such as the inability of their small governmental infrastructure to manage the broad and varied range of activities, and they find themselves overwhelmed with problems so complex. Only through strong external technical assistance can countries maintain and expand their environmental units and maintain human resources.

4.4 Capacity Development at the Institutional Level

The matrix for capacity assessment is focused on capacities required for the public sector. Nevertheless, as the main objective is the design and implementation of climate change policies within a democratic framework, it is important to consider society as a whole represented by different "institutions."

Even though wide-ranging excess could make any assessment very ambitious, an effective analysis conducive to the CDI objectives implies the consideration of different institutions as objectives for capacity development. Among them, the following groups or structures would seem relevant: Government, Academic Sector, Productive Sector, Environmental Groups, NGOs.

As each has direct or indirect interference with the design and implementation of policies, it would seem that they should be considered "objective groups" or "interest groups" in the design of Capacity Development programs. On the other hand, it is evident that each one of them would require the development of different capacities, that is, the *needs they would present* would be different.

- Each of them presents different needs for capacity development and, consequently, assumes different answers and modalities to resolve them. Short courses, workshops and updating seminars are probably the best method of maintaining governmental institutions' human resources up-to-date, while capacity building at other national, regional or international institutions, attending courses or developing graduate programs, may be one appropriate response to capacity development in the technical-scientific sector. The development of seminars, workshops, dissemination activities, work groups, intersectoral commissions that function permanently, would be a mechanism conducive to responding to the needs of productive and environmental interest groups. The implementation of specific dissemination programs for these groups would be an effective mechanism.

As to capacity in the public sector, the aspects considered are associated with: clarity of objectives and the linkage with other institutional instances, their effective administration, the

availability of human, financial, and infrastructure resources. The process of interaction within the different spheres of Government (national, provincial and municipal), non-governmental environmental organizations, productive sectors and the technical-scientific sphere is highly complex. Very specific capacity is required for the development of the most appropriate mechanisms and strategies in order to link the different institutional instances within and outside Government areas.

The reports show institutional weakness to address the problem in the area of research on vulnerability studies, impact assessments and policy development and adaptation measures, as well as for the coordination, planning and execution of adaptation programs and projects, prediction and early warning for extreme climate events. It is apparent that there is little clarity as to the definition of institutional mandates and missions on climate change, and that they are not equipped with the necessary abilities. The lack of clarity seems to result from the lack of total awareness of the issue, its dimensions, and how to address it.

In many cases the institutions act solely on legal mandates, amidst indecision on public and private responsibility, and with the absence of a connection with civil society. These are institutions created for the support of some legal framework that identified the need of the existence of an institution that would fill a certain gap. The institution is implemented because there is a law, but it is never regulated, and the functions that the institution created should execute are never arranged. The institution becomes an empty shell, without fulfilling any of its objectives.

(a) Assistance in evaluating and supporting the modernization of institutional structures is necessary. In particular, it is apparent that various countries do not have specific areas, such as an office or a climate change unit. In other cases reference is made to the need to restructure the existent institutions and to clearly define their objectives.

(b) The need to strengthen the capacity of government to coordinate actions in the climate change area is proposed. This includes the participation of government bodies in charge of the sectors for energy, transportation, industry, agriculture, forestry, waste treatment, environment, coastal zone management, water resources, health and education, by promoting efforts for improving or allowing adequate analysis and exchange of visions on sectoral policies, legal and regulatory instruments that have components related to climate change mitigation and adaptation.

(c) The need for the implementation of a structure similar to that of the Convention's existing structure (Secretariat, Subsidiary Bodies, Technical Scientific Committee) is recommended so as to recreate internally the needs set out by the Convention and establish an appropriate institutional structure.

The framework for assignment and administration of responsibilities within institutions is not always the best, especially for hierarchies and responsibility. The want of an adequate administration implies a poor use of scarce existing capacities.

Aid for improving knowledge about the implementation of more efficient institutional processes such as planning, quality management, monitoring and evaluation is requested.

Processes are bureaucratic, the institutions lack flexibility and quick responses to requirements made of them, and their structures have been designed such that monitoring and evaluation of the various activities is very difficult.

- There is an explicit need to give decision-making bodies the capacity to convene and guide processes that lead to the preparation and sanctioning of a national strategy. The capacity for convening and guidance requires the development of specific lessons and skills.

The possibility of incorporating new methodological paradigms and approaches encounters serious barriers in the scant training of human resources, and limits the ability to propose novel solutions or strategies. There is a scarcity of human for the development of an activity deemed a priority: the design and execution of plans for public awareness and awareness-raising, including monitoring and evaluation of the effectiveness of these activities based on performance indicators. In several countries there have been attempts at making public functions hierarchical, by establishing contest and background assessment mechanisms to access intermediate level positions. The same program guarantees the permanence of the position for several years. However, these actions have been inadequate, or lost force through political plays or relationships that have invalidated attractive and efficient ideas.

Consequently, institutions do not always have technical teams able to respond to the problems they face, or, if they are adequately trained, there are so few of them as to not have the capacity to address the multiplicity of issues in hand. Furthermore, in general, material needs are not met appropriately. Thus, one observes a continuous desertion from public sectors in search of better opportunities.

It is evident that the human resources issue is not only linked to human resources capacity. It is also necessary to guarantee that these be retained by the public institutional system, and that it be possible to create a sustainable and long-term capacity process.

Given the uncertainty and instability in many Government agencies, many documents suggest that given the technical capacity for addressing issues should have continuity and permanence, and continuous development, it is reasonable to situate it outside of ministries. Autarkic public institutions (universities, research centers) and private institutions of excellence should be the recipients and capacity trainers. They should also guarantee the permanence and development of knowledge and experience to assist government agencies in policy design and implementation.

The scarcity of economic resources and their inappropriate allocation seems to be a common element in many countries of the region. Even with the availability of international resources, many programs fail, are delayed or postponed indefinitely due to the lack of the co-financing required by the international agencies for the implementation of different types of programs. The scarcity of economic resources and their movement towards the area of greatest priority or urgency is a constant that limits the development of agencies' specific activities.

Furthermore, it is true that the institutional dispersion observed in many areas implies inappropriate resources allocation and a diffusion of parallel efforts and activities that is not conducive to the sector or institution's objectives. The "inflation" of institutions frequently conspires against the effective execution of the functions assigned to them given the insufficient provision of resources spread out between an excessive number of agencies and the budgetary capacity of the country.

In particular, there is a clear lack of resources for the development of educational processes for the population, and the capacity trainers. Programs aimed at the development of public awareness and awareness-raising campaigns have difficulty finding funds to be developed.

It is evident that the needs related to this point are linked to different aspects:

(a) Scarcity of financial resources, their inadequate administration, and allocation that does not consider nor is geared towards the fundamental needs and priorities and gives in to circumstantial urgencies or junctures.

(b) Assistance for the development of administrative and resource allocation discipline would contribute to institutional strengthening.

A highly relevant restriction is the non-existence and/or access to information on the various dimensions of climate change. From the non-existence of didactic material in national languages and the lack of resources for their translation their widespread development to costly access to geographical, satellite image information systems or ignorance of sources of data at a regional or global level are general deficiencies. (Countries with languages that are not official to the Convention have to assume very high costs to disseminate information broadly, and even to achieve adequate involvement of the scientific community. The fact that the majority of bibliographical entries are written in English is a significant disadvantage for many countries, and creates considerable asymmetry in information).

Support is necessary to develop integrated and complete databases and information systems. The way that this has been done at a regional level in other sectors, such as energy, can be an excellent experience transferable to the climate change area. The lack of adequate access to information and the limitations of communication between the different governmental sectors make effective decision-making difficult. In many cases, the information being available, the way to access it is unknown: Where is it? How to obtain it? What are the national and international channels and sources of information on the issue?

Different documents propose suggestions, for example, the aid in implementing a program for promotion and cooperation in the development of a climate change database using the Internet.

Of course, the information must be generated and improved, especially in quality (safety and reliability) in the key socioeconomic sectors. Their identification depends on the reality and productive structure of each of the countries.

(a) The design and development of an appropriate climate change information system is proposed as an essential need. An efficient system should provide economic, technical, legal, institutional, qualitative and quantitative and environmental information, among others.

(b) Assistance in the design of a regional database and databank is directed towards covering a need highlighted by several countries.

4.5 Capacity Development Needs at the Individual Level

The issues identified about levels of individual capacity are related to various points.

While also fascinating, climate change is probably the environmental issue with the greatest challenges and complexity that is being faced. Some of these complexities are related to the broad set of GHG sources and sinks, the important phase difference between emissions and their impacts on climate, and elements of equity in the climate change's global nature. Lastly, though not less important, there is significant uncertainty about climate change itself and its impacts.

Climate change has altered traditional patterns in planning and sectoral policies. There is not enough appropriate resources allocation (energy, labor, land, capital) to determine the limits of a sector's potentials. Thus, it is necessary to refer to the "economic-environmental system" as a whole in order to find "sustainable" solutions. This new conception implies a new perspective on the definition of policies and the planning process. A broad set of natural resources (air, water, land, atmosphere), traditionally considered to be freely available products for economic activity have begun to play a central role. This is due to their finite character or the irreversible negative impacts that can affect them as a result of human activities.

The need to reach an adequate balance in the different dimensions of sustainable development require special abilities for analyzing and formulating policies, weighing the various alternatives in high uncertainty situations, and recommending specific courses of action within the framework of national socioeconomic and political realities. The complexity of climate change issues is associated with the multiple impacts they have on different activities and sectors, and their linkage to the totality of sectoral public policies, especially for the energy, transportation, industry, agricultural and stock-breeding, and forestry sectors.

The economic impacts that have occasional climate change mitigation activities and the way in which efforts will be distributed between the world's different countries is the reason that the international negotiation process is so intense and complex. The development of policies to act on climate change, along with strengthening the countries in the negotiation process, are the objectives of capacity development activities. It is not easy for a single action in capacity development to attain these skill and knowledge requirements. Rather, a joint set of mutually reinforced actions that are long-term and adapted to national situations should be contemplated.

In synthesis, the complexity linked to interdisciplinary aspects, risks and uncertainties, and where the temporal dimension has a central role, involve strong requirements of the individual capacities for its adequate treatment.

The skill of the persons in charge of carrying out activities related to the study of the global climate change and its options of mitigation, planning of tasks, execution of projects and analysis of vulnerability and adaptation, are of a very diverse level, depending on the level of specialization, academic background and professional experience acquired. A relatively small number of researchers is in conditions to understand the multiple dimensions of the problem, nevertheless, it is necessary to expand the number of individuals and institutions capable of development that will take upon the complex task.

If the need to know and evaluate the interfaces between the different environmental problems is added, the complexity is multiplied and the capacities necessary are expanded in fields and knowledge. Problems characteristic to the region must be added to the complexity of the subject, according to that extracted from the varied documentation.

The characteristics or the insufficiency of incentives act as an additional limiting factor. In the first case, the existence of promotional programs in research careers that prioritize the presence of the scientist or the topic approached in publications and events at a international level is discouraging for those who intend to address local problems or the local impact of global problems. The dominance of the so called “hard sciences” in the definition of criteria, guidelines and priorities in public agencies for sciences and technology limits the role and importance in areas as relevant to climate change such as economics and other social sciences.

The problems mentioned give rise to an extensive list of needs.

(a) The development of national and international workshops and courses for the exchange of information about the preparations of inventory, development of adaptation and mitigation policies, and vulnerability evaluations.

(b) The promotion of academic and professional exchanges between developed and developing countries, and between developing countries, including capacity of experts.

(c) The development of joint international programs and networks about thematic fields which permanency is guaranteed for the long-term, and its conformation includes scientists and technicians of different countries acting with a degree of equality.

(d) The promotion of capacity programs geared towards the knowledge and understanding of the Convention, the Conferences of the Parties and the Subsidiary Bodies.

(e) The facilitation of access to scientific information about climate change and the promotion of exchange of information about successful international experiences in public policies, measurements and technologies, practices and processes to reduce emissions.

(f) Promoting capacity for employees of communication media (journalists, opinion makers, leaders, etc.) in order to facilitate the public awareness process, through and adequate and precise communication and propagation by means of such media about the problem, its reach and importance.

(g) Developing capacity programs taking advantage of the capacity of teaching and learning institutions of the region, facilitating South-South cooperation. This multiplies effectiveness with the closeness and better understanding of issues, and strengthens the existing institutions in the regions, acting as a replicating effect in space and time by allowing the expansion of these institutions' activities, guaranteeing their permanency in the long term.

4.6 Lessons Learned

The Region

The countries of the region have dedicated a very considerable quantity of human and material resources for the study of the subject and especially the compliance with the Commitments assumed within the framework of the Convention. Compliance with the preparation and improvement of National Communications has meant the dedication of human resources, over academic institutions (public and private) of greater scientific and technical capacity. Such dedication was extensive and implied a contribution of human and economic resources that are very scarce in the countries.

The elaboration of National Communications has meant a rapid learning process, "learning by doing", in all thematic areas of the Convention. The presentation of inventories, studies of mitigation including calculation and cost estimates, and studies of vulnerability and adaptation have required the development and application of scientific and technical capacity of the highest international level. The national efforts were possible thanks to the financial and economic cooperation of the mechanism implemented by the Convention, and the technical assistance provided by experts and institutions of developed and developing countries, but, as will be mentioned, with an important counterpart effort.

The process of learning about the issue, the permanent presence in international forums and the mechanisms of the very Convention have meant the dedication of scarce and valuable resources to climate change. This has resulted in process of capacity developed, to a very significant degree, with the dedication of valuable human resources. The participation in the different reports developed by IPCC's Work Groups has been an additional contribution beneficial in both senses to the panel itself because of the contribution of the experts from Non Annex I Countries and its own experts in a rich interaction with scientist of other regions.

The vast majority of countries have created institutional units dedicated specifically to climate change, and they have implemented different programs for the institutional strengthening of their public bodies and have participated in activities developed at a regional level. Through scientists and experts from different countries the region has accomplished various contributions to the

improved knowledge of the phenomenon and its incompatibilities, developing research studies, "papers" and concrete methodological proposals to approach different topics of the subject.

The development of the graduate capacity programs in comparable thematic areas, such as energy planning and sustainability of energy systems, through programs developed with the support of regional bodies such as CEPAL, and implemented with capacity institutions of the region has contributed to a better conformation of human resources. Studies, workshops and capacity programs accomplished by other regional bodies such as the Commission for Regional Electric Integration (CIER), the Regional Partnership of Oil Companies (ARPEL) and the Latin American Energy Organization (OLADE), has involved a very relevant contribution to the strengthening of capacity.

The lessons learned in this process inform that those countries that based the technical assistance of their studies, national communications and inventories on public and private learning institutions, technical research and aid (universities and research institutes) of the country or region took the first step in the consolidation and permanency of multidisciplinary work groups that developed knowledge and are in conditions to replicate the activities and expand their assistance to other countries of the region. The utilization of institutional structures that are existent and have experience in comparable subjects guaranteed an adequate compliance with the commitments, and it strengthened the capacity for analysis.

This last one is perhaps the most important lesson, the fledgling creation of a new generation of planners and analysts that are capable of initiating the understanding of the complex subject of Climate Change, and perceive the aspects of the phenomenon that are occupying a legitimate place within the objects of sectoral development.

Bilateral and Multilateral Agency Cooperation

A considerable number of actions of technical assistance have provides to Non-Annex I countries a very important technical capacity development in the fields of inventory preparation and studies of different nature in Climate Change[1]. The experts of the countries have been benefited thanks to the development of Workshops, Seminars, Conferences and Capacity Programs and abundant bibliographical references on the different subjects[2].

Cooperation actions and programs that include projects, studies, workshops, seminars and courses undertook, according to the available information, very broad thematic areas:

Energy, science, (multidisciplinary focus), environmental management, forest and land management, adaptation, public awareness, mitigation, Kyoto Protocol, Clean Development

[1] For more detailed information see documents: FCCC/SB/2000/INF.8 and FCCC/SB/2000/INF.9. There is also previous information in UNEP Centre Newsletter /May 1997.

[2] Among the actions of bilateral cooperation (developed by regional countries and communities) it is worth highlighting the programs from Australia, Canada, Japan, New Zealand, Norway, the European Community, United States of America.

Mechanism, Technology Transfer, CTI, AIJ, efficient use of energy, early warning, climate change economy, agriculture and livestock breeding, implementation of models among others.

The actions developed by regional bodies[1], according to reported information, undertook subjects such as, Kyoto Protocol, MDL, conduit development, inventory, renewable energies, technology transfer, economy of GHG, vulnerability and adaptation, AIJ.

The development of human resources was the main objective of the bilateral actions and of international and regional bodies. In many countries these programs have played a catalytic role in the consolidation of climate change units and the beginning of a participatory process that involves key national institutions.

The effectiveness and results of the different capacity programs are very difficult to measure, nevertheless, it must be acknowledged that there has been progress fulfilling very important stages. Nevertheless the results and reaches of international cooperation could improve and be expanded if we are able to give them continuity and permanency in the medium and long term, and if we take into account aspects such as:

(a) Its linkage and integration with development plans and national policies.

(b) A clear response to the objectives and demands of the recipient countries, especially considering their relative degree of development.

(c) The guarantee of long term permanency, which assumes different objectives and budgets.

(d) The strengthening of economic and financial bases in order to guarantee the sustainability of the program/project once the ongoing cooperation has ended.

(e) A greater development of regional projects (groups of countries) and supported by regional implementation and learning institutions accomplishing a strengthening of them.

(f) More capacity activities for trainers and developed in and integral and systemic manner. The absence of an integrating and multidisciplinary vision seems to be one of the more frequent restrictions to understand and acting on the phenomenon.

(g) Broaden the spectrum of countries that receive cooperation, especially in the bilateral case, beyond the countries that compose and interest group or those that offer the best or the greater business opportunities.

(h) Give privileges to the programs aimed at the Non Annex I Parties.

(i) Facilitate the South-South cooperation mechanisms, accomplishing a greater integration in the programs from centers and institutions of the region.

[1] Information from following bodies was used: Asian Development Bank, UNDESA, FAO, OEA, UNCTAD, UNDP, UNEP, UNESCO, UNIDO, UNITAR, UNU, WHU, WMO, World Bank.

For energy in Latin America and the Caribbean, it is important to highlight the role played by the regional bodies such as the Latin American Energy Organization (OLADE), the Economic Commission for Latin America (CEPAL) and the German Cooperation (GTZ). They have developed case studies, seminars and workshops geared towards the incorporation of sustainability as a basic aspect of national energy development strategies. The development of didactic material on sustainability and energy, and the application of case studies in various countries of the region, using scientific and technical resources of the region, is a good example of the strengthening of capacity in the climate change area. The unavailability of major resources has not allowed the expansion, propagation and replication of these exercises.

Chapter 5: LAND DEGRADATION

5.1 National Commitments under the Convention on Desertification and Combating Desertification

The objective of the convention is to combat desertification and mitigate the effects of droughts in affected countries through actions at every level, supported by international cooperation and collaboration agreements. For the purpose of its implementation, the signing countries take upon obligations of various natures. From the point of view of capacity development and competence, the following aspects are relevant.

(a) The countries are committed to adopting a total approach to focus on the physical, biological and socioeconomic aspects linked to desertification and droughts.

(b) It is proposed to pay adequate attention (along with the regional and international bodies) to the situation in developing countries relating to international trade, market and debt agreements, for the purpose of qualifying the international economical environment to promote sustainable development.

With respect to the specific obligations of the affected countries, it behooves to highlight the following aspects:

(a) Giving adequate priority to the battle against desertification and the mitigation of the effects of droughts, assigning adequate resources according to circumstances and capacities.

(b) Establishing strategies and priorities within the structure of plans and policies for sustainable development in order to combat desertification.

(c) Focusing on the underlying causes of desertification and giving special attention to the socioeconomic factors that contribute to desertification.

(d) Promoting awareness and facilitating the participation of local populations, particularly women and youth, with the support of non-governmental organizations.

(e) Providing an adequate environment through the strengthening of existing legislation, or when it is lacking, create new laws establishing long-term policies and programs.

(f) Producing National Action Programs, which identify the factors that contribute to desertification, the practical measures and necessary long-term strategies in order to combat it. These programs must pay particular attention to the following aspects.

(g) The implementation of preventive measures for lands with no degradation or barely any degradation.

(h) Strengthen the capacity for evaluation and systematic observation, including hydrological and meteorological services, capacity development, and public awareness.

(i) The promotion of way of alternative life styles and an improvement of the national economic environment for the purpose of strengthening programs on poverty eradication and guaranteeing the provision of food, population dynamics, the management of sustainable natural resources and of agricultural practices, the development and efficient use of various forms of energy, and the institutional and legal structure.

5.2 National Priorities and Processes to Focus Obligations and Global Convention on the Environment

From the point of view of the application of the convention's objectives and processes, the application of it is based on the development of national strategies, which priorities at the level of Latin America and the Caribbean are also defined in the Convention.

At the level of the implementation process, these national strategies are based at focal centers, which act as integrators, promoters, and beneficiaries of program activities, initiatives, etc. As they are conceived, these national strategies include a situation analysis, a diagnostic, selection of priorities and the promotion of actions to achieve them. It does not have a principal value for the countries, in terms of the political and budget decisions, for which its application depends on obtaining appropriate agreement and funding.

5.3 Capacity Needs at the Systemic Level

The capacity needs at this level include those required so the convention can be applied at a regional, national, provincial and municipal level, such as is provides in the spirit and letter of Agenda 21.

One of the key factors that affects the capacity and competence of the countries of Latin America and the Caribbean to execute the resulting agreements of the Convention is the very limited perception that the public sector has of desertification issues. This fact is reflected in its politicians and leaders. Such lack of understanding and interest is due in great measure to the paradigms that dominate the political and economic agendas of the region. Among them, two are very significant: a) the perception that countries are very rich in natural resources, and that these are almost unlimited, and b) the priority that is given to economic development as opposed to conservation and environmental protection issues, which are seen more as an unnecessary evil. Therefore, any idea of their conservation could be seen more as an impediment to progress, as it is understood, than a benefit for the country. In this sense, the analyzed surveys indicate as an example the specific part of the curricula of school from the region, at least seen in its vast majority. This means that any capacity program that does not allocate a significant effort to public education, both formal and informal, has poor chances of being successful.

Within the national scope, the requirements for capacity competence include the following factors:

(a) Availability of an executive coordination mechanism that can guarantee the implementation of the adopted obligations by each one of the countries in terms of the convention.

(b) Effective coordination with economic and regional planning.

(c) The need for regional planning and land use policies, almost non-existent in the present. In the few cases that those policies are enunciated, the capacity of application of criteria and norms is in general very deficient.

(d) Accomplish an acceptable level of control and law enforcement capacity, which is presently almost non-existent.

(e) The inclusion in economic policies of the consideration of environmental and economic costs associated with land degradation. This is of particular relevance, for example, in regards to the contribution of users for the adequate administration of water resources and the protection of basins.

(f) In some countries of the region adequate mechanisms are required in order to integrate the territories with indigenous communities to global planning linked to the control of degradation and desertification.

(g) Likewise, in other countries like Colombia for example, we can observe the problem generated by areas under the control of guerrilla groups that block access to governmental agencies.

At the level of every province, state, or any other administrative unit under the national level, the priority needs include:

(a) The availability of an executive coordination mechanism that can insure compliance with national strategies I, as well as insuring the capacity for integration with regional agreements.

(b) In more specific terms, it is necessary to achieve coordination with the educational, research and extension regional bodies, as well as those in charge of the administration of financial policies and regional planning, when they exist.

(c) The capacity to intervene in extreme or urgent situations in an efficient and rapid way is also required. This includes case of severe degradation, as for example is the erosion of mountain sides which threatens complete water systems. This situation presently occurs with great frequency on the eastern mountainsides of the Andes, from Colombia to Argentina, particularly in the most wet portions occupied by tropical forests.

5.4 Institutional Capacity Needs

At this level, the fundamental needs are as follows:

(a) Avoid institutional fragmentation of the administration of land use planning and the administration of natural resources. Throughout Latin America and the Caribbean there is an endless number of institutions linked to the subject, which have little or no coordination.

(b) Avoid a disconnect between institutions linked to the subject of desertification and the financial bodies and political decision-makers.

(c) Stimulate an effective connection between application governmental bodies and research and development sectors.

5.5 Capacity Needs at the Individual Level

The primordial needs at the individual capacity and competence level include:

(a) Achieve at an individual level, the understanding that desertification and land degradation is a critical problem for Latin America and the Caribbean. As it has been expressed previously, for the vast majority of inhabitants of the region the problem does not exist or it has little importance. Considerable exceptions are constituted in the most developed agricultural regions, as in the Pampas from Argentina, Uruguay and Brazil, where the introduction of conservationist agricultural practices has reached an enormous diffusion.

(b) This lack of perception, both at the level of the inhabitants of rural zones and those of the cities, is reflected, as it has been mentioned, in the low political priority of the subject. As a result, the problem only reaches political visibility when the level of degradation is obvious and it drifts towards a generalized impoverishment, as is the case of the Patagonian region in Argentina or the dry valleys in the Andes from Colombia to Argentina. At this level often times the damage is irreversible.

(c) Another prevailing need for the development of competence and capacity to combat desertification in Latin America and the Caribbean is the capacity of specialists and leaders with an appropriate theoretical and practical level, as well as the organization of an efficient extension system that can be within reach of all social levels.

(d) A third urgent aspect is poverty, which is related to the degradation deriving from subsistence livestock and agricultural activities. This problem is of particular relevance to the mountain regions both of Central America and South America, since it ends in violent erosion processes of slope and sedimentation in river courses, which in turn alters the hydrological régime of the system. Another aggravating factor in linked to the problem of land tenure, which is very generalized in most arid and semiarid areas of the region.

(e) Finally, in many countries in Latin America and the Caribbean there is a need for the development of adequate techniques and productive model that could be used at the level of individual corporations of various economic and cultural levels. This involves the training of researchers and continuing education experts that can design and propagate such techniques in an efficient way.

5.6 Current Efforts to Address Capacity Needs

In various countries of the region there are focal points for the development of actions on the subject of desertification. There also have been developed national reports and documents that tend to achieve a national strategy. Even though the reports and surveys do not provide sufficient information about the subject, everything seems to indicate that in general there has not been progress in a substantial form in regards to concrete and operative measures in the field.

5.7 Lessons Learned

(a) Public and political perception of the process of land degradation is deficient, as well as the ideal of its incompatibilities.

(b) Control of land degradation should be focused rather from the point of view of economic incentives than from solely restrictive regulation. For this, the concept of price and costs of natural services must be introduced. For example, the fact that the price of water in the region's cities does not include the cost of maintaining river basins and their vegetation coverage means both a subsidy and an enormous distortion of the concept of sustainable use. If these factors are no recognized, it is improbable that the country will develop the necessary capacity and competence for the conventions to be effective.

(c) It is very difficult to implement environmental conventions in general and those of desertification in particular if there is no effective form of territorial ordering and land use planning. These must not only include punitive forms of control but also, and most especially, economic incentives and of other type that facilitate and encourage sustainable practices.

(d) The excessive fragmentation and bureaucratization of the administration of conventions, both at international and national levels, is negative and should be recognized, studies and corrected. The isolation and institutional separation in the implementation of climate change, land degradation, and biodiversity conventions are not totally adequate in Latin America and the Caribbean, since they carry and excessive duplication of efforts, and also take away operationality at the moment of their implementation. Furthermore, it does not facilitate the holistic focus necessary for the conservation and sustainable use of the ecoregions of the region. The sectoral and thematic divisions also prevent the search for compatibilities and increase the difficulties in conflict solving. It is crucial to integrate the concept of environment and development. The concept of sustainability must reflect the idea that environmental protection can be made compatible with development, but not in the way that

the latter has been laid out to date. For an effective implementation of the conventions, economic policies must be an instrument for guaranteeing the sustainability of ecosystems and natural resources. If this objective is not reached, it is very probable that the conventions will no reach the proposed objectives.

(e) At the institutional level, it must be considered that the existing institution rarely adapts to the complexities required by the management of ecosystems o to new advances in our understanding of them. It is necessary for new institutions and mechanisms to be designed to allow a much more integrated approach to the management of natural resources, where scientific communities, local communities and the civilian society have adequate representation.

(f) At the international level, it would be necessary for international financing bodies to have a unified criterion in regards to the effective application of conventions, even in those programs and systems of strictly economic nature, guaranteeing no direct or indirect incentives be provided to activities that are non sustainable or degrading to natural systems.

CHAPTER 6:SYNTHESIS AND CONCLUSIONES

When attempting a synthesis of the needs for environmental capacity development, a variety of demands are laid out which in great measure reflect the diversity of ecosystems, cultures, values and links of the region. The diverse viewpoints expressed in the surveys and consulted documentation makes a rigorous classification difficult each need, each proposal has its relative value and definitely prevents a reductionist prioritization.

Some needs are manifested at various levels, combining systemic, institutional and individual elements. This interactivity, combined with the differing interpretations of the capacity dimensions which were offered by the surveyed, precludes a rigid segregation. Instead, the challenge becomes one of detecting tendencies, key concepts and shared visions which link these dimensions and provide the basis for a regional consensus, in order to formulate relevant programs.

Having said that, the needs and options identified by three diagnostics climate change, land degradation and biodiversity tend to highlight the systemic level of capacity development. This tendency reflects, in part, a general recognition of the influence exerted by the systemic on many factors limiting institutional and individual capacity. And also a perception that many of the institutional strengthening projects that focussed on purely technical issues, have had limited impact in other strategic sectors that influence policy decisions and to great extent determine the state of the environment.

It is worth emphasizing that these conclusions cover general trends that are manifested in varying degrees among the regions countries. Therefore, the formulation of specific actions to attend the identified needs should start from a more profound assessment exercise in each country, in collaboration with the governmental entities charged with implementing the Conventions.

6.1 Priority Needs for the Development of Systemic Capacities in Environmental Administration

6.1.1 A key regional priority is the need for an integrated environmental management system, effectively linking the policy, legal and institutional dimensions.. This will require the strengthening of mechanisms to initiate dialogues, seek consensus and integrate environmental considerations within sectoral policies and development plans.

There are functional gaps and overlaps that prevent the consideration of environmental criteria within sectoral policies and development programs. Various contexts influence this situation: The institutional and legal sectoralization of natural resources forests, fisheries, water, soils, mining, energy, etc.- discourages integrated planning. The globalization of neo-liberal economic policies has in many cases encouraged a short-term and basically extractive vision of development. Given the conditions of poverty and underemployment faced by the much of the

Latin American population, national governments are often prompted to adopt rapid growth policies without adequately considering their environmental impacts. Such conditions offer an unfavorable framework for integrated environmental management.

Countries from the region have taken important steps towards developing a new institutional framework based on more inclusive systems, but this trend is generally incipient and must be consolidated. Intersectorality is still a critical need. Although the creation of environmental units within line ministries has helped establish linkages, these units are often weak due to technical and financial deficiencies. The recent tendency to supplement conventional environmental authorities (ministries, secretariats) with intersectoral instances (as is the case of the National Commissions on Sustainable Development) represents a positive contribution towards the goal of integration. In many countries such commissions have managed significant consultative processes, generating shared visions that reflect the spirit of Agenda 21. Nevertheless, many of these commissions are essentially ad hoc groups created by decree, and therefore, lacking permanent legal status. This situation generates institutional and budgetary uncertainty, weakening the credibility of commissions which often depend on international projects and funding in order to survive.

Despite important advances achieved during recent years, the prevailing legal/regulatory environmental framework tends to be incomplete and inconsistently applied.

Environmental legislation is often recent in creation, incomplete in scope and applied inconsistently. The diagnosis of climate change indicated that the legal frameworks are non-existent, inadequate, partial, incomplete or inapplicable...."1 ; in regards to land degradation, the capacity of application of laws is almost non-existent.2 The chapter on biodiversity indicates that though there have been advances in environmental legislation (updating control instruments, introducing economic and self-regulatory incentives, incorporating participatory mechanisms, establishing environmental impact levels), the resistance of public bureaucracies to lose their discretion in making decisions, combined with the opposition of privileged interest groups, prevents effective application.3 The biodiversity section also notes the general absence of legislation addressing the commercialization of genetic resources from the region.

The three assessments coincide in recognizing the importance of incorporating the concept of environmental costs to macroeconomic policies. The control of environmental degradation should focus more on the perspective of economic incentives and not rely solely on restrictive regulations. This would include the concept of prices and costs for natural services (for example, establishing a price to the urban consumption of water that finances the protection of hydrographic basins), among other measures. On the other hand, the need to strengthen control mechanisms, updating criminal legislation to penalize environmental crimes is also highlighted by the assessments.

6.2 Institutional Capacity Development Priorities and Needs

6.2.1 Despite substantive advances during the past decade, environmental institutions still tend to lack weight among strategic sectors and institutions that influence policy decisions.

During the last decade there have been significant institutional improvements. The creation of national environmental authorities across the region has clearly represented an important advance in promoting integrated environmental management. Nevertheless, such entities are often at an incipient stage of development, lacking resources, authority and links with other sectors. The objective of integrality is still far from being achieved. Institutional competitiveness and distrust can weaken environmental instances which, due to their recent creation and early stage of consolidation, lack the institutionality or political weight needed to exert influence towards other sectors. Resource allocations are often low in relation to other sectors, and the functions which are usually highlight coordination rather than direct execution lack weight against established institutions and interests. Eight years after Rio, many environmental institutions are still paying for floor rights.

6.2.2 There is a broad range of technical strengthening needs, which are expressed mainly at the institutional and individual levels. Some of these needs are important for the three thematic areas of GEF.

The assessments identify a wide variety of technical needs. Although the volume of needs that were identified discourages detailed listing, several recur transversally between climate change, biodiversity and land degradation. Therefore, they offer starting points for an integration of technical capacity needs shared by the Conventions.

One need expressed frequently is that of knowing where we are and where we are going. This need reflects the poor regional capacity to generate (i) inventories and addressing the degree of present vulnerability and options, (ii) medium/long term scenarios to prioritize control and mitigation actions, (iii) accessible and updateable indicators for measuring environmental impact, and (iv) effective land use/zoning schemes based on environmental critieria. Applying the terms used by chapter on climate change, this need is about creating an installed capacity of comprehension, observation, measurement and adaptation.1

On the other hand, there is a common need to formulate new instruments for environmental management that can broaden links between institutions and sectors, promoting integrality within development policies. This task should be initiated by the national institutions responsible for implementing the conventions, and later broadened towards other key sectors. In order for this task to be feasible, the support of international development agencies (including the multilateral banks) and in particular that of civil society will be essential. Environmental issues need to be given greater attention during political-electoral debates, so that public awareness can be strengthened and the environmental record of elected officials can be audited by civil society.

6.2.3 The sustainability of environmental institutions necessarily depends to a large extent on their internal organization and budgetary solvency. These aspects must be considered in the designing of capacity development projects.

Another general need has to do with institutional feasibility and financial security of entities in charge of implementing and monitoring the Conventions. The dependence of some environmental institutions and programs, scientific commissions and NGOs on international cooperation projects exposes them to greater levels of vulnerability. In other cases, the main constraints are external and more of a organizational nature rather than technical: lack of resources to cover recurrent operative expenses, difficulties in retaining qualified personnel, absence of proper income sources, unfeasible hierarchical structures, competition for projects and donors. These factors weaken the ability of institutions to implement mandates, generate impacts or produce other forms of "added value.". They impose a routine of survival dynamics in which institutions gravitate from project to project without a long-term strategic vision.

6.3 Individual Capacity Development Priorities and Needs

6.3.1 It is necessary to change perceptions and attitudes at various levels of policy decision making.

The previous chapters emphasize the importance of broadening perceptions and changing attitudes in order to recognize the importance of the environment in its actual dimension. Though this perception starts from the individual level, it is pertinent to indicate that many of those surveyed essentially refer to a form of deep-seated systemic perception that influences the formulation of policies, the activities of institutions and the aspirations of civil society.

The assessments indicate a lack of political will and inadequate consideration of environmental issues within national plans and sectoral policies. The integrality required for successful environmental management is further weakened by the fragmentation of institutional mandates and the discontinuity of political cycles. Generally speaking, the concept of sustainability is not a relevant component within most sectoral policies.

In general terms, implementation strategies of Conventions do not influence policy decisions. Climate change is still not a national policy. Sporadic treatment is given in order to comply with some of the adopted commitments within the framework of the Convention, but without adequate continuity or depth. In the case of land degradation, the problem only reaches political visibility when the problem becomes critical and generates general impoverishment, e.g. the Patagonian region or the dry Andean valleys. Concerning biodiversity, conservation efforts lose momentum as a consequence of macroeconomic policies and sectoral policies which are not very friendly to biodiversity.1 In each case, the lack of communication between the scientific/environmental community and government technocracy is recognized as a fundamental constraint.

This lack of communication is nurtured from various sources: On the one hand, the current economic model and external debt pressures, encourage unsustainable practices that are based on a short-term, extractive view of development. One the other hand, many policymakers continue to perceive environmental conservation as a restriction to development, and therefore given low priority when strategic decisions are made. According to one of the assessments, persons and institutions linked to biodiversity are viewed in many political and economic circles as sentimental, illogical and nave. Meanwhile, environmentalists and their organizations remain relatively isolated from the economic and social mainstream, visualizing the world solely through the problems of contamination, extinction of species and ecosystem degradation.

The Conventions own structures reinforce this pattern. The fragmented and bureaucratic manner in which the Conventions are administered offers limited opportunities for institutional synergy, hence contributing to overlapping mandates and duplications of effort. This situation weakens national capacity and undermines the effectiveness of the Conventions by discouraging more integrative approaches.

It is necessary to sensibilize policymakers on the importance of these issues, given that the governments of the region bear primary responsibility towards the Conventions. In this sense, respondents from several countries have emphasized the need to generate a new institutional framework to coordinate the implementation of the Conventions - more in the sense of an enhanced institutional "vision" rather than the creation of new structures. According to many of those surveyed, this new vision could follow the general framework of a National Strategy for Sustainable Development based on dialogue and coordination between government, key sectors and civil society. In order for this to occur, the communication channels and flow of information among key stakeholders needs to be strengthened, including those at the provincial and municipal levels.

6.3.2 In order to achieve change, the enhanced participation of civil society in identifying environmental priorities, advocating conservation and monitoring the environmental commitment of government representatives is considered essential.

The levels of knowledge and public perception are poor and, reflecting the centralization of information, decline in provinces and rural townships. The lack of public perception reinforces the low political priority offered to environmental topics. This is the case with land degradation; for the majority of inhabitants of the region the problem simply does not exist or has little importance.

The dissemination and discussion of environmental issues among the general public is necessary if civil society is to assume a more substantive role - whether by demanding attention to priority needs, monitoring the performance of elected authorities or adopting its own initiatives. According to several respondents, this change in attitude should not limit itself to an enhanced environmental perception, but should ideally tend towards a transformation of individual values, towards a dematerialization of our concept of wellbeing.

The educational aspect is fundamental to encourage citizen participation. On the one hand one must look towards the future and incorporate environmental subjects in the educational curriculum, training educators; on the other hand, it is urgent to document and propagate successful experiences of sustainable development that have occurred in the region for its replication, using formal and informal pedagogical techniques. This new focus should recognize the traditional knowledge of indigenous cultures and traditional communities, product of centuries of cohabitation with the habitat, and integrate it to formal scientific knowledge.

The low public awareness reflects the lack of mechanisms for participation in the implementation of Conventions. In the case of climate change, there is no interaction or participatory processes in decision making. A similar situation occurs with other Conventions. Many of the surveyed agree on the need to strengthen environmental perceptions and create legal mechanisms for citizen participation at different levels. Some experiences (such as the Law of Popular Participation or the People Defense Counsel, among others) offer interesting guidelines that could be applied with an environmental focus.

The work that non-governmental organizations (NGOs) have been performing both in environmental awareness and the implementation of specific initiatives is widely acknowledged. At a more "upstream" level, NGOs can substantively contribute to the formulation of environmental policies as well as to their implementation. At a systemic level, this would include the strengthening of environmental networks and the creation of "entry points" for dialogue with the public sector; at an institutional level, a process of technical and analytical strengthening to help NGOs to improve the quality of their proposals.

The role of indigenous peoples in the protection of the environment, a function they have performed ancestrally, deserves better attention when formulating policies or allocating resources for conservation. Indigenous systems of resource management that are still preserved can be decisive in the protection of fragile ecosystems; especially when they are supported by communal land tenure systems. The role of indigenous peoples in protecting the environment is particularly important in isolated regions with high biodiversity levels, where government presence is weak.

The private sector is frequently absent in environmental initiatives. Its exclusion reflects and at the same time reinforces the notion of incompatibility between development and conservation. Nevertheless, the sustainability of markets depends to great extent on environmental security and the sustainable offer of natural resources. The globalization of trade can generate major opportunities for the transfer of clean technologies, the commercialization of renewable energy sources, and support for conservation activities through the promotion of green markets.

6.4 Lessons Learned

6.4.1 The conclusions suggest the need to introduce modifications in the way of designing and implementing environmental projects sponsored by international development agencies.

The findings expressed in the assessments seem to indicate that conventional approaches to capacity building - which have generally focussed on the technical strengthening of government environmental institutions - have often failed to impact policymaking levels or generate "ripple effects" across key sectors. With a few exceptions, they have been unable to sustain processes of change.

Part of the reason is due to the fact that, to a greater or lesser degree, projects create dependencies. The project cycle inhibits the consolidation of an institutional memory. The chapter on climate change acknowledges that many environmental institutions work under hiring systems that depend on international funding. Under such conditions, the ending of a project and the termination of external funding means the interruption of activities and departure of specialized staff. In many cases, international funding is postponed when governmental counterpart funds fail to materialize due to financial restrictions. In many of the region's academic and scientific institutions, externally-funded projects claim to generate universal researchers. Nevertheless, in many cases such projects responds more to the interests of those who possess the dominant research capacity and state of the art technology; priority research topics are generally determined by donor. In the case of biodiversity, the creation of national environmental funds has strengthened the capacities of many NGOs and community -based organizations (CBOs). Nevertheless, the impact of such initiatives has been restricted both by budgetary limitations as well as technical and administrative deficiencies in their implementation.

Projects should have a greater influence in democratizing the access to information. In the case of climate change, a restriction is the non-existence of didactic material in national languages and the lack of resources for its translation countries with languages that are not official to the convention must take on very high costs to propagate the subject and accomplish an adequate involvement from the scientific society. The fact that the majority of bibliographical references are written in the English language constitutes an important disadvantage for many countries, and it generates a very considerable asymmetry of information.1 To a greater or lesser degree, this reality also reflects the situation of Latin American countries in dealing with the other Conventions.

A key challenge involves "how to" generate capacity development processes applying the project modality. For this it will be necessary to integrate dynamics: On the one hand, adapting the short term cycle of the project (which usually varies between 3-5 years) to the medium/long-term processes that are often indispensable to develop, consolidate and sustain capacity improvements. In many cases a commitment of 7-10 years will be needed, supported by periodic evaluations to gauge the degree of progress and to introduce adjustments to the implementation process. In order to optimize the transfer and local appropriation of knowledge, a gradual withdrawal of

external technical assistance is advisable, instead of the abrupt termination. Other options could include the periodic programming of post-project missions to evaluate the application of capacity improvements and provide techical support in a selective and decreasing manner; and more opportunities for horizontal cooperation and exchange of experiences among the countries of the region. Performing brief capacity assessments of key stakeholders at an early stage would help adjust project design to their internal dynamics and learning capacity.

These suggestions are tentative, and should be analyzed in greater depth with the national environmental authorities, and especially with those responsible for implementing the Conventions, during the CDIs next phase.

6.4.2 The importance that the assessments assign to systemic factors should be considered when formulating project proposals.

When projects are able to link the systemic and individual dimensions with the institutional level of capacity development, they will have better impact and sustainability prospects. The three assessments highlight the importance of changing attitudes in order to establish a favorable framework for the compliance of Conventions. If this need is recognized, future GEF projects should introduce provisions for dialogue processes and seek partnerships with new actors - in legislatures, in strategic ministries, in the corporate sector, in academic institutions, in the communications media, and especially among civil society.

Other types of knowledge are needed aside from the "strictly environmental": Pedagogics, journalism, social communications, law, finance and global economy can offer significant contributions, as can the political ability to reach decision making levels. Instead of concentrating resources on technical assistance and the supply of experts, projects can also broaden their operative framework to support awareness-raising and medium/long-term change processes.

6.4.3 Many of the needs identified by the assessments are more closely linked to wider issues of environmental management and sustainable development, than to specific components of the Conventions

To a large extent the surveys and national studies recognize the need to broaden the parameters of GEF projects, in order to strengthen intersectoral linkages and "mainstream" the consideration of environmental variables within macroeconomic policies and development plans.

Currently, this integrated focus tends to override GEFs mandate which is largely Convention-specific. It therefore becomes necessary to ensure the participation of other donors, from within the UN system as well as among other multi/bilateral sources. Though these partnerships are feasible and have generated positive impacts in various projects supported by the GEF, the monitoring requirements, financial management, documentation and coordination needs become more complex as the institutional actors increase. The counterpart requirements can absorb

considerable time and staff resources, generating an elevated opportunity cost for the national institutions involved in project execution.

In the context of the CDI and its future phases, it will be important that GEF consider new mechanisms to broaden is scope of action, in such a way as to support initiatives of an integral nature proposed by the countries of the region. To the extent that this is feasible, the GEF also must try to make its documentation, administrative, monitoring and evaluation requirements compatible with those of other donors supporting environmental management, in order to facilitate inter-institutional collaboration and the consolidation of strategic medium/long-term partnerships.

BIBLIOGRAPHY

Academia Colombiana de Ciencias Exactas, Físicas y Naturales – GTZ. 1990. Inventario preliminar de gases de efecto invernadero. Fuentes y sumideros: Colombia 1998.

Aguilar, Grethel. 1998. "Análisis del sistema de evaluación ambiental en Centroamérica". En Memorias del primer seminario internacional: La evaluación ambiental en el contexto del desarrollo. Editado por el Ministerio de Medio Ambiente de Colombia. Santafé de Bogotá: ICFES, MMA.

Alvarez Icaza Pedro. 1998. "Desarrollo y perspectivas de la evaluación ambiental en México". Memorias del primer seminario internacional: La evaluación ambiental en el contexto del desarrollo. Editado por el Ministerio de Medio Ambiente de Colombia. Santafé de Bogotá: ICFES, MMA.

Banco Interamericano del Desarrollo (BID). 1996. Marco jurídico e institucional para el manejo ambiental del Cono Sur. Diciembre de 1996, Washington, D.C.

Banco Interamericano del Desarrollo (BID). 1998. Informe del Foro de los Ministros del Medio Ambiente de América Latina sobre las tendencias y retos de la gestión ambiental en la región. Washington, D.C.: BID.

Banco Mundial. 1992. Informe sobre el desarrollo mundial 1992: Desarrollo y medio ambiente. Washington, D.C.: Banco Mundial.

Bejarano, Jesús A. 1997. "Un marco institutcional para la gestión del medio ambiente y para la sostenibilidad agrícola". Compilado por Reca, Lucio G., y Echeverría, Rubén G., Washington, D.C.: BID.

Bolivia. 1997. Ministerio de Desarrollo Sostenible de Bolivia. Primer informe nacional de Bolivia del Convenio sobre la Diversidad Biológica.

Botero, Luis F. 1998. "Estado, cuestión agraria y movilización india en Ecuador", en Nueva Sociedad, No. 153, Caracas.

Brañes, Raúl. 1991. Institutional and Legal Aspects of the Environment in Latin America, Including the Participation of Non-governmental Organizations in Environmental Management. Washington, D.C.: Inter-American Development Bank.

Brañes, Raúl. 1996. La recepción en los sistemas jurídicos de los países de América Latina y el Caribe de los Compromisos Asumidos en la Conferencia de las Naciones Unidas sobre el Medio Ambiente y el Desarrollo. México, D.F.: PNUMA, PNUD.

Brazil. 1997. Presidency of the Republic. Brazil, First National Report to the Conference of the Parties (COP) of the Convention on Biological Diversity.

Bucher, E.H. and P.C. Huszar. 1996. Project Evaluation and Economic Development on Using Benefit-Cost Analysis to Evaluate Hidrovia. Ecological Economics 19: 201-203.

Bucher, E.H. and P.C. Huszar and C.S Saravia Toledo. 1997 Sustainable Land Use Management in the South American Chaco. Advances in GeoEcology 31: 905-910. 1997.

Bucher, E.H., Castro, G., and V. Floris. 1995. Freshwater Ecosystem Conservation: Towards a Comprehensive Water Resources Management Strategy. Inter-American Development Bank. Environment Division. Strategy Research Paper ENV-114.

Bucher, E.H. 1983. Management for Sustainable Biodiversity. Page 320 in: Global Biodiversity Assessment (V.H. Heywood and R.T. Watson, eds.). UNEP. Cambridge Univ. Press. Cambridge.

Bucher, E.H. 1982. Chaco and Caatinga: South American Arid Savannas, Woodlands and Thickets. Pp. 48-79 in: Huntley, B. & B Walker (eds). Ecology of Tropical Savannas. Ecological Studies No. 42, Springer Verlag.

Bucher, E.H. and P.C. Huszar and E.H. Bucher. 1995. Sustainable Land Use Management in the South American Chaco. Advances in GeoEcology 31: 905-910.

Bucher, E.H. 1992. Institutionalization of Ecological Knowledge in Argentina. Ecology International 21: 65-74. 1989. Bucher, E.H. Conservación y desarrollo en el neotrópico: en búsqueda de alternativa. Vida Silvestre Neotropical 2:3-6.

Chile. 1997. CONAMA. Gestión Ambiental del Gobierno de Chile.

CMNUCC, Convención Marco sobre el Cambio Climático.

CMNUCC, El Protocolo de Kioto de la Convención Marco sobre el Cambio Climático.

Colombia. 1998. Ministry of the Environment. Progress in the Implementation of the Convention on Biological Diversity.

Comisión de Desarrollo y Medio Ambiente de América Latina. 1992. Nuestra Propia Agenda. Nueva York: BID, PNUMA.

Comisión Económica para la América Latina, CEPAL. 1998. Instrumentos económicos para la gestión ambiental en América Latina y el Caribe. Ciudad de México: PNUMA, CEPAL.

CONAMA (1998) Una política para el desarrollo sustentable.

CONAMA, Primera comunicación nacional. Bajo la Convención Marco de las Naciones Unidas sobre el Cambio Climático, Chile, 1999.

CONAMA, Proyecto: Estrategia nacional para la prevención, mitgación y adaptabilidad al cambio climático. Guatemala, December 1999.

Contreras, Arnoldo. 1999. “Las políticas de bosques en cinco países andinos”. Santafé de Bogotá: Centro Andino para el Desarrollo Sostenible. (Sin publicar.)

Cuba. 1997. Estrategia Nacional para la Diversidad Biológica.

Dassman, R., Milton, J.P. and P.H. Freeman. 1974. Ecological Principles for Economic Development. John Wiley and Sons Ltd.

Dixon-Hommer, Thomas. 1999. Environment, Scarcity and Violence. New Jersey: Princeton University Press.

Dourojeanni, Marc J. 1999. “The Future of Latin America’s Natural Forests,” in Forest Resource Policy in Latin America. Edited by K. Keipi. Washington, D.C.: Inter-American Development Bank.

Ecuador. 1997. Instituto Ecuatoriano Forestal y de Areas Silvestres. (1998). Informe interino de la secretaría del Convenio de Diversidad Biológica sobre la aplicación del Artículo 6.

El Salvador. 1997. Ministerio del Medio Ambiente y Recursos Naturales, MARN. Primer informe de país. Proyecto: “Formulación de la estrategia nacional, plan de acción y primer informe de país sobre diversidad biológica”.

FMMA, Comité Técnico Interagencial del Foro de Ministros de América Latina y el Caribe. 2000. “Fundamentos ambientales y bioregionales de la planificación”.

Foro Nacional Ambiental. 1999. “Bosques y conflicto”. Santafé de Bogotá: en proceso de publicación.

Gaceta Oficial del Acuerdo de Cartagena. 1996. Decisión 391: Régimen común sobre el acceso a los Recursos genéticos.

GAIA, CEREC. 1992. Derechos territoriales indígenas y ecología en las selvas tropicales de América. Santafé de Bogotá.

Gallopin, G.C. (Compilador). 1995. El futuro ecológico de un continente. Ciudad de México: fondo de Cultura Económica.

Global Environment Facility. 10 Cases of Technology Transfer. June 2000.

Goldemberg, José and Walter Reid. Promoting Development while Limiting Greenhouse Gas Emissions. Trends & Baselines. 1998.

Greenhouse Gas Emissions. Mitigation Assessment. Venezuela. Caracas, 1996.

Gutman, Pablo. 1998. “Politics and Policies in Venezuela’s Environmental Management” in Ecological Policy and Policies in Developing Countries, edited by Uday Desay. New York: State University of New York Press.

Guyana. Environmental Protection Agency, Office of the President (1999), First National Report to the Conference of the Parties (COP) of the Convention on Biological Diversity.

Herrera, Carlos. 1998. “Desarrollo y perspectivas de la evaluación ambiental en Colombia”. En Memorias del primer seminario internacional: La evaluación ambiental en el contexto del desarrollo. Editado por el Ministerio de Medio Ambiente de Colombia. Santafé de Bogotá: ICFES, MMA.

Hommer-Dixon, Thomas F. 1999. Environment, Scarcity, and Violence. New Jersey: Princeton University Press.

Hurtado, Adriana y Sánchez, Enrique. 1992. “Situación de propiedad, aprovechamiento y manejo de los recursos naturales en los territorios indígenas en áreas bajas de selva tropical” en Derechos territoriales indígenas y ecología en las selvas tropicales de América. Editado pro Fundación GAIA. Santafé de Bogotá: GAIA, CEREC.

IDEE/FB, Economics of Greenhouse Gas Limitations. Country Studies Series. Argentina. Buenos Aires, 1999.

IDEE/FB, Las necesidades de capacitación y la planificación energética. 1988.

IDEE/FB-PNUD/SECYT, Evaluación de la vulnerabilidad de la costa argentina al ascenso del nivel del mar. Diciembre de 1997.

IDEE/FB-PNUD/SECYT, Inventario de gases de efecto invernadero. Diciembre de 1997.

IDEE/FB-PNUD/SECYT, Mitigación de gases de efecto invernadero. Diciembre de 1997.

IDEE/FB-PNUD/SECYT, Vulnerabilidad y mitigación relacionada con el impacto del cambio global sobre la producción agrícola. Diciembre de 1997.

Instituto Meteorológico Nacional. Inventario nacional de fuentes y sumideros de gases de efecto invernadero en Costa rica. Septiembre de 1995.

International Energy Agency. Energy Policies of IEA Countries. 1999 Review.

International Energy Agency, The Link between Energy & Human Activity, 1997.

IPCC WMO/UNEP, Climate Change 1995: Impacts, Adaptations and Mitigation. Summary for Policy-makers.

IPCC-OMM/WMO PNUMA – Osvaldo Canziani y Sandra Díaz. Impactos regionales del cambio climático: Evaluación de la vulnerabilidad. América Latina, 1998.

Janick, M. y Weidner, H. (eds.). 1997 National Environmental Policies. Berlin: Springer.

Jaramillo, Carlos Felipe and Kelly, Thomas. 1999 "Deforestation ad Property Rights" in forest Resource Policy in Latin America. Edited byK. Keipi. Washington, D.C.: Inter-American Development Bank.

KEEI & KREA, 1998 Seoul Conference on Energy Use in Manufacturing: Energy Savings and CO2 Mitigation Policy Analysis. Seoul, Korea, 19-20 May 1998.

Keipi, Kari (ed.). 1999. Forest Resource Policy in Latin America. Washington, D.C.: Inter-American Development Bank.

Kemf, Elizabeth (ed.). 1993. The Law of the Mother: Protecting Indigenous Peoples in Protected Areas. San Francisco: Sierra Club Books.

Keohane, Robert et al. 1993. "The Effectiveness of international Environmental Institutions." In Institutions for the Earth: Sources of Effective International Environmental Protection. Edited by Hass, Peter et al. Cambridge: The MIT Press.

Lebre La Rovere, Emilio. Evaluation Report of Project GEF/2200-96-15 Economics of Greenhouse Gas Limitations – Phase I: Establishment of a Methodological Framework for Climate Change Mitigation Assessment. February 2000.

Lineamientos generales de estrategias energéticas para mitigar el cambio climático – MARN – Proyecto.

Londoño, Juan Fernando y otros. 1997 Sociedad civil, control social y democracia participativa. Santafé de Bogotá, FESCOL.

Marez, Carlos Fernando. 1992. "Brasil, Amazonia e indios: el derecho en Jaque" en Derechos territoriales indígenas y ecología en las selvas tropicales de América. Editado por Fundación GAIA. Santafé de Bogotá: GAIA, CEREC.

MARN –MEM- US Country Studies Program, Venezuelan Case-Study to Address Climate Change.

México. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, CONABIO. (1997). Situación actual sobre la gestión, manejo y conservación de la diversidad biológica de México. Primer reporte nacional de las Partes de Convenio sobre la Diversidad Biológica.

MINAE-SINAC-INBio, Estrategia nacional de conservación y uso sostenible de la biodiversidad. Costa Rica. Resumen. 1999.

Ministerio de Desarrollo Sostenible y Medio Ambiente – Secretaría Nacional de Recursos Naturales y Medio Ambiente. Inventario de emisiones de gases de efecto invernadero de origen antropógeno. La Paz, Bolivia, 1996.

Ministerio de Medio Ambiente de Colombia. 1998 Memorias del primer seminario internacional: La evaluación ambiental en el contexto del desarrollo. Santafé de Bogotá: ICFES, Ministerio de Medio Ambiente de Colombia.

Ministerio de Medio Ambiente y Recursos Naturales Renovables – Ministerio de Minas y Energía – UNEP – US Country Studies Program, Preliminary National Greenhouse gas Inventory: Venezuela. January 1995.

Ministerio de Medio Ambiente. Country Studies Series: Argentina – 1999.

Ministerio de Medio Ambiente. Estrategia nacional para la reducción de las emisiones de gases de efecto invernadero de Honduras. Resumen ejecutivo. (Borrador de discusión).

Ministerio de Medio Ambiente, México. Primera comunicación nacional ante la convención Marcio de las Naciones Unidas sobre el Cambio Climático. Noviembre de 1997.

Ministerio de Recursos Naturales, energía y Minas – Instituto Meteorológico Nacional. Inventario nacional de fuentes y sumideros de gases de efecto invernadero en Costa Rica. Costa Rica, Septiembre de 1995.

Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente – Dirección Nacional de Medio Ambiente, Unidad de Cambio Climático. Inventario de gases de efecto invernadero 1990. Uruguay, marzo de 1997.

Ministerio del Medio Ambiente y Recursos Naturales, MARN. (1999). Estrategia nacional de biodiversidad.

Ministry of the Environment, Brazil. 1997. “Brazil, first National Report to the Conference of the Parties (COP) of the Convention on biological Diversity,”

Naciones Unidas. Primer informe regional “Geo 2000 américa latina y el Caribe – Perspectivas sobre el medio ambiente”.

OECD – OCDE, Principles in Practice, 1996.

OECD. 1997a. Economic Globalization and the Environment. Paris OECD.

OLADE/CEPAL/GTZ. Energía y desarrollo sustentable en América Latina y el Caribe: Enfoques para la política energética. Quito, Ecuador, 1997.

Olguín, Gabriela. 1998. “Estado nacional y pueblos indígenas: El caso de México”. En Nueva Sociedad, No. 153, Caracas.

ONU, 1997. Informes nacionales Río + cinco. Nueva York: Naciones Unidas (sin publicar).

Panamá. 1998. República de Panamá (1998). Primer informe de la riqueza y estado de la biodiversidad de Panamá.

Paraguay, República del. Informe nacional para la implementación de la Convención Internacional de las Naciones Unidas de la Lucha contra la Desertificación y la Sequía (CCD).

Peru. 1997. National Report on Biological Diversity in Peru, 1997.

Pincen, Thomas and Finger, Matthias. 1994. Environmental NGOs in World Politics. London: Routledge.

PNUD ELS/97/G32 – Primera comunicación nacional – El Salvador – setiembre 1999.

PNUD, 21 Capacités. Sommaires des programmes du Groupe des Capacités 21. Bolivie.

PNUD, 21 Capacités. Sommaires des programmes du Groupe des Capacités 21. Chili.

PNUD, 21 Capacités. Sommaires des programmes du Groupe des Capacités 21. Mexique.

Ponce de León, Eugenia. “Temas de derechos comunitarios ambientales en el marco de la integración subregional andino”. Santafé de Bogotá (sin publicar).

Programa de las Naciones Unidas para el Medio Ambiente, PNUMA. 1994. Desarrollo sostenible y reforma del estado en América Latina y el Caribe. Ciudad de México: El Colegio de México.

Programa de las Naciones Unidas para el Medio Ambiente, PNUMA. 1994. Legislación ambiental en América Latina y el Caribe. 2 tomos. Nueva York: PNUMA.

Programa de las Naciones Unidas para el Medio Ambiente, PNUMA. 1996. Estudio comparativo de los diseños institucionales para la gestión ambiental en los países de América Latina y el Caribe. UNEP/LAC-IGWG.X/Inf.9. 7 de octubre de 1996.

Reed, David. 1992. Structural Adjustment and the Environment. London: WWF, Earthscan.

RLB, Red Latinoamericana de Bosques. Iniciativa conjunta de ONG y organizaciones de pueblos indígenas. 2000. “Proyecto monitoreo de la implementación de la política internacional sobre bosques: propuestas de acción del panel intergubernamental de bosques”. Sin publicar.

Rodríguez Becerra, Manuel. 1998c. “Ecología y medio ambiente.” Tirado, Alvaro (ed.). Nueva historia de Colombia, Vol. IX. Editorial Planeta, Santafé de Bogotá.

Rodríguez Becerra, Manuel.; biller, Dan et al. 1998b. “Forest Policy Initiatives and Opportunities in the Americas,” in Journal of World forest Resource Management, 1998, Vol.9, pp. 51-72.

Rodríguez Becerra, Manuel y Uribe, Eduardo. 1996. Instrumentos económicos para la gestión ambiental en Colombia. Santafé de Bogotá: FESCOL, CEREC.

Rodríguez Becerra, Manuel. 1994. La política ambiental de fin de siglo. Santafé de Bogotá, FESCOL, CEREC.

Rodríguez Becerra, Manuel. 1997. “La Cumbre de Bolivia sobre el desarrollo sostenible: ¿Cumplieron los países de las Américas con los acuerdos alcanzados?” La Paz: Cuadernos de la Fundación Milenio.

Rodríguez Becerra, Manuel. 1998d. La reforma ambiental en Colombia. Snatafé de Bogotá:Tercer Mundo-FES.

Roldán, Roque. 1996. “Anotaciones sobre la legalidad y reconomcimiento de los derechos territoriales en los países amazónicos,” en Naciones Unidas: “Informe del seminario de expertos sobre las experiencias prácticas con respecto a los derechos y reinvindicaciones relativos a tierras indígenas”, New York: Doc. No. E/CN.4/1996/6/Add.1.

Secretaría de Recursos Naturales y Desarrollo Sustentable. Inventario de gases de efecto invernadero de la República Argentina –Año 1997. Buenos Aires, octubre de 1999.

Secretaría de Recursos Naturales y Desarrollo Sustentable. Revisión de la primera comunicación del gobierno de la República Argentina. Según la Convención Marco de las Naciones Unidas sobre el Cambio Climático. Buenos Aires, octubre de 1999.

Silva, Eduardo. 1997. “Chile,” in National Environmental Policies. Eds.: Janicke, M. and Weidner, H. Berlin: Springer.

Southgate, D. and M. Whitaker. 1994 Economic Progress and the Environment. On Developing Countries Policy Crisis. Oxford University Press.

The Nature Conservancy. 1999. Agua: Valoración del servicio ambiental que prestan las áreas protegidas. Arlinton:TNC.

Trellez, Eloisa. Compiladora. 1997. Legislación y gestión ambiental en los países andinos. Lima CIEDLA/FKA-Caleidos.

Tresierra, Julio C. 1999. “Rights of Indigenous Peoples over Tropical Forests Resources,” in Forest Resource Policy in Latin America. Edited by K. Keipi. Washington, D.C.: Inter-American Development Bank.

UNDP. Approaches to Sustainability. Capacity 21. Learning for Real Bringing Sustainable Development Planning Down to Earth. N° 5, November 1998.

UNDP, Capacity 21. 1999 Annual Report. Local Action, National Impact.

UNDP. Capacity Building for Environmental Management. A Best Practices Guide. October, 1999.

UNDP. 1997. Synergies in National Implementation: The Rio Agreements. New York: UNDP.

UNEP. 1994. Convention on Biological Diversity: Text and Annexes.

UNEP. 1997. The Biodiversity Agenda: Decisions from the Third Meeting of the Conference of the Parties to the Convention on Biological Diversity. Buenos Aires, Argentina, 4-15 November 1996.

UNEP. 1998. A Programme for change: Decisions from the Fourth Meeting of the Conference of the Parties to the convention on Biological Diversity. Bratislava, Slovakia, 4-15 May 1998.

UNEP. 2000. Decisions Adopted by the Conference of the Parties to the Convention on Biological Diversity. Nairobi, Kenya, 15-26 May 2000.

UNEP/IUCC. United Nations Framework Convention on Climate Change. Text.

UNFCCC. Capacity Building in Developing Countries (Non-Annex I Parties). Compilation and Synthesis of Information on Capacity-Building Needs and Priorities of Developing Countries (Non-Annex I Parties). 19 May 2000.

UNFCCC. Capacity Building in Developing Countries (Non-Annex I Parties). Compilation and Synthesis of Information from Annex II Parties and relevant Intergovernmental Organizations on their Capacity-Building Activities and Programmes. 17 May 2000.

UNFCCC. Mechanisms Pursuant to Articles 6, 12 and 17 of the Kyoto Protocol. Synthesis of Proposals by Parties on Principles, Modalities, Rules and Guidelines. 24 October 1999.

UNFCCC. Report on the Progress in the Review by the Global Environment Facility of its Enabling Activities, its Capacity-Building Activities in its Normal Work Programme, its Country Dialogue Workshops and its Capacity Development Initiative. 18 May 2000.

UNFCCC. Submissions from Parties included in Annex I but not included in Annex II to the Convention. 11 May 2000.

UNFCCC. Submissions from Parties included in Annex II to the Convention. 11 May 2000.

UNFCCC. Submissions from Relevant Intergovernmental Organizations on their ongoing Capacity-Building Activities. 11 May 2000.

UNITED NATIONS, UNDP: Country Cooperation Framework and Related Matters First Country Cooperation Framework for Belize, 1997-2000. 4 October 1996.

UNITED NATIONS, UNDP: Country Cooperation Framework and Related Matters First Country Cooperation Framework for Colombia, 1997-2000. 30 December 1996.

UNITED NATIONS, UNDP: Country Cooperation Framework and Related Matters First Country Cooperation Framework for Guatemala, 1998-2000. 17 November 1997.

UNITED NATIONS, UNDP: Country Cooperation Framework and Related Matters First Country Cooperation Framework for Guyana, 1997-1999. 1 July 1997.

UNITED NATIONS, UNDP: Country Cooperation Framework and Related Matters First Country Cooperation Framework for Panama. 30 December 1996.

United Nations. 1997. Critical Trends, Global Change and Sustainable Development. New York: United Nations.

Uruguay. 1997. Reporte de Avance sobre el Desarrollo de la Estrategia Nacional sobre Diversidad Biológica y su Plan de Acción en la República Oriental del Uruguay.

Ward, Susan (ed.). 1997. La Empresa Sostenible en américa Latina: estudios de caso. Washington, D.C.: World Resources Institute, WRI.

World Bank. 1996 Market Based Instruments for Environmental Policy-Making in Latin America and the Caribbean. Lessons from Eleven Countries. Washington, D.C.: World Bank.