



CAPACITY DEVELOPMENT INITIATIVE

Country Capacity Development Needs and Priorities

Regional Report for Asia Pacific

A. H. Zakri
Shekhar Singh
Jose T. Villarin

September 2000

GEF - UNDP Strategic Partnership

Table of Contents

CHAPTER 1: INTRODUCTION.....	1
1.1 BACKGROUND AND OBJECTIVES	1
1.2 CONCEPTUAL FRAMEWORK FOR CAPACITY DEVELOPMENT	1
1.3 METHODOLOGY	2
1.3.1 <i>Questionnaires to Convention focal points</i>	2
1.3.2 <i>Compilation of background materials and documents</i>	2
1.3.3 <i>In-country studies in selected countries</i>	3
1.3.4 <i>Regional Workshop</i>	3
CHAPTER 2: STATUS AND CHALLENGES IN MANAGING THE ASIA PACIFIC ENVIRONMENT.....	5
2.1 ENVIRONMENTAL FOUNDATIONS FOR ASIA PACIFIC'S DEVELOPMENT	5
2.2 ISSUES AND PRIORITIES IN BIOLOGICAL DIVERSITY	6
2.3 ISSUES AND PRIORITIES IN CLIMATE CHANGE	7
2.4 ISSUES AND PRIORITIES IN LAND DEGRADATION.....	10
2.5 STATUS AND CHALLENGES AT SYSTEMIC LEVEL	11
2.6 STATUS AND CHALLENGES IN INSTITUTIONAL CAPACITIES.....	12
2.7 STATUS AND CHALLENGES AT INDIVIDUAL LEVELS	13
CHAPTER 3: BIOLOGICAL DIVERSITY	15
3.1 NATIONAL OBLIGATIONS UNDER THE CONVENTION ON BIOLOGICAL DIVERSITY.....	15
3.2 NATIONAL PRIORITIES AND PROCESSES FOR ADDRESSING GLOBAL BIODIVERSITY AND CBD OBLIGATIONS..	16
3.3 CAPACITY NEEDS AT THE SYSTEMIC LEVEL	20
3.3.1 <i>Regional and International Policy Frameworks</i>	20
3.3.2 <i>National Policy Frameworks</i>	21
3.3.3 <i>Legal and Regulatory Frameworks</i>	22
3.3.4 <i>Overlapping or unclear mandates</i>	23
3.3.5 <i>Poor Interagency Coordination</i>	23
3.3.6 <i>Insufficient financial and human resources</i>	23
3.3.7 <i>Lack of incentive/disincentive structures for sustainable management of biodiversity</i>	24
3.3.8 <i>Lack of public awareness and involvement in biodiversity issues</i>	24
3.3.9 <i>Information management</i>	24
3.3.10 <i>Others</i>	25
3.4 CAPACITY NEEDS AT THE INSTITUTIONAL LEVEL.....	25
3.4.1 <i>Inadequate institutions/mechanism to tackle biodiversity issues</i>	25
3.4.2 <i>Management of government agencies</i>	25
3.4.3 <i>Unclear mandates</i>	26
3.4.4 <i>Insufficient Funding</i>	26
3.4.5 <i>Shortage of staff</i>	27
3.4.6 <i>Shortage of facilities and equipment</i>	27
3.4.7 <i>Inadequate information base</i>	27
3.4.8 <i>NGOs and Community Based Organizations</i>	28
3.5 CAPACITY NEEDS AT THE INDIVIDUAL LEVEL	28
3.5.1 <i>Shortage of specialists in required technical fields in biodiversity</i>	28
3.5.2 <i>Lack of training</i>	29
3.5.3 <i>Lack of training in negotiation & implementation of conventions</i>	29
3.6 CURRENT EFFORTS TO ADDRESS CAPACITY NEEDS AT LOCAL, PROVINCIAL, NATIONAL, AND REGIONAL LEVELS FOR THE MANAGEMENT OF BIODIVERSITY	29
3.6.1 <i>Regional level</i>	29
3.6.2 <i>Country level</i>	30
3.7 LESSONS LEARNED	31

CHAPTER 4: CLIMATE CHANGE.....	35
4.1 NATIONAL OBLIGATION UNDER THE UNFCCC.....	35
4.2 NATIONAL PRIORITIES AND PROCESSES FOR ADDRESSING CONVENTION OBLIGATIONS	35
4.3 CAPACITY NEEDS AT THE SYSTEM LEVEL	35
4.3.1 Overall policy framework	35
4.3.2 Legal/Regulatory framework	36
4.3.3 Economic framework	37
4.3.4 System level resources	38
4.3.5 Processes and relationships.....	39
4.4 CAPACITY NEEDS AT THE INSTITUTIONAL LEVEL.....	40
4.4.1 Coordination and planning	40
4.4.2 Participation	41
4.4.3 Information management.....	42
4.4.4 Stability and Continuity	42
4.4.5 Institutional flexibility.....	43
4.5 CAPACITY NEEDS AT THE INDIVIDUAL LEVEL.....	44
4.5.1 Human resources	44
4.5.2 Public awareness	44
4.5.3 Information dissemination	44
4.5.4 Requisite skills	45
4.6 CURRENT EFFORTS TO ADDRESS CAPACITY NEEDS AT LOCAL, PROVINCIAL, NATIONAL, AND REGIONAL LEVELS	45
4.7 LESSONS LEARNED	46
CHAPTER 5: LAND DEGRADATION.....	51
5.1 NATIONAL OBLIGATIONS UNDER THE CONVENTION TO COMBAT DESERTIFICATION (CCD) OBLIGATIONS OF AFFECTED COUNTRY PARTIES.....	51
5.2 NATIONAL PRIORITIES AND PROCESSES FOR ADDRESSING GLOBAL ENVIRONMENTAL AND CONVENTION OBLIGATIONS.....	51
5.2.1 Types and Causes.....	51
5.2.2 Extent	52
5.2.3 National Priorities	54
5.3 CAPACITY NEEDS.....	57
5.4 CURRENT EFFORTS TO ADDRESS CAPACITY NEEDS AT LOCAL, PROVINCIAL, NATIONAL, AND REGIONAL LEVELS	62
5.5 LESSONS LEARNED	81
5.5.1 Policy.....	81
5.5.2 Legislative Framework	81
5.5.3 Implementation and Institutional Framework.....	82
5.5.4 Capacity Development.....	83
CHAPTER 6 SYNTHESIS AND CONCLUSIONS.....	85
6.1 PRIORITY CROSS CUTTING AREAS (FROM WORKSHOP DISCUSSIONS).....	85
6.1.1 Cross Cutting Convention Issues	85
6.1.2 Technology Transfer	86
6.1.3 Finance	88
6.1.4 Education and awareness	89
6.1.5 Human Resources Management.....	90
6.1.6 Policy Overlaps.....	91
6.1.7 Institutional Co-operation and Co-ordination.....	93
6.2 PRIORITIES AND NEEDS IN DEVELOPING SYSTEMIC CAPACITIES	94
6.2.1 Regional & international policy framework	94
6.2.2 National Policy frameworks.....	94
6.2.3 Legal & Regulatory Frameworks.....	94

6.2.4	<i>Poor interagency coordination</i>	95
6.2.5	<i>Insufficient financial and human resources</i>	95
6.2.6	<i>Economic Framework</i>	95
6.2.7	<i>Lack of public awareness</i>	95
6.3	PRIORITIES AND NEEDS IN INSTITUTIONAL CAPACITY DEVELOPMENT.....	96
6.3.1	<i>Insufficient funding</i>	96
6.3.2	<i>Shortage of staff</i>	96
6.3.3	<i>Inadequate information base</i>	96
6.4	PRIORITIES AND NEEDS FOR DEVELOPING INDIVIDUAL CAPACITIES	96
6.4.1	<i>Shortage of specialists in required technical fields</i>	96
6.4.2	<i>Lack of training</i>	97
6.4.3	<i>Other</i>	97
6.5	LESSONS LEARNED	97
6.5.1	<i>Climate change</i>	98
6.5.2	<i>Land Degradation</i>	98
ANNEX 1	101
	MAJOR REFERENCES (BIODIVERSITY AND CLIMATE CHANGE).....	101
	REFERENCES (LAND DEGRADATION).....	103

CHAPTER 1: INTRODUCTION

1.1 Background and Objectives

At its May 1999 meeting, the GEF Council expressed support for a Strategic Partnership between UNDP and the GEF Secretariat to produce a comprehensive approach for developing the capacities needed at the country level to meet the challenges of global environmental action.

The work plan for the Capacity Development Initiative (CDI) is divided into three stages:

- 1) Assessment of capacity development needs,
- 2) Strategy development to meet identified needs, and
- 3) Action plans for the GEF.

The assessment phase of the CDI is intended to identify the capacity development needs of GEF-eligible countries as well as lessons learned from GEF-financed activities and efforts of other multilateral and bilateral agencies. These assessments will provide the basis for developing a strategy and action plans to address the capacity development needs of GEF-eligible countries in the area of the global environment.

The outputs to be prepared in this initial assessment phase of the CDI is assessments of country needs in the context of country priorities prepared for the Asia Pacific region.

1.2 Conceptual Framework for Capacity Development

In a global 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 individual level, capacity building refers to the process of changing attitudes and behaviors-imparting knowledge and developing skills while maximizing the benefits of participation, knowledge exchange and ownership.

At the institutional level it focuses on the overall organizational performance and functioning capabilities, as well as the ability of an organization to adapt to change. It aims to develop the institution as a total system, including individuals, groups and the organization itself.

Traditionally, interventions at the systemic level were simply termed “institution strengthening.” This reflected a concern with human resource development as well as assisting in the emergence and improvement of organizations. However, capacity development further 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.

Capacity development can, thus, be considered at three levels, the individual, institutional, and the systemic. Interactions between these levels are also important to overall capacity. Capacity is relevant in both the short term (for example, the ability to address an immediate problem) and the long term (the ability to create an environment in which particular changes will take place). Capacity may imply “action,” or “inaction,” depending on the result desired. Capacity bottlenecks can occur at local, national, or global levels and amongst any individual, or group, of stakeholders – both individuals and entities or institutions.

Viewed in a narrow sense, capacity development could focus on the ability of individuals and entities to act in the interest of the global environment alone. Or one could take a broader, systems approach that emphasizes the enabling environment at local, national and regional levels consisting of regulatory frameworks, information, knowledge and technologies, ultimately feeding in to improved global environmental management.

1.3 Methodology

The assessment of country needs was carried out over a period of 3 months (April to June) using the following approaches.

1.3.1 Questionnaires to Convention focal points

A questionnaire was developed and used as one of the data-gathering tools in the Assessment of Country Needs and Priorities. The questionnaire was sent out to all the relevant convention focal points of the countries in the Asia Pacific region in April 2000. It consist of 3 sections: biodiversity, climate change and land degradation. Its objective was to assist countries to review their own capacity development needs and priorities for meeting Convention objectives. Completed questionnaires were compiled and analysed by a team of regional experts from Asia Pacific region.

Constraints: Only a limited number of completed questionnaires were returned and available for analysis at the time of writing. The findings are, therefore, preliminary, and were based largely on background documents and materials available.

1.3.2 Compilation of background materials and documents

National reports to the different conventions, National Action Plans for Biodiversity, Climate Change and land degradation, reports, studies on capacity building and training were compiled.

1.3.3 In-country studies in selected countries

In-country studies were carried out in Nepal, Indonesia and Vietnam. A group of national experts were appointed in each country to undertake a more in-depth assessment of the selected country. This will provide additional input to the regional report.

1.3.4 Regional Workshop

A CDI regional workshop was held in Beijing from 27-28 July, 2000 to enable countries to further discuss and provide inputs and information on the constraints and capacity needs of Asia and Pacific region. The workshop was attended by over 50 participants from 25 countries. Six participants from NGOs in the region as well as representatives of GEF, UNDP and UNFCCC also attended the meeting. Participants provided extensive comments and inputs on the key issues highlighted by the regional experts based on the first draft of this report. The participants also identified and discussed in detail a broad range of priority issues and constraints for addressing global environment concerns in the region. These discussions have provided significant additional information for this report as well as reformulating and adjusting some of the issues presented earlier.

CHAPTER 2: STATUS AND CHALLENGES IN MANAGING THE ASIA PACIFIC ENVIRONMENT

2.1 Environmental Foundations for Asia Pacific's Development

The Asia-Pacific region presents a remarkable record of economic growth particularly in the last 20 years. From the 1980s to 1990s, the average rate of economic growth in the region was faster than any other region in the world. Although this high growth has been somewhat dampened by the economic crisis experienced in most part of the region during the last 3 years, the region has been able to recover to demonstrate the dynamism that has led to higher growth rates, changing production and consumption patterns, large scale international trade and technological development in the past two decades.

The majority of countries in the Asia Pacific region such as China, Indonesia and Malaysia are rich in natural resources. Combined with economic policies and strategies aimed at enhancing growth rates, this has yield high growth patterns of economic development of the region. For instance, the region accounted for 47 percent of the world total fish catch in 1992. The region with a forested area occupying almost 660 million ha, accounts for more than 80 percent of internationally traded tropical wood products. In a region where about two thirds of the world population resides, economic performance is of central relevance for the environment, because it is essential for alleviation of poverty. More than 800 million people live in absolute poverty in this region.

Ironically, poverty reduction is also a major factor for environmental deterioration in developing countries of the region. In the efforts to attain rapid growth, countries of the region are failing to achieve sustainability. The land, mineral and fuel resource base has been directly affected by growing industrialization. The Asia Pacific region account for about 850 million ha of land degraded since 1945, out of a world total of 1.9 billion ha. The natural environment has been degraded by destruction of habitats and by pollution, with the most serious problems affecting the forest, fresh water and coastal ecosystems. The rich biodiversity and genetic resources of this region are being lost at a high rate though destruction of ecosystems, habitats and monocultural practices. The region has the fastest rate of deforestation, at about 1.2 percent per year, the fastest rate of commercial logging and the fastest rate of species extinction. At current rates of harvesting, Asia's timber supplies will not last for more than 40 years.

In most countries, some measures have been introduced to reduce pollution and to control the rate of exploitation of resources, but so far success has been limited. While projection for future economic growth may be optimistic, many of these projections do not take physical resource constraints into account. For example, in many countries the availability of natural resources such as water may be the main constraint to future growth.

On another note, the issue of climate change and sea level rise, with a variety of consequences and threats is of great concern to the region. The Asian Pacific region contributes only about 20 percent of the global greenhouse gases. On a per capita basis, the current emission is about 1-2 tons per capita per year, about 10-20 times less than that of the developed countries. The region

is, however, expected to be worst hit of all global regions, in the event of climate change. For instance, the consequences of sea level rise will be considerable on coastal mangrove forests, wetlands and coral reefs where 35 up to 90 percent may be destroyed. The impacts of sea level rise induced by climate change will be particularly severe for small island nations of the region, which depend on a very large extent on the limited biological and physical resources of the coastal zone.

The Asia Pacific region requires rapid economic growth to provide livelihood to the growing numbers of its people and to alleviate its poverty. The challenge of the coming years is for sustainable growth with environmental protection. Successful implementation of sustainable development, however, depends on efforts and actions at the national level relating to policies, regulation and incentives and on international cooperation.

2.2 Issues and priorities in Biological Diversity

The rich biodiversity of the region is under serious threat from a variety of human induced factors. Reduction in the natural habitat, loss of species and depletion of genetic diversity are the three most important indicators of the plight of biodiversity in the Asia Pacific region.

Key biodiversity resources are under threat from rapid habitat loss, over exploitation and chemical pollution. For instance, in Indonesia, one of the megadiversity countries, an estimated 700,000 to 1.2 million hectares of forest areas are lost each year since the 1980s due to excessive logging, agriculture development and forest fires. In 1997/98, forest fires alone destroyed over 1.6 million ha of forests in Indonesia. Countries with high biodiversity such as Malaysia, Thailand, Vietnam and the Philippines are also facing similar threats and loss to their biological diversity.

With more than half the world population residing within Asia and the Pacific, sustaining livelihood of the Asia Pacific population, where a large percentage of it is concentrated in the rural areas is a major concern for the region. Livelihood is heavily dependent on the sustainable utilization of natural habitats and biological resources. This group will be the most affected when habitats are lost or degraded. In Indonesia, an estimated 40 million people are directly dependent on biodiversity for subsistence and 12 million people live in or around forests.

Many countries in the Asia Pacific region are developing countries that have limited resources to properly manage its genetic resources base. In particular, these countries do not have proper regulations on access to genetic resources and lack measures to ensure equitable sharing of benefits from the utilization of genetic resources. In the Pacific, there is concern that the pursuit of economic development goals have resulted in a lack of respect and preservation of knowledge, innovation and practices of indigenous people with regard to biodiversity.

Based on this context, literature surveys were carried out and questionnaires were circulated to countries in the region to collect additional inputs. From the questionnaires/ surveys, and input from the countries at the Regional Workshop from 27-28 July, 2000 in Beijing, the major issues and priorities related to biodiversity of the Asia and Pacific countries were identified as:

- (a) Insufficient education and awareness on biological diversity,
- (b) Need for better biodiversity policy making and planning,
- (c) Need for better in-situ conservation and management,
- (d) Inadequate inventory and monitoring of biodiversity,
- (e) Management of genetic resources base, and issues of access and benefit sharing,
- (f) Lack of sustainable financing,
- (g) Lack of proper systems to manage biodiversity information

Other major issues identified included:

- (a) Poverty and sustaining livelihood based on biodiversity,
- (b) Lack of knowledge and appreciation for the economic value of biodiversity,
- (c) Need for preservation of indigenous knowledge,
- (d) Development of incentive measures for conserving biodiversity,
- (e) Need for ex-situ conservation,
- (f) Need for understanding of biosafety issues and introduction of regulations,
- (g) Restoration of ecosystems,
- (h) The problem of invasive species,
- (i) Community participation in biodiversity conservation, and
- (j) The issues of land ownership

2.3 Issues and priorities in Climate Change

The Asia Pacific region may be divided into four major subregions of concern as far as climate change is concerned. For the SIDS, the major climate change issue is vulnerability and adaptation because of the states' exposure to the adverse impacts of sea level rise and other geophysical climate-related hazards such as shifting rainfall patterns and typhoons. A fully integrated approach to V&A has been espoused, taking into account the socio-cultural and economic context which is inextricably linked to the vulnerability of this subregion. It has also

been pointed out that climate vulnerability cannot be divorced from the non-climate hazards such as earthquakes, volcanic eruptions which these states periodically experience. Nor is the vulnerability truly assessed without consideration of the “value of non-marketed goods and services (e.g. subsistence assets, community structure, traditional skills and knowledge) which also may be at risk from climate change (IPCC, 1998).”

For temperate Asia, shifts in boreal forest cover, vanishing mountain glaciers, and threats to water supply are the projected impacts of climate change. Despite the uncertainties in anticipating changes in the hydrological cycle, one of the more crucial determinants here is the impact of a warming earth on the Asian monsoon and El Nino-Southern Oscillation (ENSO). Both the monsoon and ENSO are critical factors in the vulnerability of this region. Shifts in this hydrological cycle, CO₂ fertilization, and production practices are expected to affect agricultural crop yields. Sea level rise threatens coastal zones some of which are already subject to current degradation especially in delta regions.

For Tropical Asia, climate change stands to threaten food security and human health due to stresses on water availability, losses in crop yield, and coastal flooding. Vector-borne diseases such as malaria and dengue are expected to increase in duration and extent. The impacts of sea level rise such as coastal erosion, saline intrusion, and land loss are compounded by high population densities and intensity of use in the coastal plains of this subregion.

In arid Western Asia (Middle East and west Asia), the most critical limiting factor is water. Shifts in the hydrological cycle due to climate change may exacerbate the scarcity of this important resource in the region. The levels of both the Caspian and Aral seas will be affected by climate change and will in turn influence ecosystems, agriculture, and human health in the vicinity of these bodies of water.

In climate change, six priority areas were identified for country capacity development. These are: a) awareness/understanding, b) abatement, c) vulnerability and adaptation, d) the Clean Development Mechanism, e) Convention negotiations, and f) technology transfer.

For the Asia Pacific region, a high priority was given to vulnerability and adaptation (V&A), as identified by country reports and survey respondents. Most of the concern here is centered on the potential adverse impacts of climate change on the survival and sustainability of many of the developing economies in the region. Since many of these economies in the Asia-Pacific are still largely agricultural, the projected impact on water resources and agriculture is the primary motive for this concern. For coastal nations, such as the SIDS, V&A includes the impact of climate change on their coastal resources. Inadequate infrastructure and limited financial resources compound the vulnerability of the nations in this region. An example that typifies this point is the case of Tuvalu:

The islands of Tuvalu are only a few metres above sea level. Any rise in sea level will have very serious impact on human health, houses and infrastructure, food crops, groundwater sources, land and marine biodiversity, vegetation and the shoreline sea level rise could also cause serious coastal erosion and land loss on

all the islands, lower crop yields and in some cases might lead to the loss of entire islets. (Tuvalu Initial National Communication to the UNFCCC, October 1999)

Identified constraints to a country's capacity to assess its vulnerability to climate change and its adaptation options are the absence or weakness of an overall policy framework to direct what is by necessity an integrated multi-sectoral, multi-disciplinary approach to V&A. Such an integrated approach requires the clear definition of mandates and functions of those agencies (both government and civil society) tasked to undertake V&A. Another constraint is the inadequacy of critical human resources and analytical skills needed to undertake vulnerability assessments and adaptation planning. The shortage and inaccessibility of data from climate measurement/monitoring systems deployed in countries within the region together with the lack of institutions specializing in V&A are other impediments to effective action in this area.

The second priority area for which capacity needs to be developed is the comprehensive awareness and understanding of the issue itself which seems to underpin many of the concerns and capacity constraints identified in the region. The capacity constraints associated with this priority area cut across all levels of the systemic, institutional, and individual; and focus largely on the lack of a managed system of information that can be traced to a dearth of human, financial, and information resources. The sorry levels of education, of public environmental awareness, participation, and debate, of information management expertise, and of poverty in developing countries all contribute to ambiguities in understanding climate change. These constraints inhibit consensus building and the clear definition of mandates and programs in the national and local arena.

The third priority area is the abatement of greenhouse gas emissions. Despite the high growth rates in some areas of the region (notably Southeast Asia and China), the prevalent notion that cumulative emissions and per capita emissions are not comparable to those of Annex I countries seems to reduce the urgency of country action in this area. Interestingly enough, economies that are dependent on fossil fuel-based energy make this a high priority even if for reasons other than GHG abatement. In countries like Indonesia where their forest cover can have a double-edged potential for climate protection or degradation, this is a priority concern (CDI Indonesia In-Country Assessment). Abatement is not the concern of low GHG emitting nations such as SIDS despite their dependence on fossil fuel for transport.

Constraints identified by the countries in undertaking abatement measures are the lack of an overall policy framework that appropriately includes climate change. Such a framework may cover energy and/or forestry policy, and other emitting sectors (e.g. agriculture, waste, and industry). Another impediment to abatement action is the threat to well entrenched business interests especially in the energy sector. Moreover, the lack of market strategies, economic incentives that can promote alternative energy systems or energy efficiency, the lack of social acceptance of these climate friendly technologies, and the lack of institutional coordination and commitment to clean energy constrain a country's efforts to undertake abatement measures.

The fourth area for which capacity development is needed is the clean development mechanism (CDM). Developing country participation in this mechanism is hampered by a lack of understanding and information, of an institutional and legal framework, of technical

infrastructure, of enforcement capacity, and of human resources needed to operationalize the mechanism. These capacity constraints include gaps in project negotiation and development skills, project baselining, monitoring, verification, auditing, and certification, setting up sustainable development indices, cost-benefit assessments, etc.

The fifth area of concern is Convention negotiating capacity. Constraints here include the lack of consultation and coordination between the negotiating team on the one hand and the technical support groups on the other, inadequacies in training of support staff, the lack of continuity in the negotiation process (in terms of key persons), funding constraints that limit sustained participation in the convention, the lack of preparation for negotiating positions/options, and the absence of a managed system for distributing and exchanging information.

The last area identified for capacity development in climate change is technology transfer. Barriers to effective technology transfer are, on a systemic level, the absence of a clear country policy and entity responsible for this area, the unavailability of local R&D infrastructure and professional expertise, the absence or incompleteness of a country's assessment of its technological needs in environmental management, the lack of information on local practices or traditional technologies, of motives and incentives for innovation, and incapacity to cope with the rapidity of technological changes in the world. The Asia Pacific region may be divided into four major subregions of concern as far as climate change impacts are concerned. For the SIDS, the major climate change issue is vulnerability and adaptation because of the states' exposure to the adverse impacts of sea level rise and other geophysical climate-related hazards such as shifting rainfall patterns and typhoons. A fully integrated approach to V&A has been espoused, taking into account the socio-cultural and economic context that is inextricably linked to the vulnerability of this subregion. It has also been pointed out that climate vulnerability cannot be divorced from the non-climate hazards such as earthquakes, volcanic eruptions which these states periodically experience. Nor is the vulnerability truly assessed without consideration of the "value of non-marketed goods and services (e.g. subsistence assets, community structure, traditional skills and knowledge) which also may be at risk from climate change."

2.4 Issues and priorities in Land Degradation

For the purpose of this study, land degradation means loss of soil, loss of soil fertility and loss of vegetative cover. Broadly speaking, land degradation can be caused by climate variability and because of human activities. Also, in some cases, variation in soil fertility, soil loss and changes in vegetation are natural phenomena. Where these occur naturally, they are not ordinarily considered to be land degradation. According to the CCD, desertification comprises reduction or loss in arid, semi-arid and dry sub-humid areas of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands.

However, what is to be considered land degradation finally depends on what the objective of the land in question is. For example, land that is earmarked for agriculture would not be considered degraded if natural vegetation is removed from it. But the same land, if it were to be developed into a wilderness area or a watershed, would be considered degraded if it lost its vegetative cover.

Various estimates have been done globally, regionally and nationally to determine the extent of land degradation in the Asia Pacific region. Though detailed figures differ in each assessment, broadly speaking it seems correct to say that between 35 to 45 percent of the agricultural land is degraded in one form or another, with dry lands having much greater levels of degradation than the humid lands. Water erosion has been the main cause of land degradation in both the dry and humid zones. However, in the dry zone wind erosion is the next most common factor, followed by water logging, while in the humid zone it is loss of soil fertility followed by chemical contamination (pollution). 850 m ha (of the 1.9 b ha globally) with degraded soils is in the Asia Pacific (24% of the region). More than half of the world's irrigated land affected by waterlogging and salinization is located in Asia and the Pacific.

In the islands, deforestation is the most common cause of land degradation, along with coastal erosion due to loss of coastal vegetation or inappropriate coastal management practices. Annual deforestation rates in SIDS are, at 0.8% per annum, nearly three times the world average of 0.3%. The pressure of growing populations and the demands of the tourist industry are other causes for land degradation.

Despite land degradation being such a critical problem, it does not receive adequate attention from most national governments in the region. Though laws, policies, human and financial resources and institutional structures are scant, they are mostly focussed on forest land, with almost no attention on the non-forest lands. This is all the more surprising as a very large proportion of the population of the region is directly dependent on agriculture for its subsistence and the degradation of land directly and adversely affects them. Though an historical issue with high levels of awareness among the local communities, the policy makers of the region seem by and large inadequately aware of its implications on food security and on the well being of the poorest of the populations. The major priorities include the formulation of strong and focussed policies and laws, in a participatory manner, so that they have the support of the public. There is a need for strong institutions that have an ability to be transparent and open to the public. The resolving of conflicts within policies and laws and co-ordination among the various institutions that have an impact on the land, is clearly another priority. The development of human capacities and, more important, the development of trainers and training institutions that could help develop human capacities, is another priority. There is a need to properly deploy the trained human resources and to invest in developing better infrastructure for protecting the land.

2.5 Status and challenges at Systemic level

The majority of the countries in the region have assigned the strategic function of framing policies for environmental management to a single ministry or to a national commission or council. For each country, the specific institutional form depended not only on the function of the institution, but also on existing national characteristics, the constitutional system of the country concerned and its administrative traditions.

The main challenges and constraints faced in the region are described as follow:

- (a) In terms of overall processes, there is a lack of coordination among different agencies and between sectors. There is also poor integration of research and development activities in most countries.
- (b) Policies while generally conducive in most countries of Asia Pacific, tend to be overlapping, inappropriate and even at conflict. This is particularly from the conflict between reserving areas for conservation or resource protection and converting them for agriculture or other land development.
- (c) Legal and regulatory procedures are available in almost all countries of the region, though objective enforcement of environmental legislation remains weak. However, many developing countries of Asia Pacific lack legislation with cross-sectoral orientation to be responsive to meet the obligations of the global environment conventions.
- (d) In most of the countries, there is severe lack of trained technical expertise in specific areas of biodiversity, climate change and land degradation issues. Most of the environmental institutions in developing countries of the region are relatively small. The trend in recent years is for budgetary resources and size of staff to be increased at a greater rate than the average increases for the government as a whole.

2.6 Status and challenges in institutional capacities

The key constraints and challenges are as follow:

- (a) Institutional mission is often not clearly defined. There is overlapping in areas of management and responsibilities with other agencies. Most institutions are not oriented to work in a cross-sectoral environment.
- (b) Institutional processes are generally weak in areas of strategic planning.
- (c) Human resources across most environment related institutions are inadequate to effectively carry out operations. There is generally a lack of technical staffs in most institutions. Due to budgetary constraints and unattractive incentives, there is difficulty to retain well-trained staffs from leaving.
- (d) Infrastructure and technical facilities are inadequate in the developing countries such as Vietnam, Cambodia and Laos.
- (e) Environmental institutions often get a lower priority for financial allocations. There is also a shortage of government allocated funds for research at the

universities and research institutions to carry out in-depth studies of priority issues.

- (f) Information resources have not been properly setup and usually poorly managed in many of the countries.

2.7 Status and challenges at individual levels

The overall status can be summed up as the following:

- (a) Human capacities: there is a shortage of specialist in the required technical fields. For example, taxonomists and meteorologists.
- (b) Training: In most countries there is a lack or shortage of funds and resources to conduct training on a regular basis. Where training is provided, only basic levels of training are given.
- (c) Incentives: There is a lack of incentives in the environmental field, particularly in the public sector as compared to more lucrative paying jobs in other sectors.
- (d) Accountability: Individuals are often not held accountable for inefficient implementation.

CHAPTER 3: BIOLOGICAL DIVERSITY

3.1 National obligations under the Convention on Biological Diversity

The objectives of the Convention on Biological Diversity (CBD) are the conservation of biological diversity, the sustainable use of the components of biodiversity and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The guiding objectives are translated into binding commitments in its substantive provisions contained in Articles 6 to 20 of the Convention.

Under the Convention, governments are required to (CBD, 2000):

- (a) Develop national biodiversity strategies and action plans, and to integrate these into broader national plans for environment and development;
- (b) Identify and monitor the important components of biological diversity that needs to be conserved and used sustainably;
- (c) Establish protected areas to conserve biological diversity while promoting environmentally sound development around these areas;
- (d) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species;
- (e) Respect and preserve traditional or indigenous knowledge of sustainable use of biodiversity;
- (f) Control risks posed by genetically modified organisms;
- (g) Prevent the introduction of , control and eradicate alien species;
- (h) Promote public participation, especially in assessing impacts of development projects on biodiversity;
- (i) Educate people, including through training, research and awareness raising about the importance of biological diversity; and
- (j) Report on the implementation of programmes and its effectiveness in meeting objectives of CBD.

3.2 National priorities and processes for addressing global biodiversity and CBD obligations

Most countries in the region appeared to have developed or refined their national priorities and processes for addressing biodiversity issues by using the frameworks and processes provided by the various CBD obligations, frameworks and guidelines in particular the use of National Strategies and Action Plans for the Conservation and sustainable use of Biodiversity. Some countries, however, have prior or underlying national frameworks for biodiversity based on elements of biodiversity management such as nature conservation strategies, wildlife policies, national park and protected areas plans and legislation. It seems clear, however, that as a result of the creation and subsequent operation of the CBD, a range of new concepts have been introduced such as access and benefit sharing, bio-prospecting, biosafety, protection of indigenous knowledge and several of these are now considered as high priorities for some of the countries in the region.

In addition many countries in the region are parties to other biodiversity related conventions including: Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Wetlands (Ramsar Convention) and Convention on the Conservation of Migratory Species of Wild Animals (CMS). The obligations under these conventions have also guided national strategies and priorities. For example a number of countries in the region (including Cambodia, China, Indonesia The Philippines, Thailand and Pakistan) have developed national wetland strategies or action plans. Some of these have been developed prior to the biodiversity strategies while others have been prepared to follow up or fill gaps in the biodiversity strategies.

Most biodiversity strategies and action plans have common features such as: building institutional capacities; enhancing management efficiency for in situ and ex situ conservation; sustainable utilization of biodiversity through incorporation of appropriate actions in sectoral strategies; promoting national and international cooperation; enhancement of public awareness; research, survey, and monitoring; and, promotion of community participation.

Fifteen developing countries in the Asia Pacific region have either prepared national strategies and action plans on biodiversity or are in advanced stage towards that end. A list of these countries along the major components of the strategies and action plans has been indicated in Table 1. Some of the priorities identified in selected Plans are summarized in Box 1.

Table 1: Topics included in National Strategies for Conservation and Sustainable Use of Biodiversity in Asia and the Pacific

Strategy	Bhutan	China	Fiji	Indonesia	South	Malaysia	Maldives	Marshall Islands	Mongolia	Nepal	Philippines	Sri Lanka	Thailand	Turkey	Vietnam
National Strategy and Action Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Policy/ Legislation	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Trust Fund	✓		✓						✓	✓					
Conservation Programs/ Plans	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Human Resource Development		✓		✓	✓	✓			✓	✓	✓		✓	✓	
Community Participation	✓			✓	✓			✓		✓	✓	✓	✓	✓	
Public Education and Awareness	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Incentive Measures				✓									✓	✓	
Protected Area System	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Conservation and Access to Genetic Resources	✓	✓			✓	✓					✓			✓	✓
Institutional Capacity Building and Skill Enhancement	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓	✓	
➤ Research	✓	✓			✓	✓					✓	✓	✓		✓
➤ Survey and Monitoring	✓	✓			✓			✓	✓		✓		✓	✓	✓
➤ Land Use Planning	✓				✓									✓	
➤ Database Establishment and Exchange of Information	✓	✓			✓			✓	✓		✓	✓	✓	✓	✓
➤ Economic Valuation of Biodiversity Resources	✓											✓		✓	

Implementation capacities for these strategies and action plans particularly in the developing countries of the region is quite low in terms of both human and financial resources. It is, therefore, important to build the institutional capacities and promote measures such as bio-prospecting that could contribute both to conservation of biodiversity, at the same time enhance the resources for conservation. Community participation and involvement would also need priority attention for enforcement of regulation.

BOX 1 Summaries of priorities identified in Selected National Biodiversity Strategies and Action Plans

Southeast Asia

The **Indonesian** Biodiversity Action Plan, (Government of Indonesia, 1993) aims to support both sectoral projects and the national programmes in biodiversity in an integrated manner. In-situ conservation in parks and protected areas as well as outside the protected area network is emphasized. An important component is the sustainable management of biodiversity through fulfillment of basic human needs and income generation - through the development of cooperation between the government agencies and local communities. Indonesia is now entering a second phase of preparation of provincial biodiversity plans.

The **Malaysian** National Policy on Biological Diversity (Ministry of Science, Technology and the Environment, 1998) includes 15 strategies each with an associated action plan covering areas such as improving the scientific knowledge base; enhancing sustainable utilization of the components of biodiversity; strengthening and integrating conservation programmes into sectoral planning; enhancing skill, capabilities and competence; and, promoting institutional and public awareness.

The Philippines has taken guidance from the CBD in preparing long-needed national policies on bioprospecting, biosafety, biotechnology, marine living resource conservation, equitable access, and indigenous knowledge, among others, as well as their integration in the national and local sectoral plans and decisions (Protected Areas and Wildlife Bureau-Department of Natural Resources and Environment, 1998).

Thailand even though it is not yet a party to the CBD, has been very active in the development of a Strategy for Conservation and Sustainable Utilization of Biodiversity. It was prepared in a participatory framework (The Office of the Environmental Policy and Planning, 1997). The actions to be undertaken are ranked according to their priority as follows: building institutional capacity for biodiversity conservation; enhancing efficiency in management of protected areas to ensure sustainable protection of biodiversity at the local level; conserving species, population and ecosystem; controlling and monitoring of the processes and activities that threaten the existence and richness of biodiversity; and, promoting cooperation between international and national agencies/institutions in the conservation and sustainable utilization of biodiversity.

Northeast Asia

China's Action Plan for Biodiversity Conservation has identified priority projects according to the urgency of conservation and their feasibility. The areas addressed include strategic goals for national capacity building, human resources strengthening, conservation facility construction, development of science and technology, promotion of education and awareness, information management and international cooperation, among others. The relevant departments under the State council have also actively incorporated conservation concerns into their own departmental action plans and schemes to strengthen biodiversity conservation.

The National Biodiversity Conservation Action Plan being implemented by the **Mongolian** Government provides for the use of biological resources within the limits of their potential and to restore the degraded resources naturally (Ministry for Nature and the Environment of Mongolia-UNDP-GEF, 1998). The action plan gives emphasis on institutional capacity building, policy development and planning, renewal and strengthening of legislation on biodiversity, survey, extension and improvement in management of protected areas network, public education and awareness through information distribution and monitoring programs, and implementing measures to minimize the negative impacts of human activities on biodiversity.

The National Biodiversity Strategy of the **Republic of Korea** identifies various priority concerns such as identification of components of biodiversity, in-situ and ex-situ conservation, control of threatening activities, ecosystem rehabilitation, and follow-up monitoring (Government of Korea, 1998). It also covers measures for sustainable use of biodiversity resources in agriculture, fisheries, forestry, tourism and recreation, and genetic resources. It also advocates upgrading of capacity for biodiversity management through improvement in management system, putting in place incentive measures, strengthening education and research, raising awareness, exchange of information and technology, as well as international cooperation.

Pacific Islands Region

Fiji's National Biodiversity Strategy and Action Plan for the conservation and sustainable utilization of biological diversity is the cornerstone of the Sustainable Development Bill, which embodies together environmental protection and resource management as well as biodiversity conservation and national parks management (Department of Environment, Ministry of Local Government, Housing and Environment, 1997). Although there is no systematic establishment of protected areas in Fiji, the government has nonetheless declared several areas as national parks, nature and forest reserves, and conservation and protected areas.

The **Republic of Marshall Islands** is in the process of formulating, through participatory and analytical process, a National Biodiversity Strategy and Action Plan (BSAP) for conservation and sustainable use of the country's biodiversity (Government of Marshall Islands, 1997). Focuses on assessment of the status and trends in biodiversity, collection and provision of a local information resource on biodiversity and aims to work towards a commonly agreed goal for the conservation and sustainable use of biodiversity and bioresources.

South Asia

In **Nepal** biodiversity conservation has been facilitated through the establishment and/or strengthening of protected areas in representative ecological zones as well as adoption of policy and legal measures and program with focus on benefit sharing, and empowerment of the local communities. The draft National Biodiversity Action Plan, reflects cross sectoral needs, refines priorities and identifies a total of 32 priority projects at a cost of nearly \$100 million to be implemented over a 15 year period. To counter the main problems (including overexploitation of some commercial species, illegal hunting and poaching, overgrazing and fire, and increased commercial trade) - community and leasehold forestry has been promoted; benefit sharing mechanism has been institutionally legalized; and, an environment trust fund has been established.

Bhutan's Biodiversity and Action Plan highlights alternative actions that can be taken to realize benefits from Bhutan's rich biodiversity (Government of Bhutan, 1997). The plan includes establishment and management of protected area system as well as development of management strategies for the buffer and enclave zones around and in the protected areas. It envisages to promote both in-situ and ex-situ conservation of wild and domestic biodiversity resources. Essential supporting measures such as scientific research, surveys and monitoring, databases establishment, land use planning, economic valuation of biodiversity resources, integrating of biodiversity in related sectors' strategy and planning, etc. form the integral part of Bhutan's Biodiversity Strategy.

In **Sri Lanka**, a National Biodiversity Conservation Action Plan (BCAP) was prepared through a participatory approach involving a large body of stakeholders such as state agencies, over 100 non-governmental organizations, local communities, as well as others (Government of Sri Lanka, 1997). The plan's broad objectives include capacity building, developing programmes to enhance public awareness on biodiversity and encourage participation in biodiversity conservation programmes.

3.3 Capacity needs at the systemic level

On the basis of the various national reports, strategies, questionnaires and the deliberations at the regional workshop, almost all countries in the region suffer from capacity constraints at the system level. However, the detailed nature and pattern of the problems varies considerably between different countries. Factors such as the overall state of development of the country, economic, legal and political systems, level of poverty, availability of resources as well as ecological, cultural and environmental factors all interact to affect the nature of the environmental and biodiversity management systems and the constraints and shortcomings with the systems.

There are, however, some patterns, particularly at the sub-regional level – where countries with similar ecological, cultural and legal frameworks may share common problems and solutions. This can be seen in the responses from the South Pacific region for example where there is significant cooperation and exchange between the countries in terms of approaches to biodiversity issues.

The main systemic capacity constraints and needs identified in the region are discussed under a number of sub-headings:

- (a) Need for improved Regional and International cooperation and Policy Frameworks;
- (b) National Policy Frameworks;
- (c) Legal and Regulatory Frameworks;
- (d) Overlapping or unclear mandates;
- (e) Poor Interagency Coordination;
- (f) Insufficient financial and human resources;
- (g) Lack of incentive/disincentive structures for sustainable management of biodiversity;
- (h) Lack of public awareness and involvement in biodiversity issues; and
- (i) Lack of proper systems to manage biodiversity related information.

3.3.1 Regional and International Policy Frameworks

Although the main focus for activities to implement the CBD are focused at national level there is also a need to strengthen regional and international cooperation. At present, there is inadequate mechanism for cooperation on issues of common concern. This is reflected in a

number of responses in the completed questionnaires and workshop discussions that have specifically mentioned the need to strengthen such cooperation to facilitate better protection and management of shared or common biological resources. Some of the suggested focal areas include: migratory species, trade in endangered species, shared coastal and inland water bodies, transboundary river basins and pollution. The other area of regional cooperation is the exchange of information and management solutions between countries with similar problems and the options of cost effective collective action.

In order to tackle these challenges, regional and international frameworks are required to facilitate cooperation and joint initiatives taken to tackle shared problems and to undertake – for example, joint assessment or training programmes. Some progress in this area has been made with active collaboration on biodiversity issues in the ASEAN Region (e.g. with the operation of ASEAN working Groups on Nature Conservation and the establishment of an ASEAN Regional Centre for Biodiversity Conservation) or the South Pacific Region - e.g. with the establishment of the South Pacific Regional Environment Programme (SPREP) and the Action Plan for Nature Conservation in the South Pacific. There are also a number of specific interventions based around shared ecosystems such as the Aral and Black Sea Action plans and work on the assessment and management of aquatic biodiversity in the Mekong basin. However, it is clear from the various reports and responses reviewed that additional resources need to be allocated to strengthen these collaborative mechanisms. It is also clear that international support is needed for such efforts as it is difficult for the separate countries involved to allocate sufficient resources for the effective involvement of all countries.

3.3.2 National Policy Frameworks

Many countries in the region highlighted the fact that there is a lack of coherent policies related to implementation of global conventions at the national or regional level. As most countries have become signatories of these global conventions (CBD, CCD and UNFCCC) in the last 5 years or so, many of the existing policies have not been thoroughly reviewed to address the obligations of the conventions.

A range of countries identified gaps, overlaps or conflicts in the policy frameworks. Conflicts are more apparent in sectoral policies. Such conflicts may be direct where, for example, agricultural or aquaculture land conversion policies conflict with forest or wetland retention policies – or where water resource development policies divert water critical for maintaining ecosystems and associated livelihood support functions such as fisheries. In other cases the conflicts relate to unclear and overlapping mandates accorded by the policies.

Some progress is being made in the region in addressing some of these conflicts and overlaps through enhanced cross-sectoral dialogue and the development of over-arching environmental, natural resource or biodiversity policies or strategies. The processes promoted under the CBD to develop biodiversity strategies and action plans have undoubtedly contributed to a broader recognition of biodiversity values. In a country like Malaysia which has adopted a national biodiversity policy, recently approved sectoral policies for agriculture, fishery and forestry have placed increasing importance on biodiversity.

Further support is needed in the region to support the further development of biodiversity or related policies and associated biodiversity strategies and action plans. A meeting in October 1999 of more than 80 representatives from 15 countries in the region called for continuing and expanded support to strengthen and expand work to prepare and update NBSAPs and derivative local plans in the region.

3.3.3 Legal and Regulatory Frameworks

Most countries in the region have basic legislation at the national level for some components of biodiversity such as wildlife, fishery, forestry, EIA or protected area legislation. However, much of this legislation predates the CBD and hence does not address some of the key concepts which have been introduced by the convention such as access and benefit sharing, protection of traditional knowledge or biosafety. Some of these concepts have subsequently been addressed by new legislation. The Philippines has introduced strict regulations on the access to biological and genetic resources for research and commercial purposes and Malaysia is currently preparing legislation on access to genetic resources and biosafety. The need to update laws and regulations to meet the obligations and new challenges related to biodiversity is identified as an important need in a broad range of countries.

In some cases the existing legislation dates from colonial times with associated biases. For example the 1998 National Report of Vanuatu to the CBD states:

“Prior to independence in 1980, the colonial powers had made limited attempts to promote conservation of biodiversity. The few measures such as the Wild Bird Protection ordinance of 1967 reflected European values and were imposed with little consideration of local practices and needs. They have been rarely enforced and are largely ignored, as are early reserves designated to allow Europeans recreational access to attractive coastal areas.”

In such cases a more rigorous review is needed of the situation and new and more appropriate models for legislation introduced.

Some countries in the region such as Lao PDR have recently introduced a broad range of legislation such as the Forest Law (1996), The Land Law (1997), The Water and Water Resources Law(1996) and the Environmental protection Law (1999). However, there are still some constraints or confusion in implementing some of these laws because of the lack of detailed regulations or lack of detail and tangible definitions in the laws leading to misinterpretation.

There are also significant gaps in the coverage of legislation and regulations at the provincial or state level. In Malaysia for example, where all natural resources lie under state jurisdiction, there is currently no legislation relating to Freshwater fishery or aquatic resources in Sabah State which has many endemic species and a very important freshwater fishery. Hence the state agencies have no power to manage a critical portion of the biological resources.

3.3.4 Overlapping or unclear mandates

In a number of countries concerns have been raised over unclear or overlapping mandates which lead to difficulties in resource and responsibility allocation, implementation and accountability. A common occurrence seems to be overlap or conflict between coordinating environment ministries and Line agencies responsible for natural resources or biodiversity. For example a report conclude that:

The present system (for biodiversity management) is weak due to overlapping jurisdictions between the Departments of Environment, Fisheries and Forestry and the National Trust for Fiji.

3.3.5 Poor Interagency Coordination

Improved coordination between the broad range of agencies and stakeholders responsible for management of biological resources is a commonly recognized need in the region. For example one of the significant problems identified in a formal review of the implementation of the Vietnam Biodiversity Action plan was the need to improve ministerial level coordination. Similar comments have been noted from a range of other countries.

Several countries have indicated the importance of establishing a high level national committee to coordinate government policy for biodiversity. In Malaysia, a number of high level national committees related to implementation of CBD have been established including a National Committee on Biological Diversity (overall policy and strategies), National Technical Committee on Biological Diversity (technical advisory and programme development) and Genetic Modification Advisory Committee (biosafety and GMOs). Some countries have initiated joint work programmes between agencies, to facilitate interagency cooperation and coordination on biodiversity issues.

3.3.6 Insufficient financial and human resources

Most of the responses and many of the reports point to insufficient allocation of financial and human resources for the management of biological diversity. This is partly because many of the countries in the region are poor and have insufficient resources for much of their responsibilities, but it is also because the concept of biological diversity and the obligations under the CBD are relatively new and the awareness and understanding of these issues (and their social and economic implications) is low in the government agencies especially those responsible for overall planning and allocation of financial and human resources. Some progress has been noted in some countries, but in others the overall allocation is totally inadequate for the countries to met international obligations and domestic responsibilities.

Some key areas identified by countries as requiring substantial financial input and human resources, for implementation includes:

- (a) Identification and monitoring work,
- (b) Documentation of indigenous knowledge,
- (c) Implementing of the Biosafety protocol,
- (d) Systematic development of Bioprospecting and control of biopiracy, and
- (e) Applied and Basic Research.

3.3.7 Lack of incentive/disincentive structures for sustainable management of biodiversity

Another problem faced by several countries is the lack of appropriate incentive disincentive structures to promote sustainable use of biological resources. In some countries incentives in the form of grants and subsidies are still given for activities which have a negative impact on biodiversity – such as agricultural drainage, forest conversion etc and little incentive is given for sustainable multiple use of resources.

Most countries also do not have incentive measures to maintain ecosystems for their non-extractive services, e.g. flood control, carbon storage, etc.

3.3.8 Lack of public awareness and involvement in biodiversity issues

The lack of awareness on the importance of conservation and sustainable use of biodiversity was identified as the top priority constraint by participants at the Asia Pacific CDI workshop. The need to enhance awareness at all levels was recognized but the lack of awareness of key decision makers as well as mid level agency staff was identified as a significant problem in advancing cross-sectoral integration of biodiversity issues. It is still hampered by lack of awareness and understanding amongst decision makers and the public. Both respondents and workshop participants indicated an importance to promote the understanding of biodiversity and its economic and social importance and the negative consequences of unsustainable use.

At the community level, there is also a lack of effective mechanisms to improve the awareness of local communities of the options for sustainable management of biological resources and hence facilitate changes in practices.

3.3.9 Information management

The field of biodiversity is rapidly expanding with new information and knowledge. In order to be able to keep up with the ever increasing amount of information, there is need to enhance capacity in the areas of information management. In general, the following are the major focal areas:

- (a) Lack of information on status and value of biodiversity,
- (b) Lack of information on sustainable management options,
- (c) Poor storage and management of information resources,
- (d) Poor access to /dissemination of existing information, and
- (e) Lack of mechanism to preserve indigenous knowledge

3.3.10 Others

Other constraints faced by the countries in the region include:

- (a) Poor capacity at local levels in contrast with decentralization policies, and
- (b) Lack of effective partnerships between government, non-government organizations, and private sector.

3.4 Capacity needs at the institutional level

Almost all of the reports and questionnaires and much of the workshop discussions focused on significant constraints and capacity needs at the institutional level. Naturally, the details of the needs varied significantly between the different countries and different types and levels of institutions examined. However, a number of common elements were apparent as follows:

3.4.1 Inadequate institutions/mechanism to tackle biodiversity issues

The existing mechanisms and responsibilities to implement the obligations of the convention are scattered among various sectoral agencies within the country, e.g. Ministry of Forestry, Department of Fisheries and Ministry of Environment. There are very few agencies with specialized focus on Biodiversity. Within these sectoral departments, a common problem faced by these agencies is a shortage of staff allocation or training on biodiversity issues, e.g. Biosafety protocol, to handle these issues effectively. The weakest link in the existing mechanism is a lack of coordination among the different agencies. In some countries, this mechanism for coordination comes in the form of a biodiversity committee that plays an advisory role, usually with little authority.

3.4.2 Management of government agencies

Countries have highlighted the lack of proper management within the government agencies, due to various constraints in human and financial resources. There is need for:

- (a) More effective planning & implementation,
- (b) Better access & use of Information Technology,
- (c) Better project/ programme planning and management,
- (d) Improved Financial management,
- (e) Decentralization of decision making, staff and functions to lowest appropriate level,
- (f) Improved monitoring and evaluation, and
- (g) Staff management training - target sectors, accountability frameworks.

3.4.3 Unclear mandates

As mentioned in section 3.3, there is still confusion and conflict over agency mandates in several countries and this leads to overlapping, duplicating and inefficient work between agencies.

3.4.4 Insufficient Funding

CBD obligations are relatively new and are multi-sectoral in nature. Therefore, it is often difficult to insert funding requests into sectoral budget system. Many agencies responsible for biological resources are facing problems of insufficient funding for priority and, in some cases, basic activities. In addition, there generally appears to be centralization of resources such that national agencies (focussing on planning and strategy) have disproportionately more resources than those working at provincial and local level to directly protect or manage the biodiversity. This has then led to inadequate management or poor response to crisis situations. One constraint in preventing and fighting the forest fires in Indonesia in 1996-7 was that resources were administered centrally and the provincial governments had insufficient resources to respond. In response to the massive economic and biodiversity losses, central resources were allocated post facto to the regions.

Another problem in a number of countries is that the revenue generated from the management of the biological resources frequently accrues to the central government rather than the provincial or district governments which are responsible for their direct management.

It has been noted by counties in the region that it has often been difficult for many countries to access international funding due to complex procedures for application. This can also be partly attributed to the lack of experience and skills among agencies staff preparing the proposals. Often, there is also mismatch of local needs and donor priorities, resulting in many of the projects being donor driven rather than meeting the priorities of the government.

In terms of sustainability of activities, most external funding is project or site oriented and does not support long-term capacity needs of the institutions. Therefore, many institutions have difficulty in maintaining or enhancing the capacity once the project has been completed.

3.4.5 Shortage of staff

This factor is mentioned by a significant number of countries. In some cases it is directly linked to the shortage of financial resources, but in other it is a case of inappropriate staff allocations or government policies to downsize the civil service. Again the problems seem to be significant at the provincial and district level whereas national level agencies tend to have more or adequate staffing levels. In response some countries have initiated decentralization programmes, but these may be of limited effectiveness, with well-trained or experienced staff being reluctant to move to the local level. Examples of low capacity can be seen in countries such as LAO PDR where only five permanent staff are allocated by the Provincial government of Champassak for the management of 12 protected areas covering 500,000ha. (fortunately external donors and projects support an additional 50 temporary staff).

Staff shortages may also occur at the central level in some circumstances. In Malaysia, the Ministry of Science Technology and The Environment established a Division of Conservation and Environmental Management in 1991 with a staff of 1 mid level and 2 junior staff. The responsibility of the division was to handle the development, promotion and implementation of all international agreements related to the environment. The workload has grown considerably and by 1999 the division was responsible for more than 10 environmental conventions and agreements as well as a broad range of domestic policy and implementation tasks – but with the same 3 staff positions. Fortunately in early 2000, the government has approved an additional nine positions, but the low staffing levels significantly constrained actions in the earlier years.

3.4.6 Shortage of facilities and equipment

Most agencies in the region have insufficient facilities and equipment to undertake their responsibilities. This shortage is often most severe at the provincial or district level.

3.4.7 Inadequate information base

Decision-making on biodiversity issues is still constrained by a lack of accurate information on the status of biological resources in the respective countries, districts or protected areas. In addition, the lack of effective monitoring systems in many countries impedes effective reviews of the effectiveness of management measures in improving the status of biodiversity.

3.4.8 NGOs and Community Based Organizations

Within the region, there is increasing recognition of important role NGOs and community based organizations play in biodiversity conservation. However, NGOs are largely constrained by the following:

- (a) *Startup support:* Most NGOs face difficulty in obtaining startup support in terms of financial and human resources to carry out initial activities;
- (b) *Strengthening organizational management:* Many of the NGOs and community-based organizations are not managed efficiently. Due to a lack of skilled or experienced management team, many of the projects implemented by NGOs and community based organizations often run into various problems of mismanagement;
- (c) *Learning from successful experience:* There are relatively few information exchange networks that allow NGOs and community based organization to share their experiences or to learn from the success of others within the region; and
- (d) *Sustainable financial base:* This is perhaps the major constraint faced by these groups. Sustainability of activities in the long run is dependent on the ability of the organization to continuously mobilize funding support from the donor agencies. In general, most donor agencies provide grants for short term interventions (1-2 years) and very little beyond that.

3.5 Capacity needs at the individual level

Some of the key issues and needs related to capacity development at an individual level related to biodiversity include:

3.5.1 Shortage of specialists in required technical fields in biodiversity

Many developing countries face a shortage of technical staff to carry out the necessary planning and implementation required for conservation and management of biodiversity. Some of the identified fields include:

- (a) Taxonomy,
- (b) Bioprospecting,
- (c) Integrated ecosystem management (river basin, coastal zone approach),
- (d) Biosafety,

(e) Special Issues related to Convention.

Most of the government agencies in the region encounter problems in capacity retention, as there is a lack of incentive and rewards to retain capable and trained staff with skills that are highly demanded in the private sector and elsewhere.

Countries such as Vietnam have established longer term strategies in education and training to meet the human resources requirements for the management of biodiversity, including enhancing the biodiversity related courses offered at the universities, research institutions (botany, ecology, biotechnology, etc.).

3.5.2 Lack of training

In general, there are very few specific training courses in biodiversity conducted locally. In most countries, “on the job” training is often the only training provided, which is inefficient and involves trial and error. Furthermore, there are very few local language information or training material available for trainers. In terms of areas that require training, there is a need to improve planning, administration and proposal development skills. With the increasing use of Information Technology tools, there is also a need for training and support for electronic networking and access and use of the World Wide Web (WWW).

3.5.3 Lack of training in negotiation & implementation of conventions

Convention delegations from region are often small, and members may change over time, hence making it difficult for proper follow-up on issues. At times, delegation members lack negotiation skills or full understanding of implications of decisions made at convention and meetings. Due to this lack of capacity, implications of decisions made at conventions are sometimes poorly interpreted and disseminated at national level, thus, impeding the proper implementation of convention decisions.

3.6 Current efforts to address capacity needs at local, provincial, national, and regional levels for the management of biodiversity

Over the past 10 years there have been an increasing number of activities at the regional, national and local levels to address capacity needs for the conservation and use of biological diversity. Some selected examples of such activities include:

3.6.1 Regional level

- (a) South Pacific Regional Environment Programme (SPREP). SPREP was established through agreement between 22 nations in the South Pacific region as a mechanism to support regional cooperation and capacity building related to the

environment. Biodiversity has been a focal area over the past five to ten years and a broad range of workshops, training, policy and institutional support activities have been undertaken;

- (b) ASEAN Regional Centre for Biodiversity Conservation (ARCBC) was recently established in The Philippines to enhance the capacity of ASEAN countries to promote biodiversity conservation through institutional linkages, collaborative partnerships, strengthening human resources capability, dissemination of information and formulation of proposals to coordinate regional initiatives on biodiversity conservation.;
- (c) Regional Community Forestry Training Centre (RECOFTC) in Thailand was established in 1987 and has conducted a broad range of different courses on different aspects of community forestry and conservation of forest resources. The Centre organizes regular courses on Integrating Conservation and Development activities in conjunction with WWF. It is also organizing specialist courses such as on Community Based Tourism for Conservation and development; and
- (d) Wetlands International - Asia Pacific is a regional NGO based in Malaysia, but with a network of offices and partners in the region. It has provided considerable support for capacity development at systemic, Institutional and individual levels over the past 15 years. Initial activities focused on individual level training through training courses and on-the job training in the area of wetland assessment and monitoring. Subsequently it focused more attention on addressing capacity issues at systemic and Institutional levels as it was felt that unless there was a strong policy and institutional framework for wetland conservation then individual training would be ineffective in building long term capacity.

3.6.2 Country level

- (a) Vietnam:

Over the past five years specific training has been provided on biodiversity related subjects such as:

- (i) Biodiversity conservation and forest management training for 900 rangers (about 10% of total rangers); and
- (ii) Training for staff from 10 Ministries and scientific institutions in access to biodiversity information on the Internet.

(b) Indonesia:

- (i) Establishment of a User Advisory Group Information System, operating under LIPI , for the creation and maintenance of a Biological Diversity Inventory.
- (ii) Establishment of Yayasan Kanekaragaman Hayati Indonesia –KEHATI . (Indonesian Biodiversity Foundation), a non-government organization (established with a large trust fund from US and Japanese funding) aimed at providing funding and technical assistance to NGOs, community based organizations and biodiversity research institutions.
- (iii) Seminars and workshops in capacity building and community empowerment in sustainable use of biodiversity, held in East Kalimantan (1995-96).
- (iv) Workshops on the initiation of Concept on Community based Management Protected Areas, held in Serpong, West Java -1995 and Medan, Sumatera-1996.

3.7 Lessons Learned

Some of the lessons learned from previous experience in capacity development in the area of biodiversity in the Asia Pacific Region include:

- (a) **Need for detailed needs assessment prior to development of capacity building programmes:** Many of the capacity building or training activities undertaken in the region have been undertaken without the prior development of a detailed needs assessment of the relevant institutions. As a result some training has been driven by perceptions or “wants” rather than needs.
- (b) **Process rather than product driven support:** Many previous programmes providing support to biodiversity conservation or capacity building have focused very much on products and specific outputs such as detailed research reports or management plans or sophisticated database systems – often in the English language – or they have measured success in terms of number of courses held and people trained rather than improved capacity in the respective institutions. In recent years – more projects have started to use a process rather than product driven approach – by focussing on a process of extensive engagement of stakeholders and determining needs and facilitating a process of internal change to a locally agreed objective. Process oriented projects may be slower to produce printed outputs or other products as they move at the speed of the local institutions/ individuals. However, they appear to lead to more lasting change and outputs which have greater local support and ownership.

- (c) **Training based in the regional or local training institutions are more effective:** In the past a number of donors provided considerable support for sending developing country personnel to study or undertake training in Europe or north America. In the area of biodiversity assessment and management, the ecosystems, species and management options in these regions are very different to those in the Asia pacific region and, thus, many trainees had difficulty in directly utilizing there experience or knowledge learned. This contrasts with other fields such as accounting or engineering where there may be little differences in approaches between Europe and developing countries. Hence in future training related to biodiversity assessment and management is best based in the country or sub-region as the trainees institution.
- (d) **Look at sustainability of capacity development after external intervention is complete:** There have been a number of problems in the region where training programmes and institutions supported by external funding were not able to continue after the withdrawal of such support. For example Support was provided by GEF in the early 1990's for the establishment of three training centers in different protected areas in Vietnam. However, after the end of the three year project – there have been insufficient government funds to continue the training activities at the required level and as a result the facilities are underused and poorly maintained.
- (e) **Need to address critical national or local issues:** In order for capacity development activities to yield rapid results it may be strategic to focus initial efforts to address critical national or local issues.
- (f) It is important for the appropriate institutional framework to be established before capacity development activities are undertaken. For example Danced funded a project to support the management of Malaysia's first Ramsar site on the understanding that the management authority would be established in the first year of the project. Unfortunately the management authority was only established 12 months after the completion of the project and, thus, almost all of the project activities were conducted by the consultant and the capacity has been lost at the end of the project. There is now a request for a second project to train the new management authority.
- (g) **Need to better link technical and economic or livelihood aspects of biodiversity:** Up until five years ago there were very few capacity development or training projects which have tried to link the conservation aspects of biodiversity with the socio-economic aspects. As a result those trained in biodiversity conservation were often unable to engage other economic sectors in co management activities. There is now an increasing trend to provide more integrated training, but this still remains a gap.
- (h) **NGO and CBOs need sustaining finance which can be provided by conservation trust funds:** Biodiversity Conservation Trust funds Such as KEHATI mentioned

above have proved to be useful mechanisms to provide sustaining support to the NGO/CBO sector to support their strategic activities such as awareness raising or community mobilization.

CHAPTER 4: CLIMATE CHANGE

4.1 National Obligation under the UNFCCC

The ultimate objective of the FCCC is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (Article 2, UNFCCC). This objective is further spelled out in a list of commitments (Article 4) which each country is to fulfill as Party to the convention. Briefly, these are an inventory of GHG emissions and sinks, measures to reduce emissions and facilitate adaptation to climate change, application of climate friendly technology, sustainable management of GHG sinks, plans and programs for adaptation and protection of vulnerable areas, incorporation of climate change considerations in its national policies, research and systematic observation, exchange of information related to climate change and the socio-economic consequences of response strategies, public awareness, and a national communication which details a Party’s implementation of the Convention.

4.2 National priorities and processes for addressing convention obligations

In principle, national priorities and efforts of most countries to address global climate change are reflected in activities which are described by its national communications to the FCCC. This national communication is supposed to contain the country’s inventory of its greenhouse gas emissions and a general description of steps that have been or will be taken by the Party “to implement the Convention” (Art12.1, UNFCCC). An inventory and a plan of action pre-supposes an institutional mechanism at the national level which is designed to orchestrate all these activities. A common mechanism is the formation of a national authority (usually a multi-agency committee) together with the UNFCCC focal point who are tasked with this particular function of coordination and oversight.

4.3 Capacity needs at the system level

4.3.1 Overall policy framework

If the national communication to the Convention is an indication of a country’s overall systemic capacity to fulfill its Convention obligations, then it is worthwhile to note that of the 48 countries in the Asia Pacific region, only 14 countries have submitted their national communications. Eight of these are from the SIDS subregion. The Asia Pacific region itself is recipient of 20 GEF-funded enabling activity projects dating as far back as 1992 up to 1998. The national communication is a powerful policy instrument. It sets directions and priorities and plans which are supposed to guide a nation’s meaningful participation in the global effort of attaining the Convention’s objectives.

For many countries in the Asia Pacific region, the weakness of an overall policy framework designed to address climate change is immediately evident from a perceived need to integrate “climate change policy into national development strategies and plans” (Annex, Decision 10/CP5). The reasons for such may range from lack of awareness on the part of decision makers to at times conflicting, confusing mandates and functions of responsible agencies.

This is echoed in Vietnam’s own in-country assessment which states that the carefully laid out institutional arrangements among the various agencies that compose the Vietnam Climate Change Country Team (VNCCCT) with the Hydrometeorological Service (HMS) as focal agency do not necessarily lead to actual coordination and integration of climate change activities. Among the factors that make integration difficult to achieve in practice is the lack of understanding among those who participate in this team.

This constraint cuts across all major issues of greenhouse gas abatement, vulnerability assessment and adaptation planning where coherent policy directions are difficult to find. Specific capacity development interventions needed to address the lack of overall national climate policy framework revolve mainly around clearly defining the mandates of various agencies engaged in climate change, strengthening climate change focal points “or national authorities designated to coordinate climate change activities,” instituting mechanisms of accountability to the public, and raising the level of public awareness of the issue. Moreover, there is the need to strengthen “relevant and key academic and research institutions and non-governmental organizations” (Annex, Decision 10/CP5) in their capacity to respond to the developing country issues and concerns of climate change.

4.3.2 Legal/Regulatory framework

In terms of a legal or regulatory framework, it is quite possible that such a country framework already exists which overlaps with the concern of climate protection. Thus, it is possible to have energy, forestry, urban development, coastal management policies already in place. The primary constraint in this area, however, is the pervasive lack of implementation and enforcement. Many countries in the Asia-Pacific region may well relate to the experience of Indonesia in their in-country assessment report:

- (a) **Forest policy:** Forest and agriculture policies are in fact adequate in relation to the GHG emission control. However, the implementation of these policies is poor, whereby monitoring and law enforcement are poorly done. For instance, greening program, forest conservation activities, etc., have not been implemented properly to increase the carbon sink function. The challenges have been poor awareness amongst the important players, and inadequate human resources in the affected regions.
- (b) **Energy policy:** Indonesia is currently undergoing policy reforms in many sectors, including the energy sector. Comprehensive and holistic policy has been drafted and in the process of obtaining the government’s approval through its Parliament. Subsidies in all types of energy that are

incorporated in the energy tariff have so far hindered the effort to reduce GHG emission by the general public. The draft submitted to the Parliament has covered issues on reducing subsidies, which would affect tariff increase, and, thus, force the public to use energy more efficiently. However, this has to be approached carefully as in the difficult current economic condition, implementation of tariff increase could cause social unrest across the country. The challenges have been the low enforcement and commitment toward environmentally friendly industrial practices.

- (c) Government policies in the transportation and energy sectors have not supported the reduction of emission. Among others, clean fuel policy has not been implemented, as reflected from the fact that the production of two-stroke motorbikes has not been stopped, while mass transportation has not been enhanced qualitative and quantitatively. Emission control for all types of vehicles has not been properly carried out.
- (d) The main obstacle/barrier is that even when the planned tariff increase has been approved by the parliament, which effectively reduces the government subsidy, such plan has to be postponed due to the potential social unrest that would ensue if implemented immediately. In the transportation and industry sectors, the economic crisis has made it practically impossible to implement the policy for emission control, even for the smallest effort [Indonesia CDI In-Country Assessment].

Some of the highlighted causes of this lack of enforcement are the lack of inter-sectoral coordination, of systemic and institutional commitment, and the low level of public awareness due in part to apathy coupled with the urgency of other more pressing development issues. Responding to this gap in enforcement requires system level resources such as human, financial, and information resources. In small administrations such as SIDS, these resources are already strained to the limit while in others, the lack of enforcement calls for a redeployment or enhancement of existing capacity.

4.3.3 Economic framework

The importance of an economic framework in climate change enters more prominently in the issue of greenhouse gas abatement. Market mechanisms skewed towards fossil fuel utilization (because of their ready availability and familiarity) are identified to be a major constraint. Capacity needs in this area focus on market development, the promotion, development, multiplication, and utilization of alternative energy systems beyond the pilot stage and in areas where feasible. Information, human, financial, and technical resources are, thus, needed to capably analyze the impact of subsidies and incentives, market mechanisms, and to enhance the public appreciation and use of these abatement systems. These needs are likewise stressed in areas where traditional fossil fueled systems are being renovated for greater efficiency.

4.3.4 System level resources

An enabling environment for investment in renewable energy systems is hampered by factors other than market and policy forces. While espoused as popular alternatives in many developing countries in Asia and the Pacific, the effectivity and sustainability of these systems depend on the availability of technically accurate energy resource assessments, endogenous capacity in the workforce to gain access to and absorb this alternative technology, and an “enlightened” population that can discern the value (for climate protection) of these alternative systems of power.

Policy statements in this area of energy that directly touch on climate change are difficult to come by mainly because of immediate economic, political, and local environmental considerations that often prevail over global climate protection concerns in developing countries in the region. Thus, many countries will resonate with China’s statement that it is rational to “focus first on a ‘no regrets’ policy for GHG reduction; i.e. policies or projects that make sense for economic, social, or environmental reasons other than GHG reduction. A no-regrets policy is particularly important for low-income countries, where there are many other urgent developmental needs and environmental concerns.” This sentiment is likewise found in the Convention itself where implementation by developing country parties has to “take fully into account that economic and social development and poverty eradication are the first and overriding priorities” of these countries (Article 4.7, UNFCCC).

Other countries will likewise treat GHG mitigating systems more as a form of tapping other viable sources of energy and of breaking away from the perennial dependence on fossil fuel (which drains their foreign cash reserves) rather than as GHG abatement. There is need, therefore, to internalize (on a systemic level) the external costs of global climate degradation through extensive training on the relatively new economics and science of this global issue. In this regard, capacity is likewise being sought to familiarize the various sectors in the country with the various policy instruments such as command-and-control and market based mechanisms being forwarded today in the climate arena. Capacity to discern the applicability of either or a mix of both in the unique social, economic, and political context of a country is needed.

System level prioritization of the climate issue on the part of developing countries in Asia Pacific is severely hampered by an ideological constraint which sees the issue as one of equity that must necessarily take into account the “common but differentiated responsibilities and respective capabilities” of the Parties in the work of attaining the Convention’s objective of GHG concentration stabilization. By its nature, the issue is a “long term” environmental issue and is, thus, readily undervalued in subsistence cultures such as those found in most developing Asian Pacific countries. There is need, therefore, to build country capacity via training and awareness programs which enable the country to gauge its own “differentiated” responsibility and capability to respond to the Convention’s objective, and to understand and engage itself in the complex interplay of domestic and international, short and long term concerns within the climate issue.

It is interesting to note that in spite of the constraints cited above, capacity needs have been mentioned in the area of the clean development mechanism which provides for the participation

of developing country parties in the climate protection effort through funding of their initiatives in sustainable development. Capacity needs here include the establishment of institutional linkages, project development and implementation, development of sustainable development indicators, project negotiation skills, and other such aspects that are required for meaningful participation in this Kyoto Protocol mechanism.

4.3.5 Processes and relationships

In the area of processes and relationships, the multi-faceted, multi-sectoral nature of the issue of climate change lends itself easily to confusion or fragmentation of institutional mandates and responsibilities. This lack of institutional cohesion vis a vis climate change is discussed in greater detail in the next section on capacity needs at the institutional level.

Additional to the subject of system level processes and relationships, the value of civil society or NGO participation in climate-related activities has been often cited. Thus, for example, in national communications or environmental action plans, parties have noted the multi-sectoral basis of these instruments in which the expertise and resources of NGOs, the academe, and the private sector have been tapped. What capacity remains to be developed here is largely the ability to manage the sometimes disparate agenda of the different public and private institutions which are actively involved in this global issue. In instances when either government or civil society is weak or when complementarity between the two is handicapped, capacity needs naturally focus on developing those relevant and key institutions by renewed infusion of financial and material resources and the expansion of a human resource pool of experts.

4.4 Capacity needs at the institutional level

The strengthening of a country's institutions to enable it to fulfill the Convention's objective is hampered by an interplay of a number of factors such as the lack of coordination and planning, of participation, of information management, of stability and continuity, and of institutional flexibility.

4.4.1 Coordination and planning

The lack of coordination within and among the different sectors of society (e.g. government, NGOs, civil society, private sector) indicates that serious capacity needs exist in the area of management and leadership. While climate change is necessarily a multi-agency effort, it is not clear whether the institutions which compose this national committee or office, already beleaguered by other national concerns, act in concert or whether climate policy and implementation is de facto concentrated in an elite group of individuals within the bureaucracy. It is nonetheless incumbent upon the leadership to define clearly the mandates and functions of all the constituent agencies performing under this national coordinative authority. Enabling this clear definition of institutional roles and functions is an important capacity need. The experience of Nepal in determining their climate change focal point is most illustrative:

The institution that has the most capacity in managing climate-related activities is the Department of Hydrology and Meteorology (DHM) under the Ministry of Science and Technology.¹ DHM carried out the bulk of the studies of the US Country Studies Program and has also submitted proposals to other donors to carry out additional activities to update this study. It is the focal point for the Intergovernmental Panel on Climate Change (IPCC). DHM is also the designated executing agency for the ongoing GEF project. DHM has recently developed expertise in mitigating against Glacial Lake Outburst Floods especially through carrying out the Tsho-Rolpa GLOF Risk Reduction Project (HMG/MOST/DHM 2000). This project is successfully lowering the water level of the Tsho-Rolpa Lake and has also installed an early warning communication system for the safety of residents downstream. Increased glacial lake outburst activity is expected to be a major impact of global warming in the Himalayas.

The Ministry of Population and Environment (MOPE) has been designated the focal point of the UNEP implemented GEF study. After it came into existence in 1995, this Ministry also became the main collaborating agency for the USCSP project. However, MOPE is severely short on technical manpower and has very limited direct capability to handle issues related to climate change. This has led to the controversy regarding which Ministry should be the focal point for ongoing and future GEF projects regarding climate change in the country.

¹ DHM has sixty professional staff and 153 technicians supported by 48 administrative staff. Among the professional staff, five hold a PhD degree and more than thirty hold a Masters degree (HMG/N MOST 1999).

MOPE argues that its mandate is to coordinate environmental activities especially those, like climate change, which cover more than one Ministry. Managing the impacts of climate change and carrying out abatement and sink enhancement activities would fall within the mandate of Ministries of Agriculture, Water Resources, Forests and Soil Conservation, Industry, Transportation, and Science and Technology. MOPE is quite happy to have DHM carry out the technical execution of the project but sees its own role as coordinator of the overall effort. The Ministry of Science and Technology argues that through DHM, it has both the mandate and capability to carry out activities related to climate and does not need another Ministry to interface with donors. Its staff should attend international conferences and interact directly with the international conventions and, thus, should be the focal point for this activity. This particular conflict has reached the Cabinet without a satisfactory resolution. In the meantime, it has seriously delayed the ongoing GEF project [Nepal CDI In-Country Assessment].

In addition to all this, the need for enhancing management and administrative capacities can be seen in the lack of coordination and communication when it comes to projects that are being sourced through external bilateral or private sector funding. Thus, for example, it is possible that in the bureaucratic confusion of mandates and functions, energy departments or industries can be accorded climate-related project grants/loans independent of or without the concurrence of this overall multi-agency coordinative body.

The need to strengthen administrative and management capacities vis a vis the lack of institutional coordination is made all the more acute especially in the light of the multi-disciplinary, multi-sectoral character of the climate change issue. In such a situation, duplication of efforts could readily arise both within and among institutions. In the context of scarce resources for which developing country institutions have to compete, this is clearly counterproductive. It also follows that developing management capacity entails training people in institutions to plan effectively and to evaluate policies and measures according to well-defined performance indicators.

All this assumes of course that there is a central group which coordinates climate change related activities in the country. This may not be always the case as in Sri Lanka which is still proposing a national Climate Change Secretariat within the Ministry of Forestry and Environment as a national focal point for implementing the Convention (FCCC/SB/2000/INF.6).

4.4.2 Participation

Although there has been steady recognition and acceptance of the important role which civil society and NGOs have played in global climate change, capacity is still needed to increase the level of participation of all stakeholders. In most Asian Pacific countries, the current level of public and private participation and intelligent debate in critical global climate issues leaves much to be desired. This dearth of participation is made all the more acute in climate policy formulation and implementation. The effectivity of any such participatory approach to decision

making will also necessarily depend on the level of conscientization of all the participants in the policy formulation and implementation process. Capacity interventions are, therefore, needed to increase the participation and level of understanding of all the stakeholders in this issue.

4.4.3 Information management

Information is a critical institutional commodity whose value has been appreciated only recently due perhaps in part to the increasing complexity of issues which institutions have had to address regularly. Institutional performance critically depends on the organized and managed flow of information. New technologies that foster the systematic flow of information are still lacking in most developing countries in Asia Pacific.

A technological gap in managing this system of information is not, however, the only constraint. Thus, as Lebanon acknowledges:

The technical aspects are pretty straightforward. There is a notable lack of expertise and skilled manpower, monitoring plans are almost non-existent, standards are not yet ratified and updated-upgraded equipment is lacking. ...existing databases are to begin with, chaotic, dispersed, inaccurate, sometimes old and, therefore, can not be used as a reliable source of specific information..."
(Lebanon First National Communication to the UNFCCC)

A major hindrance to the diffusion of information within and among institutions is the ignorance of the importance of certain segments of information (sometimes already available) that are needed for effective policy design and implementation. In other cases, prevailing turf mentalities prevent the transfer of information to others. Clear guidelines need to be set on how information is passed on especially by those who have availed of training or capacity building activities. Access to climate critical information can, however, be institutionalized by information policies which promote and protect the public's right to information especially if such were obtained through public funds. Capacity is, thus, needed to enable agencies to set up managed systems of climate related information, to supervise and retain capacity that has been built up through information or training, and to institutionalize public access to publicly owned information.

4.4.4 Stability and Continuity

In climate change, a critical constraint to an institution's performance of its mandate is the lack of continuity and stability brought about mainly by the perennial drain of its human resources to other groups such as intergovernmental and private agencies. Such cooperation eventually exacts a critical toll on the power of such countries to participate effectively in various climate initiatives such as in international negotiations. Thus, for instance, it has been observed that the composition of national delegations changes with every COP. Capacity is, therefore, needed to stabilize the composition and expertise of the climate change core groups of each developing country. Developing capacity in the public sector may also mean creating institutional mechanisms that will maintain competitive salaries and ensure career mobility within the civil

service system. Capacity is likewise needed to develop a large pool or “critical mass” of resource people in both government and civil society who are conversant with the multi-faceted issue of global climate change and who will back up the current crop of senior level climate players of the country.

4.4.5 Institutional flexibility

The relatively recent issue of climate change has brought about the need for institutional flexibility. Many of the institutions now engaged in climate change initiatives are agencies that were previously tasked with old mandates, operating under structures that may have worked while local environmental issues were still the focal concern. Overlaps between climate concerns and traditional environmental issues have allowed these agencies to take on the new task of climate change. It may not be readily apparent but the global character of the issue often casts a different light on the mandates and functions and structures required of these participating agencies. It may be the case that the load and attention demanded by such a global environmental issue requires a full-time climate change structure (adequately empowered on the national scale) rather than part-time individuals engaging themselves in the issue every so often when the need arises. Capacity is, thus, needed to evaluate structural relationships within and among institutions engaged in global climate change, and to institute changes that will enable a country to respond more efficiently to a global issue whose dynamics may at times move beyond the confines of national boundaries.

Corollary to this issue of institutional flexibility, and while this may not be prevalent in the region, it is worthwhile to note that for certain countries, there are marked functional dichotomies within institutions that are involved in climate protection. Thus, for instance, bureaus within agencies can collide simply because these agencies have been tasked to perform both regulatory/conservation and resource utilization functions at the same time. Such an internal configuration taxes the flexibility of the institution to address environmental issues effectively. In addition, it may also happen that the creation of a separate agency or corporation with a specific mandate to address global environmental issues runs into conflict with existing agencies traditionally vested with environmental functions. Capacity here is needed to evaluate and propose and implement policies designed to ensure the institution’s flexibility to perform its mandated function.

4.5 Capacity needs at the individual level

Most of the capacity development constraints and needs at the individual level touch on the issues of human resource availability, awareness raising, information sharing, and skills training. The constraints that have been identified are the lack of human resources, the generally low level of public awareness, the lack of information dissemination, and the absence of requisite skills to address climate change.

4.5.1 Human resources

The lack of human resources needed to address global climate change is a constraint that has been raised time and again in discussions of human resource development. The elite few who are involved in this issue are also engaged in other environmental concerns which sometimes understandably take precedence over the global. Some of these qualified country experts are likewise saddled with so many travel commitments that they are not in their home country most of the time. There is, thus, a capacity need to build a larger pool of resource persons conversant with the many intricate issues of climate change.

4.5.2 Public awareness

The generally low level of awareness may also be at the root of the many constraints that have been mentioned both at the systemic and institutional level. In the list of priority issues, Understanding was second to Adaptation and was even considered more urgent than Abatement. Capacity interventions in this area stressed the need to raise the environmental awareness of policy and decision makers first to replenish whatever lack of political will that seems to erode the environmental agenda in developing countries. It is also to be noted that the discrepancy between the knowledge and skills of local policy makers and country negotiators is an important constraint that needs to be addressed by this awareness raising intervention. Thus, in the case of Vanuatu, while it was actively involved in the development of the UNFCCC:

...this level of awareness and commitment is not shared by many in-country organizations and individuals. The majority of the population including many policy and decision makers within government and non-government organizations in Vanuatu have minimal understanding of the various aspects of global climate change, its implications and ramifications at a local and national level. (Vanuatu National Communication to the UNFCCC, July 1999)

4.5.3 Information dissemination

The lack of information sharing has already been mentioned in the previous section. In the face of available training opportunities outside the country, capacity needs in this area seek to ensure the return of these trainees to their home country and the systematic passing on of whatever

training they have received. Capacity is likewise needed to facilitate and institutionalize regular contact and information exchange among national and regional experts.

4.5.4 Requisite skills

A notable capacity gap at the individual level is the dearth of skills needed to effectively address the manifold challenges of climate change. Thus, capacity intervention here touches on the acquisition of skills in vulnerability assessment and adaptation planning, abatement analysis, project development and management, international negotiation, fund raising, and administrative skills such as strategic planning. Because the availability of such skills is also constrained by financial matters, capacity is, therefore, likewise sought to address this lack of funding while ensuring, as above, that the training received diffuses effectively into the recipient country.

Vietnam's capacity needs, in addition to the serious barrier of language, may be illustrative of other country experiences in Asia and the Pacific:

The climate change projects implemented in Vietnam were technical assistant small projects. These were not large-scale projects. The reason of this is a lack of skills on development of the climate project. It is difficult for national experts to understand the criteria and requirements for the climate change project, how to differentiate the local interest and global benefit. The capacity needs to train a very good group of experts, may be some from each sector. They will be skilled experts to give the consultation to the sector experts when it is necessary [Vietnam CDI In-country Assessment].

4.6 Current efforts to address capacity needs at local, provincial, national, and regional levels

In the Asia Pacific region, past and present efforts to address capacity needs in climate change are the following:

- (a) Climate Change in Asia: Regional Study on Global Environmental Issues (1992-1994, ADB), which was an integrated assessment of climate change impacts and analysis of policy options for mitigation and adaptation for a number of Asian countries
- (b) Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS) (1994-1998) that was designed to assist 12 developing countries in building their capacity to conduct their own GHG inventory, and to formulate least-cost strategies to reduce GHG emissions.
- (c) U.S. Country Studies Program (1993-1997) which aimed to assist countries in fulfilling their obligations to the UNFCCC, including the development and implementation of national policies and measures on climate change.

- (d) CC: Train Program of the United Nations Institute for Training and Research (UNITAR) which assists developing countries in preparing their national communications, V&A assessment, and climate change policy.
- (e) South Pacific Regional Environment Programme (SPREP) activities to assess vulnerability and adaptation options in the Pacific SIDS.
- (f) GEF enabling activities which aim to assist countries in their national communications. In the Asia Pacific region, 20 out of 48 countries are recipient of this fund.
- (g) System for Analysis Research and Training (START) activities for South Asia, Southeast Asia, and Temperate East Asia which aim to strengthen the scientific capacity of the region by linking scientists and institutions.
- (h) The Asia-Pacific Network for Global Change Research (APN), an inter-governmental network, which seeks to promote global change research and interface science with policy.

4.7 Lessons learned

- (a) Capacity development in climate change cannot but be country driven. There is, thus, the need to harness the motivational forces that underpin the desire to build one's own capacity to respond to a global environmental issue. The level of conscientization, of ecological awareness on the part of a country's citizenry will all have to play a part in capacity development. In this, each country is then to assess its own capacity constraints on all three levels. Wherever possible, it can and should define capacity indices which describe the degree of built or developed country capacity for fulfilling the Convention's objective. Likewise for those countries with already built up capacity in certain areas, it would be good to evaluate the retention of such capacity.

In line with this, there is the need for each developing country to set its own national priorities instead of gravitating towards "donor funding simply because it is 'there'."

This concern for a country driven assessment is echoed by UNITAR/CC: Train when it acknowledges that:

National projects should be implemented and directed by national teams and the so-called "implementing agencies" should facilitate the implementation by the national teams. This means that in providing services like training, technical support, project management, country teams should be consulted and actions must be taken to meet their concerns and needs. (FCCC/SB/2000/INF.9)

- (b) A stable leadership is necessary because of the temporal shifts and multi-sectoral nature of the issue of climate change. Capacity development efforts must take into account the limitations posed by terms of political office of the country leadership. In many instances, the national composition of the climate change core group changes with the shift in political leadership. This is to be expected especially because of the ministerial presence required in the negotiations. The presence of a stable core group of senior climate change people (backed up by junior staff) should be maintained despite the shifting sands of the political landscape.

In the UNDP Independent Mid-Term Evaluation of UNITAR's CC:TRAIN, one recommendation which has been accepted by UNITAR is to develop a two-tier country team approach in the context of preparing the national communication and national implementation strategy. The first tier of this country team will be composed of senior representatives of interested parties while the other tier will be composed of individuals with technical and other relevant expertise and experience.

- (c) The participation of regional partners and national experts in capacity building activities has been recognized as a valuable contribution in terms of ensuring timely and sustained assistance in technical and policy matters. According to UNITAR, their participation has also led to "the production of high quality training materials" and to the provision of contextualized training that "reflects current understanding, best practices, and regional and national requirements."

UNDP has likewise recommended the strengthening of the existing CC:TRAIN network of regional and national experts and institutions offering certificate courses in order to support the work of the regional partners in ensuring the quality of activities and products.

- (d) Because of the complex, multi-faceted nature of the issue and because of the exigencies of a developing economy, it can no longer be incumbent on either government or civil society alone to take on the challenges of climate change. All will have to draw from each other's expertise. The base of action and implementation will have to be broadened. The importance of multi-sectoral consultations in developing national implementation strategies has also been recognized.
- (e) As observed, in some countries in Asia and the Pacific, a consequence of recent moves towards democratization is the growing demand by local governments for greater autonomy in determining their development paths and a keen interest in taking the lead in managing their development problems. Besides, it is difficult to get the participation for action on the local level if people's own priorities and strategies for resource protection and mobilization are not properly incorporated in the planning process. There is then a need to formulate policies that will maximize environmental gains from decentralization and devolution that involves the redistribution of authority and functions across different levels of government.

For instance, on behalf of the SIDS, J. Bryant (CDI questionnaire) writes about the reason for the success of some initiatives in both biodiversity and climate change:

The most successful ... are where the communities take charge of the process and the concept of biodiversity [or climate change] is owned by the people themselves. This happens with slow and careful consultation.

The experience of Laos and the Philippines is described below:

In support of a strategy to improve urban environmental management, the Laos government proposed a decentralized environmental management program that would enhance the role of provincial environment offices in environmental planning and policy implementation.

In most cases, planning and regulatory functions in areas such as air and water quality are retained by the national government. In the Philippines, The Environmental Management Bureau of the DENR handles these tasks for the national government, unfortunately, however, these tasks are not well established at the local level where actual work should be carried out, especially for megacities such as Manila.

- (f) On account of institutional constraints, projects lodged in certain government agencies are not adequately sustained. To avoid this, it may be necessary to consider whether a particular government agency that is 'sponsoring' the project, based on its track record, is the appropriate organization to implement such a project. There seems to be a strong tendency for certain government agencies to spread out their functions too thinly (in order to grow in power and importance). Not enough mechanisms are provided to ensure that existing projects are undertaken by those equipped to implement and sustain the operations of certain facilities or projects.
- (g) To be effective and comprehensive, capacity development programs must not confine themselves to cultivating technical and scientific competence. Institutional effectiveness and efficiency assumes a degree of administrative support for the implementation of projects. Some projects may have failed, partly because they were undertaken without the administrative and management capacity. The success of a future project is only as good as the technical and administrative capability of the agency charged to implement the project.

Vietnam, for instance, has experienced a number of issues of this nature which has tremendously affected the effectiveness of institutional performance. Identified constraints include the lack of capacity in the planning, management and coordination of assistance projects. Hence, these projects often take a purely technical approach rather than an integrated approach to sustainable development programs.

In relation to building administrative and management capacity, policy development likewise needs to be given attention since this has been seen to be more the bottleneck in capacity activities than technical matters.

- (h) Capacity building initiatives in technology transfer need to take into account the specific social and cultural context within which the technology is expected to thrive.
- (i) Active participation in international efforts to address climate change issues may require an adequate national legal framework. The ability of government agencies to initiate and participate in activities responsive to international calls depends on the institutional support provided by such a framework.
- (j) A sound organizational culture is a prerequisite to an effective and efficient government service. Institutional cultures very often define the required and tolerable behavior in an organization. Even when policies are clear, interpretations are sometimes bent on what is socially acceptable. A sharper analysis of the bureaucracy in developing countries, especially among Asian countries, can shed some light on the behavioral dynamics taking place and how they impact on organizational effectiveness.

Without incentives to excel, government institutions tend to be mediocre in meeting their objectives. Capacity interventions may include the institutionalization of an organizational culture that emphasizes positive attitudes, ethical behavior, and professionalism; continuing education and training; and a merit system based on professional competence and performance.

A strong political will and good governance, instilling professional ethics and public accountability and transparency are only a few of the measures that can maximize the capacity building initiatives offered to enable a country to fulfill its Convention obligations.

CHAPTER 5: LAND DEGRADATION

5.1 National obligations under the Convention to Combat Desertification (CCD) Obligations of affected country Parties

The main national obligations under the CCD are as follows:

- (a) give due priority to combating desertification and mitigating the effects of drought, and allocate adequate resources in accordance with their circumstances and capabilities;
- (b) establish strategies and priorities, within the framework of sustainable development plans and/or policies, to combat desertification and mitigate the effects of drought;
- (c) address the underlying causes of desertification and pay special attention to the socio-economic factors contributing to desertification processes;
- (d) promote awareness and facilitate the participation of local populations, particularly women and youth, with the support of non-governmental organizations, in efforts to combat desertification and mitigate the effects of drought; and
- (e) provide an enabling environment by strengthening, as appropriate, relevant existing legislation and, where they do not exist, enacting new laws and establishing long-term policies and action programmes.

5.2 National priorities and processes for addressing global environmental and convention obligations

5.2.1 Types and Causes

Land degradation in the region is of many types. It includes degradation by water and wind erosion, because of chemical contamination and due to other physical factors.

Lynden and Oldeman of the International Soil Reference and Information Center, Wageningen have classified twenty ways in which human induced soil degradation occurs in South and Southeast Asia (Lynden and Oldeman 1997).

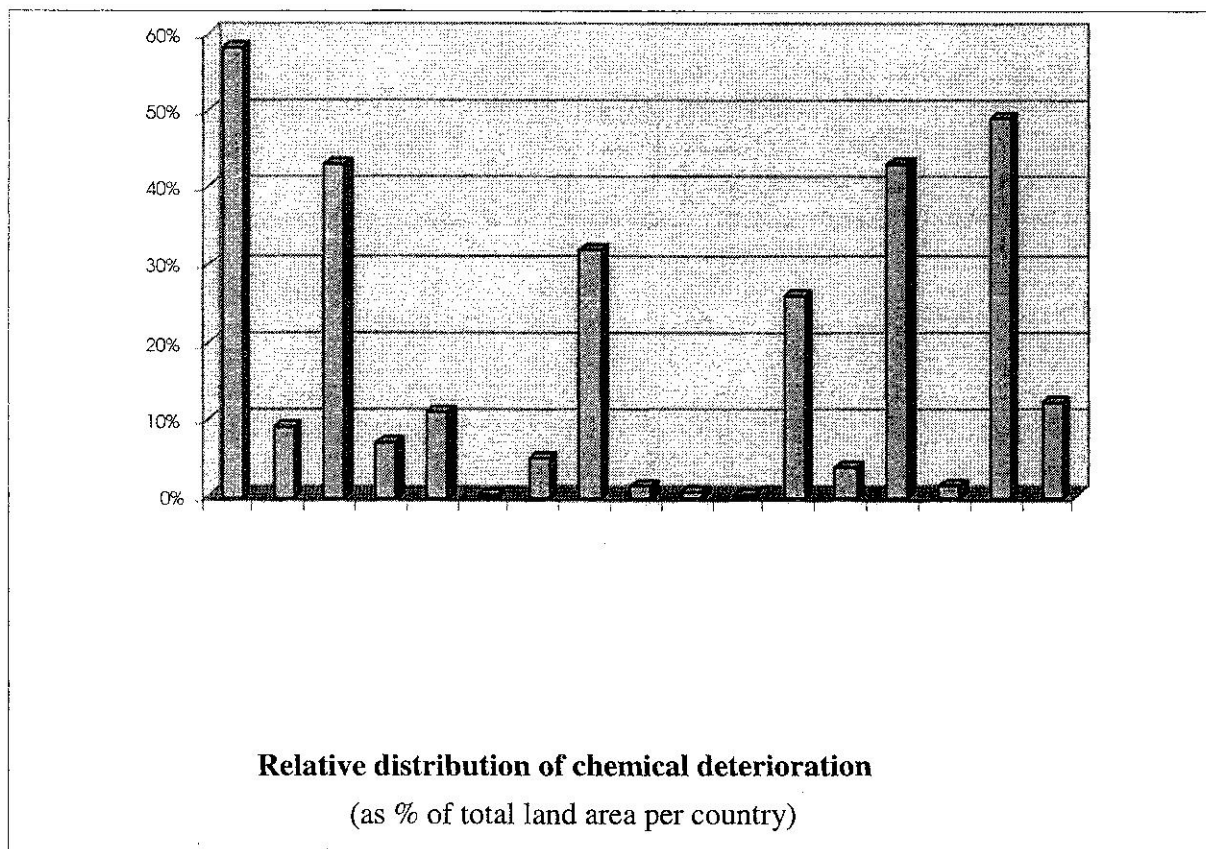
These include: Sheet erosion/surface wash; Terrain deformation; Off-site effects of water erosion; Loss of topsoil by wind action; Fertility decline and reduced organic matter content; Pollution; Salinisation/alkalinization; Dystrification; Eutrophication; Compaction; Sealing and crusting; Waterlogging; Lowering of soil surface; and Aridification.

5.2.2 Extent

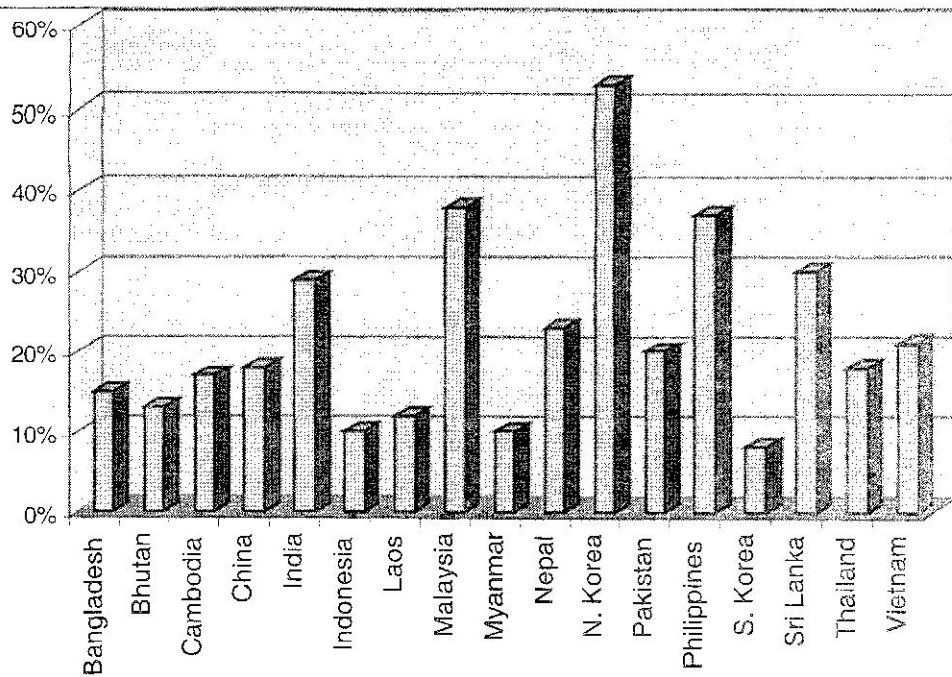
Two major studies have been done in the 1990s to assess the extent of land and soil degradation in countries of Asia. The first was a global assessment to develop in 1990 a World Map of the Status of Human-Induced Soil Degradation (GLASOD). According to this database, the distribution of main degradation types in South and Southeast Asia was as follows: water erosion - 72.7% of the degraded area, wind erosion - 19.9%, chemical deterioration - 7%, and physical deterioration - 0.5% (Lynden and Oldeman 1997).

However, a more detailed and subsequent exercise (1994) of Assessment of the Status of Human-Induced Soil Degradation in South and Southeast Asia (ASSOD) for 17 countries² came up with the following figures: water erosion - 46.7% of the degraded area, chemical deterioration - 24.3%, wind erosion - 19.8% and physical deterioration - 9.2% (Lynden and Oldeman 1997).

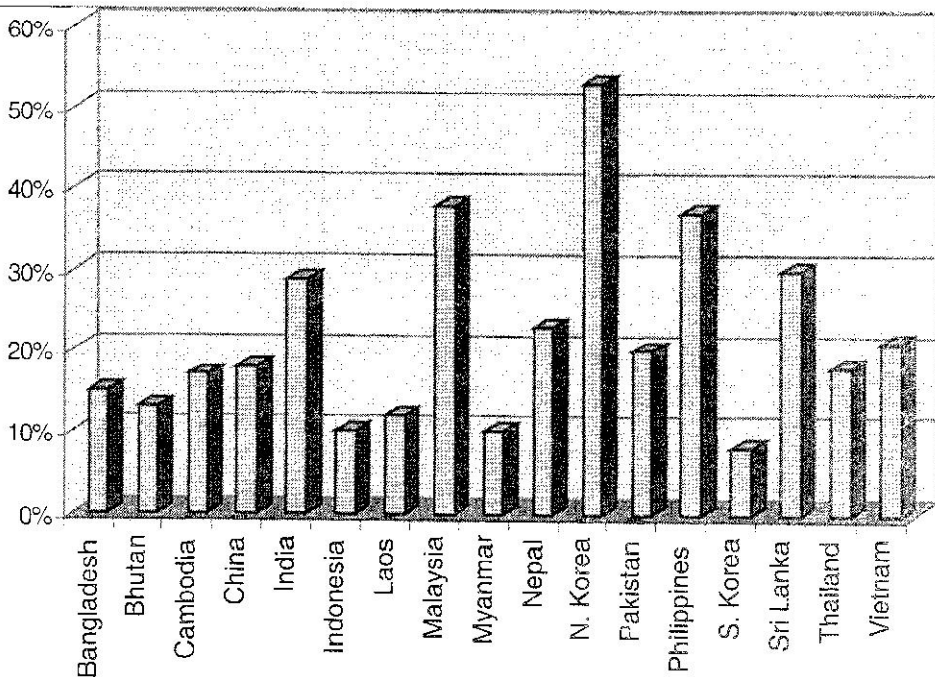
Of course, there were variations within countries, as can be seen from the tables below.



² Bangladesh, Bhutan, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, N. Korea, Pakistan, Philippines, Sri Lanka, S. Korea, Thailand and Vietnam.



Relative distribution of water erosion (on-site effects)
(as % of total land area per country)



Relative distribution of water erosion (on-site effects)
(as % of total land area per country)

According to the GLASOD estimates, as quoted by Anthony Young (Young 1994), approximately 25% of the region was affected by water erosion (32% of the dry zone and 20% of the humid zone). Similarly, approximately 18% was affected by wind erosion (39% in the dry zone and 0% in the humid zone). Further, 3% of the region was affected by soil fertility decline (0% in the dry zone and 6% in the humid zone)³. Other forms of land degradation are listed as follows: waterlogging – 1% of the region; salinization – 13% of the region, mostly in the dry zone; lowering of ground table (aridity) – 6% of the region, totally in the dry zone. On the whole, this assessment determined that 43% of the agricultural land in the region was degraded in one form or another, 66% in the dry zone and 24% in the humid zone. The national figures varied from 94% in Iran and 75% in Bangladesh to 10% in Bhutan.

According to the GLASOD estimates (Young 1994), national estimates of area affected by water erosion varied from 46% in Sri Lanka and 45% in Iran to 10% in Bhutan. Similarly, area affected by wind erosion varied from 60% in Iran and 42% in Pakistan to 0% in Bhutan, Bangladesh and Sri Lanka. Soil fertility decline was highest in Bangladesh (65%), followed closely by Sri Lanka (61%), and 0% in Afghanistan, Bhutan, Iran, and Nepal. Pakistan led in water logging (8%) and Iran in salinization (27%).

In addition to these countries, there are also various small island countries in the region that have some common and some unique problems. By far the most extensive land degradation problem in these island states was deforestation, followed by coastal erosion due to inappropriate land use policies and practices and destruction of coastal vegetation and coral reefs. Pollution, industrial and domestic, and the flow of silt due to deforestation also affected the coral reefs and the coastal areas (Anon 1996, EIU 1998-9, EIU 1999, GEF-Fiji 1998, UN-Kiribati 1997, UN-Marshall 1997, UN-Micronesia 1997, UN-Niue 1997, UN-Samoa 1997, UN-Vanuatu 1997, DRO 1998, UN-Cook 1997, and UN-Fiji 1997).

The region can be divided into the following broad categories:

Categories	Major land degradation issues
<i>Islands</i>	<i>Deforestation, coastal erosion</i>
<i>Coastal zone</i>	<i>Coastal erosion, loss of coastal vegetation (especially mangroves)</i>
<i>Humid zone</i>	<i>Water erosion, loss of soil fertility, pollution, physical deterioration</i>
<i>Dry zone</i>	<i>Water erosion, wind erosion, water logging, salinization, aridity,</i>

5.2.3 National Priorities

The national priorities for addressing the problems of land degradation can be categorized as follows:

³ A revised estimate shows much higher figures generally and both in the dry and humid regions.

(a) *Assessment*

The first priority for each country of the region is to take stock of its land resources and to:

- (i) Catalogue the areas that are already degraded, assessing the nature of degradation, its extent and severity, the current status, trends over time including the rate of change, the direct and indirect causes of degradation.
- (ii) Demarcate, from among the degraded areas, those that can still be salvaged if immediate remedial action is taken, and the type of remedial action that is required. There are areas where, for example, deforestation has occurred but the soil is still intact and, if soil and water conservation measures are immediately initiated and vegetative cover provided, the soils could be saved with relatively little effort and expenditure.
- (iii) Identify those areas that are facing an imminent or possible threat of degradation, either because of established trends or because of imminent or probable changes in land use. Examples of the first type include areas where there are unsustainable human pressures that would result in land degradation if not checked and reversed soon. Changes in land use, in terms of initiating infrastructural projects, mining activities, clear-felling, introduction of irrigation, withdrawal or diversion of water resources, etc. are examples of the second type.
- (iv) Identify those factors and activities that inevitably, or are likely to, lead to land degradation, including deforestation, pollution and contamination, inappropriate construction, changes in land use, changes in water use and storage patterns, inappropriate agricultural practices, destruction of coastal vegetation, coral reefs and sand banks, etc.
- (v) Identify the root causes for actual and potential land degradation, including poverty and underdevelopment, lack of planning, lack of expertise, lack of resources, lack of institutional capacity, etc.
- (vi) Identify the impact of land degradation, especially the social, economic and environmental impacts and the impacts on inter and intra generational equity.

(b) *Awareness*

The next priority would be to raise the awareness of various stake holders in the country, the region and the World about the problems, threats and opportunities relating to the control and prevention of land degradation and desertification. This would include:

- (i) Making the people of the country aware of the status and threat of land degradation, the implications that these have on their lives and on the lives of future generations, and the methods, possibilities and opportunities available to them to prevent and reverse the trends of degradation. This is critical both to help spur the governments into action and also, once action has been initiated, to ensure that there is public support and participation, without which most action is doomed to failure.

- (ii) Making the decision makers and professionals in the country aware of the problems and solutions relating to land degradation. They must be presented with the detailed findings of the assessment phase and the costs of land degradation and the costs of inaction must be spelled out. Whereas the costs and benefits must not be understood as only economic ones, but also as social, cultural and environmental costs, as most national planning processes are preoccupied with economic development and growth, efforts must also be made to translate them into economic and financial ones, both actual costs and opportunity costs. This is necessary to ensure the cooperation and participation of the government and other professional bodies in the action that needs to follow.
- (iii) Raising the awareness of regional, global and international agencies and bilateral and multilateral donor organizations and professional bodies so that appropriate financial, material and professional support becomes forthcoming.

(c) *Action*

Based on the assessment and building on the awareness levels created, the next priority is to initiate and sustain appropriate action. This involves:

- (i) Developing action plans for national and sub-national levels, right down to the smallest cohesive habitation or land management unit (village or sub-watershed). These action plans must be time bound, with clear objectives and strategies, but with the flexibility required to benefit from, and be responsive to, feed-back and monitoring. They must specify clear milestones against which progress and achievements, both quantitative and qualitative, can be measured. Responsibilities must be clearly identified and appropriate financial budgets, again with the required flexibility, must be included and the sources of financial support identified. The plan must be developed in participation with all the major stake holders, especially the local communities, and must involve all these stakeholder in its implementation.
- (ii) Establish priorities for action, keeping in mind the priorities set out in the Convention for Combating Desertification.
- (iii) Integrate the action plans and the concerns for land degradation into the multi-sectoral national and sub-national plans and assure the interface of these action plans with plans of other critical sectors like agriculture, forestry, rural development and water resources.
- (iv) Initiate additions and modifications to the existing body of policies, laws and programmes in order to adequately and appropriately address concerns about desertification and land degradation.
- (v) Initiate capacity development activities, at institutional and individual levels.
- (vi) Strengthen or set up the required institutional structures at the various relevant levels, especially at the co-ordination level.

- (vii) Set up a consultative process to facilitate interaction between the key stakeholders.
- (viii) Set up a mechanism to involve key international partners and to coordinate efforts at securing their support and participation.
- (ix) Secure both internal and international financial support.
- (x) Secure national and international technical cooperation.
- (xi) Initiate field level programmes and activities, involving all concerned government departments, professional and research institutions, NGOs, local groups, and the community.
- (xii) Initiate actions for strengthening local level capacities.
- (xiii) Develop partnerships with local institutions and enter into agreements and understandings.
- (xiv) Set up a monitoring and evaluation mechanism.

5.3 Capacity Needs

By far the most pressing need in most, if not all, of the countries of the region was for **heightened awareness**, among the various stake-holders, about the problems, threats and opportunities relating to the control and prevention of land degradation and desertification. These included:

- (a) The need to make the general public of the country (and region) aware of the status and threat of land degradation, the implications that land degradation has on their lives and on the lives of future generations, and the methods, possibilities and opportunities available to them to prevent and reverse the trends of degradation. This was seen as a critical need at both the systemic and institutional levels, to help spur governments and governmental institutions into action and also, once action has been initiated, to ensure that there is public support and participation, without which most action is doomed to failure. It was also seen as a critical need at the individual level, to motivate people.
- (b) Perhaps even a greater need was the need for making the decision-makers and professionals in the country aware of the problems and solutions relating to land degradation. This was seen primarily as a need at the individual level, but governmental and professional institutions and the systems, as a whole, also needed to be sensitized to land management concerns. The criticality of this need was expressed in connection with many other constraints, for example the

problem of harmonizing conflicting policies and laws, or of getting various institutions to act cohesively.

- (c) Another felt need was for raising the awareness levels of regional, global and international agencies and bilateral and multilateral donor groups, towards issues of land degradation. This was seen as a critical need in order to ensure that, on the one hand, appropriate financial, material and professional support was forthcoming and, on the other, that all interventions by these bodies and organizations, into countries and regions, were in consonance with the needs for land conservation. Involved in this were awareness needs at both individual and systemic levels.

A distinct but related need is the need for a system to **assess and disseminate** the costs of land **degradation** and the costs of inaction towards preventing it. The costs and benefits must not be understood as only economic ones, but also as social, cultural and environmental costs. However, as most national planning processes are preoccupied with economic development and growth, efforts are also needed to translate them into economic and financial ones, both actual costs and opportunity costs. This is seen as a critical need if various departments and professional bodies are to be made to agree on cohesive policies, laws and action plans. Apart from the systemic level, this is also a need at the institutional and individual levels, for there is a need of institutions with the mandate to carry out such assessments and of individuals with the required expertise.

In most of the countries there was a felt need for a focussed policy on land degradation. However, most countries had some policy, even though much of it was either focussed on forest land or of a very general nature. However, the main need that emerged was the need to resolve **policy overlaps and conflicts**. It was generally agreed that this was a major constraint to the proper conservation of land resources. Though institutional structures existed in many of the countries to resolve such conflicts and minimize overlaps (e.g. Bhutan, China, Jordan, Myanmar, Sri Lanka and Pakistan), it was a broad consensus that these institutional structures did not function effectively.

It was also recognized that, in order to resolve policy conflicts, there was a need for a clear and comprehensive **sustainable development plan** at the national level. Such a plan must not only contain measurable and time bound objectives but also a detailed strategy. It must contain detailed sectoral objectives and strategies for each of the sectors and must contain clear guidelines of the principles to be used in resolving conflicts between sectoral interests. Such a plan must have broad acceptance of all the major stakeholders and should have legal sanctity.

An important related need was to have a system for **conducting environmental impact assessments for all policies**, existing or proposed, so that their impact on the environment was determined. This was seen as a first step to meeting the earlier stated need of harmonizing policies across sectors. There was the need to have a systemic acceptance of this principle, to have institutions with the relevant mandate and to have individuals with the required expertise.

Most countries also had laws relating to the environment in general and to land degradation, especially on forest-land, in particular. However, many of these laws were considered inappropriate and outdated and there was a need to revise them. A greater need, however, was to have the existing **policies and laws implemented and enforced**. There was a perceptible need for institutions that had the capacity, the authority and the commitment to ensure implementation and enforcement. There was also a felt need to develop, among the individuals managing the system, an understanding of the importance and relevance of the policies and laws and the consequent need to ensure strict compliance.

There was also a need to make the **policies and laws publicly accepted and realistically enforceable**. This involved setting up a participatory system of formulating and implementing policies and laws. Such a system needs to be democratic, decentralized and transparent and needs to be operated through institutions, manned by individuals, who have the capacity and the orientation to be able to work in partnership with all stakeholders, especially the local communities. However, mere participation is not enough and there needs to be a system that ensures that policies and laws are realistic and just and take into consideration the field reality. The system needs to ensure that policies and laws do not threaten the survival of local communities and that economic and other losses that result from the implementation of such laws and policies are equitably shared and, as far as feasible, compensated for, especially where they affect poor communities.

Though most countries have institutions dealing with the environment in general and with forests and land in particular, there appeared to be a critical need for **institutional co-ordination and co-operation**. The most critical seemed to be the need to have harmony between the various institutions of the government.

Also at the institutional level, but also at a systemic level, there was a felt need for greater **transparency and accountability**. This was seen as a precursor to good governance and also as a necessary condition to make the system, and each institution in it, more participatory and open to scrutiny and interaction.

At the institutional level, another significant need was for better **personnel policies and practices** in order to motivate the staff, particularly the field staff. The problem of motivating staff to work in the field was particularly acute in countries where the availability of infrastructure, like educational and health facilities, in rural areas was significantly less than the urban centres. In some countries, financial and other incentives were being given to the staff to serve in rural and remote areas. However, this only ensured their presence there and not necessarily their commitment.

At the individual level, the most significant need was for proper **training and orientation**. Apart from the fact that the staff was not always appropriately deployed, most were not equipped for the challenges that they had to face. There was a particular need to keep up with the latest thinking and to become aware of the experiences and experiments in other parts of the world. At an institutional level, there was a need for training

A corresponding need was for **information**, especially for information that was appropriate to local conditions. In most countries there was no effective information service that could respond to the requests for information, especially in local languages. There was also poor dissemination of traditional knowledge, which was seen as being particularly relevant to local conditions. This was both a systemic and an institutional need.

The need for **financial resources**, especially for a fair and appropriate share of the nation's financial resources, was also seen as critical. A corresponding need was for skills to negotiate better allocations of funds from international agencies and from convention related sources.

There was also a felt need for **regional co-operation**, especially for a shared perspective, strength in negotiating and bargaining in international for a, and a shared responsibility and burden for research and development.

Based on a survey of available documents and returned questionnaires, and on the discussions held at the meeting in Beijing, the status of capacity availability and needs is as follows:

A. SYSTEMIC CAPACITY												
Country	I. Policy Framework		II. Legal and Regulatory Framework		III. Management Accountability Framework		IV. Economic Framework		V. Systems Level Resources		VI. Processes and Relationships	
	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed
Bahrain			Yes									
Bangladesh	Partial ⁴	Yes		Yes								Yes
Bhutan	Partial ⁵	Yes	Partial ⁶	Yes	Yes			Yes				Yes
Brunei	Partial ⁷		Yes									
Cambodia	Partial ⁸		Partial	Yes								Yes
China	Yes		Yes		Yes	Yes						Yes
Indonesia	Partial	Yes	Yes		Yes							Yes
Iran	Yes			Yes	Yes	Yes						Yes
Jordan	Yes		Yes		Yes							
Korea (South)	Yes		Yes		Yes						Yes	
Laos	Yes		Yes	Yes		Yes						
Malaysia	Yes		Yes		Yes	Yes		Yes			Yes	Yes
Maldives					Yes							
Mongolia	Yes			Yes	Yes						Yes	
Myanmar	Partial	Yes	Yes	Yes	Yes							Yes
Nepal	Partial	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes

⁴ General environment policies and forest policies only

⁵ Only forest policies

⁶ Only forestry laws

⁷ Enforcement of laws is weak. There is a need for Coast Guards

⁸ There is an Environment and Natural resource Management Act

Pakistan	Yes		Yes									Yes
Papua New Guinea	Yes		Yes		Yes							Yes
Philippines	Partial	Yes	Yes	Yes	Yes	Yes		Yes				Yes
Sri Lanka	Yes		Yes	Yes	Yes			Yes				Yes
Vietnam			Yes			Yes						

B. ENTITY/ INSTITUTIONAL CAPACITY

Country	I. Mission/ Strategic Management		II. Culture/ Structure/ Competencies		III. Processes		IV. Human Resources		V. Financial resources		VI. Information Resources	
	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed
Bahrain											Yes	
Bangladesh						Yes	Yes	Yes				Yes
Bhutan					Yes	Yes	Yes	Yes				Yes
Brunei												
Cambodia		Yes						Yes				Yes
China							Yes	Yes	Yes		Yes	
Indonesia						Yes	Yes	Yes	Yes	Yes		Yes
Iran						Yes		Yes		Yes		Yes
Jordan								Yes			Yes	
Korea (South)												
Laos												
Malaysia							Yes	Yes				
Maldives								Yes				Yes
Mongolia					Yes			Yes		Yes	Yes	Yes
Myanmar								Yes				
Nepal	Yes		Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes
Pakistan						Yes				Yes		
Papua New Guinea						Yes		Yes				
Philippines		Yes		Yes		Yes		Yes				
Sri Lanka						Yes					Yes	Yes
Vietnam										Yes		

C. INDIVIDUAL CAPACITIES												
Country	I. Job Requirements and Skill Levels		II. Training/ Retraining		III. Career Progression		IV. Accountability/ Ethics		V. Access to Information		VI. Personal/ Professional Networking	
	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed	Exists	Needed
Bahrain												
Bangladesh												
Bhutan				Yes								
Brunei												
Cambodia				Yes								
China		Yes	Yes									
Indonesia												
Iran		Yes		Yes								
Jordan		Yes										
Korea (South)												Yes
Laos												
Malaysia				Yes								
Maldives				Yes								
Mongolia			Yes						Yes		Yes	
Myanmar												
Nepal	Yes					Yes		Yes		Yes	Yes	Yes
Pakistan												
Papua New Guinea				Yes								
Philippines		Yes						Yes				
Sri Lanka												
Vietnam												

5.4 Current efforts to address capacity needs at local, provincial, national, and regional levels

The following table tries to catalogue the major current efforts to address capacity needs at various levels and also gives details of capacity needs, supplementing the earlier section.

Systemic /Institutional Capacity Status*

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Bahrain	Salinisation, Groundwater Depletion, Coastal Erosion	There are various plans prepared		A National Environmental Directorate has been set up	A ground water monitoring and information system has been established	
Bangladesh	Salinization, Ground water depletion	There is a National Environmental Policy, a Forestry Sector Master Plan and a National Environmental Management Plan. There is also a management plan for the Sunderban.		There is a Ministry of Environment and Forests	There is trained staff for the Sunderban Reserve Forest	<ul style="list-style-type: none"> • There is a felt need for a new forest policy, adequate laws for enforcing the policy and a plan for sustainable land use management. • There is also a felt need for more trained staff as also for a national monitoring system. • There is also a felt need for community involvement and a co-ordination process and institution to ensure co-operation and integration among different departments.

* This chart attempts to summarize both systemic and institutional issues, in so far as details were available.

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Bhutan	Forest degradation	There are social and community forestry and agroforestry programmes. There is the Forest Policy, 1974; Forest Policy, 1991 RNR Sector Policy and RNR Forest Development Plan within the Seventh Five Year Plan (1992-97);	Forest legislation in existence since 1969. The laws relating to forest utilization are: Forest Act, 1969; Land Act, 1979 and 1992; Bhutan logging Corporation Charter, 1984; Social Forestry Rules 1990.	Forest Management Units have been established. There is also a National Environmental Secretariat that co-ordinates the implementation of the National Environmental Strategy.	Capacity for forest management planning has been increased. A human resource development plan for environmental management is underway. Significant progress has been made under the Capacity 21 Programme in enhancing the capacity of local training institutions such as the National Resource Training Institute and the Royal Institute of Management. UNDP is helping to take up environmental education which is encouraging people to formulate their own activities at the grass roots. Several media activities have been undertaken to increase the general population capacity to understand and apply the practices of renewable natural resources management.	<ul style="list-style-type: none"> • There is a felt need for a pricing policy and a policy for raw material allocation, concessions, and incentives. • Technical assistance is also needed. • There is also a need to revise the forest policy and law. • There is a need to have environmental legislation based on standards of environmental quality. • Trained human resources are required. • There is also a need for administrative decentralization and integration of natural resource planning for agriculture, animal

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Bhutan (continued)						<p>husbandry and forestry.</p> <ul style="list-style-type: none"> • There is also a need for effective monitoring mechanisms, including environmental indicators, and also a need for effective enforcement procedures.
Brunei	Coastal degradation. Illegal forest felling	There is a National Forest Policy of 1989		There is a Forest Department.		
Cambodia	Land mines; deforestation	There is a National Forestry Policy	There is an Environmental and Natural Resource Management Act	Forests are managed by various institutions, including the military.	Poor availability of human resources and information	<ul style="list-style-type: none"> • Due to the civil war and exodus of educated and skilled persons, there is a great shortage of trained personnel. • Though there is a law, it needs to be enforced effectively. • Information and monitoring systems are also required.

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
China	Soil erosion (wind and water), desertification, floods, droughts, deforestation, salinization, coastal erosion and destruction of coral reefs, loss of vegetation due to locust infestation, pollution, degradation due to mining,	There are the following policy statements : National Strategy for the protection of the marine environment and conservation of marine resources for sustainable ocean development; China's National Action Programme on desertification was adopted in 1994 and has been integrated in the country's five year National Economic and Social Development Plan; China has adopted the Capacity -- 21 initiative and many programmes involved in national level capacity and institution building in sustainable development policy and outreach have been started; China has finalized its Agenda-21 programme. It has been integrated into the 9 th Five Year Plan local level Agenda-21 activities are being piloted in select provinces and municipalities in China;	There are a large number of environmental laws and regulations in China. Desertification issues are covered under national resource management and conservation laws through the government's promulgation of related legislative acts; examples include the Forest Law, Water Law, Grassland Law, Land Management Law, Environment Protection Law.	There is a National Desertification Combating Coordinating Group. The National Desertification Control Office is located in the Ministry of Forestry in order to coordinate regular programmes and activities; coordination points have been created at different levels of local government. The China National Monitoring Centre for Desertification formed within the same ministry provides information on the changing dynamics of desertification and the results of combating measures. Governments of Guangdong, Guangxi, and Hainan provinces have created coastal management departments. At the national level there is the National Environment Protection Agency that has been created to administer	UNDP is funding a 1.5 million dollars programme to help implement the National Action Programme where 1/3 rd of the country is subject to desertification. Extensive marine monitoring system. In-depth studies of many coastal ecosystems carried out. Second National Marine Pollution Baseline Survey to be launched. The UNDP/UNSO have assisted the national authorities in designing and implementing a desertification information network. Its main purpose is to facilitate information exchange to monitor and evaluate desertification status and trends. Government officials and staff at all levels have received training in the principles and practice of sustainable development.	<ul style="list-style-type: none"> • Marine protected areas have been created but their management is not yet fully functional. • Enforcement of laws pertaining to coastal management has been problematic. • China does not have a Coast Guard. There is a need for one. • Marine resources pollution and use fees have been established, but lack of autonomy in the management of the fees leads to low compliance. • Enforcement of laws and regulatory framework is weak. • There are limited coastal management skills at the local level. • Management

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
China (continued)		In 1991 the government formulated policies on Desertification control and rational use of sandy deserts to facilitate enforcement of laws. China's also has a National Action Programme under the Convention to Combat Desertification. A Ten Year National Plan for Combating Desertification (1990-2000) and a National Plan for Water and Soil Conservation (1991-2000) have been prepared based on the Ten year China National Plan for Economic and Social Development		the Environment Protection Law (1989), the State Oceanic Administration and many other ministries that deal with environmental degradation and pollution. There are several technical and administrative bodies dealing with forests under the Ministry of Forests (MOF) including the Chinese Academy of Forests (CAF) and Sustainable Forestry Development Research Centre (SFDRC). There are also provincial forest bodies that report to MOF on technical matters and their governments on administrative or financial matters. Administrative Centre for China's Agenda – 21 (ACCA21) has been established.		<p>capacity in various agencies including the Chinese Academy of Forests (CAF) and Sustainable Forestry Development Research Centre (SFDRC) for sustainable forest development of the diverse forest ecosystems in China is required.</p> <ul style="list-style-type: none"> • There is also a lack of knowledge and capacity among forest farmers and other workers. • There is a need to build capacity of Chinese officials to apply for grants, soft loans etc. from various donors.
Indonesia	Deforestation, mining	Agenda 21 adopted for five sectors viz. housing, energy, mining, forestry and	Environmental Management Act passed in 1997. Communities enabled	Ministry for Development Supervision and Environment formed in	An eco-fund created to help finance environmental restoration projects and	<ul style="list-style-type: none"> • Integration of environmental considerations into development

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Indonesia (continued)		tourism.	to claim compensation through legal action.	1978. Agency for Environmental Impact Control established in 1990. Several regional and provincial Environmental Impact Control agencies also exist.	to compensate affected families.	<p>required.</p> <ul style="list-style-type: none"> • Technical and managerial expertise needed • Integrated sectoral information to be made available • There is a need to make available information like EIA reports, monitoring results and licensing agreements to the general public. • Local level decision makers do not enforce environmental regulations seriously. They need to be made aware of the importance. • Mass awareness required to overcome weak or poor compliance of laws and regulations

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Iran	Earthquakes, floods, water erosion, wind erosion, water logging, salinisation, chemical and physical degradation, aridity, deforestation, over grazing, desertification due to movement of sand.	National Action Programme on Sustainable Management of Land and Water Resources was launched in the second five year plan. National strategy for sustainable development and protection of the environment to become official policy.		There is a Bureau of Soil Conservation and Watershed Management which is a part of the Forest and Range Organization. Allow for modifications to be made in plans in response to changing circumstances and be sufficiently flexible at the local level to cope with different socio-economic, biological and geo-physical conditions. Eisai to become obligatory and Department of Environment to be reorganized. There is a National Action Programme supported by both the government of Iran and the UNDP. However, only a part of the country seems to get covered/		<ul style="list-style-type: none"> • Promote awareness and facilitate the participation of local population, particularly women and youth, with the support of NGOs. • Organize training of decision makers, managers and personnel . • Enhance national climatological, meteorological and hydrological capabilities. • Train field agents and members of rural organizations in participatory approaches for the conservation and sustainable use of natural resources. • Adapt relevant environmentally sound technology and traditional methods of agriculture and pastoralism to modern socio-economic conditions.

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Jordan	Aridty, soil erosion, urban encroachment, pollution, salinisation.	Many initiatives have been taken for the conservation of biodiversity as well as to tackle problems of water shortage and land degradation. UNDP is advising Jordan on the preparation of action plans and blueprints for its National Agenda 21 to meet the challenges of sustainable development. A National Environment Action Plan and a National Environment Strategy, has been adopted. Environmental Impact Assessment has been introduced as a prerequisite to all major development projects in Jordan. National Agenda – 21 project has been launched with the help of the UNDP.	There is also a National Environmental Law.	A Department of Environment exists in Jordan. A General Corporation for Environmental Protection has been set up to integrate the task of environmental protection of various concerned ministries and provide policy inputs to the government.	UNDP is helping in creating environmental awareness and encouraging people to change their environmental activities and attitudes. A central water database has been established.	<ul style="list-style-type: none"> • Skills are not adequate to carry out Environmental Impact Assessments for large industrial or developmental projects.
Korea, Republic of	Deforestation, pollution.	In the fifth five year plan (82-86), Environment Conservation was made an official policy. In the sixth plan, an	There is an Environmental Preservation Act.	There is a Ministry of Environment with the primary responsibility for environment protection. The Ministry of	Public lectures on the environment are organized. The Ministry of Environment co-operates with NGOs	<ul style="list-style-type: none"> • There is a need to initiate effective network systems. • Efforts are on to create a Korean

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Korea, Republic of (continued)		Environment Conservation Plan was included. The seventh plan stresses environment protection. Environment Policy statements have environment preservation and management included in them.		Environment is assisted by the National Institute of Environment Research and the Korea Environment Technology Research Institute. The Economic planning Board and the ministries of Foreign Affairs and Home Affairs also have regulatory functions pertaining to the environment.	and mass media to increase public awareness. National curriculum for schools contains environment related material.	<p>sustainable development network.</p> <ul style="list-style-type: none"> Environment Information Network for ROK will be developed.
Laos	Deforestation	There is a Capacity 21 programme that focuses on developing capacity at all levels for participatory planning, information dissemination and resource mobilization, etc.	Regulations to limit the felling of timber are in position.			<ul style="list-style-type: none"> There is a need for a law to protect the forests from illegal felling and to regulate slash and burn agriculture. Such a law should also facilitate in the setting up of protected areas. The ability to enforce existing regulations has to be upgraded.
Maldives	Coastal erosion, Deforestation			Assistance is being provided by the UNDP for the preparation of inventory and vulnerability		<ul style="list-style-type: none"> Monitoring and reporting capabilities are required.

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Maldives (continued)				assessment. The vulnerability assessment will establish the basis for a UNDP supported intervention aimed at strengthening national capacities for integrated coastal zone management. Emphasis will be on training and support to introduce geographic information system which would enable government agencies to monitor coastal erosion and sea-level rise. The expected impacts are that it will contribute to the development of the institutions and human resources required for the formulation and implementation of strategies and programmes in selected high priority areas like integrated coastal zone management.		<ul style="list-style-type: none"> • Training inputs are required.
Malaysia	Soil erosion, deforestation	The five year plans outline national strategies with regard to natural resource utilization.	Town and country planning Act 1976 (Act 172) provides for structural plans for 96 local authorities for	There is a Department of Environment.	<ul style="list-style-type: none"> • There is a need for developing human resources. 	

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Malaysia (continued)			Peninsula Malaysia. Additionally, Act A 933 enhances the element of environmental planning for sustainable development. There is also an Environmental quality Act 1974 to provide basis for co-ordination of all activities related to control of environment.			
Mongolia	Drought, desertification, fires affecting land, overgrazing, mining	The Mongolian Action Plan has resulted in fairly widespread consultations with the general public as well as NGOs, academics etc.. There is a Mongolian Action Plan for the 21 st century (MAP) to promote sustainable development, Mongolia is a signatory to the UN Convention to Combat Desertification and has formulated and adopted a Desertification Action Plan, and a Biodiversity Action Plan. Along with a MAP at a national level, there are also provincial or		Established Ministry of Nature and Environment and made a symbolic gesture at UNCED to have its entire territory declared a biosphere zone and open to the world for environmentally oriented research. Signed various conventions. An institutional framework (public awareness advisory group) for coordinated environmental awareness building has been set up. There is also a Natural Resource	Two NGOs developed the largest public awareness campaign ever held in Mongolia on Nature and Biodiversity. Students from every school participated, adults and teachers were also involved and weekly radio programmes were broadcast. Several other such programmes are planned. 100 park rangers and many other personnel trained by NPEMS for the management of natural resources. There is a computer and data management centre with a remote sensing	<ul style="list-style-type: none"> ◦ Knowledge and capacity is required to address and anticipate problems that could damage their environment. ◦ Community based initiatives are required to demonstrate the viability of sustainable use concepts. ◦ Widespread knowledge of sustainable development principles is needed.

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Mongolia (continued)		<i>Aimag</i> Action Plans.		<p>Policy Department, an Institute for Forestry and Wildlife, and a Ministry of Nature and Environment. National Park and Ecotourism Management Service (NPEMS) established to manage protected lands. There are national level NGOs like the Mongolian Association for the Conservation of Nature and the Environment, the Mongolian Gazelle society, and the Mongolian Environmental Law Society. There is a National Council for Sustainable Development that is chaired by the Prime Minister. Along with a Programme Implementation Unit, the formulation and implementation of the Mongolian Action Plan for sustainable development for the 21st century is being looked after by it. To facilitate better</p>	<p>department and biodiversity information management system. English language speaking abilities of the Directors of the Natural Resource Planning Department and NPEMS have been improved. International meetings and study tours have been organized in which MAP-21 implementers have participated. Also, government staff, academics and NGO representatives have been sent to attend international conferences on sustainable development. Over 100 Mongolian legislative experts were exposed to model environmental legislation. Capacity of organizations to conduct public awareness campaigns have been improved. UNDP has contributed additional resources towards establishment of local sustainable</p>	<ul style="list-style-type: none"> • More trained personnel needed. • There is a need to further increase NGO participation in decision making, information dissemination and programme implementation at both national and local levels. • There is a need for the development of legal mechanisms aimed at sustainable development at the central and local levels using MAP as an overall strategic framework. • There is also a need for policy development and support for the implementation of the Biodiversity and Desertification Action plans/ • There is a need for

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
				information exchange, a network of natural resources data users has been organized. To facilitate better information exchange, a network of natural resources data users has been organized. Several seminars and workshops have been held in Mongolia and lots of material prepared for the dissemination of conservation related information.	development funds for the implementation of small pilot projects.	<p>the development of financial instruments aimed at sustainable development at the central and local levels using MAP as an overall strategic framework.</p> <ul style="list-style-type: none"> • There is also a need for the development of a resource mobilization strategy with special emphasis on resource mobilization for programmes like MAP. • There is a need of funds for the management of natural resources.
Myanmar	Deforestation	There is a forest policy.	There are laws such as the Forest Act, Factory Act, and Food and Drug Act. The Pesticides law and Marine Fisheries law have also been enacted.	The National Commission for Environmental Affairs has been established. The NCEA has joined the sustainable development network of the UNDP.	Regional seminars were held on desertification and integrated land use and sustainable forest management.	<ul style="list-style-type: none"> • Education and awareness activities for the environment, especially targeted at the women, youth and children, are required.

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Myanmar (continued)						<ul style="list-style-type: none"> • National training in conservation and management of protected areas is required. • A comprehensive national environmental policy encompassing all aspects of environmental conservation and protection is required. • A comprehensive environmental legislation is required.
Papua New Guinea	Coastal erosion, deforestation	There is a Capacity – 21 programme that aims to integrate sustainable development concepts into the planning process and develop capacity for local bottom up planning.	Total Environmental Catchment Management (TECM) passed by cabinet to set regulatory framework for environment. Organic Law for greater decentralization of Planning passed.	Re-establishment of the National Planning Office, in 1995, to allocate natural resources.		<ul style="list-style-type: none"> • Financial management training for decentralized planning required. • Advocacy campaigns in environmental issues required. • Government's

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Papua New Guinea (continued)						<p>capacity to enforce laws needs to be enhanced.</p> <ul style="list-style-type: none"> • Co-ordination among natural resource-oriented government departments and between NGOs needs strengthening.
Philippines	Degradation of coastal areas, deforestation, loss of mangroves, soil erosion	Philippines Agenda 21 uses peoples centred, ecosystem based approach to protect and regenerate the environment.	There is a Republic Act (RA) 7611, adopting the strategic Environmental plan (1991).	There is a Department of Environment and Natural Resources (DENR). There is also a Coastal Environment Program (CEP). The CEP is under DENR and integrates programs, projects and initiatives related to or concerning coastal environments.	UNDP is supporting capacity building of individuals to manage the lands under ancestral domain. Capacity building of local government units & communities in environmental management is required and will be done.	
Pakistan	Over grazing, deforestation, water erosion, wind erosion, salinisation, water logging, loss of soil fertility, aridity, pollution	A National Conservation Strategy (NCS) has been approved in 1992 by the cabinet of Pakistan. The 8 th five year plan has acknowledged that the environment is a major issue.	The major law is the Pakistan Environmental Protection Ordinance, 1983. Other ordinances and codes exist for agriculture (1971), forestry (1927), wildlife (1974), cultural resources, motor vehicles (1965) and factories (1934).		The 8 th five year plan allocated 1% of Pakistan's GNP to support implementation of the NCS. Concerns and awareness of Pakistan's environmental problems are spreading." The government has	<ul style="list-style-type: none"> • Use of modern methods for irrigation required. • There is a need to change the land distribution pattern in favor of small farmers who are more efficient at using land than the

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Pakistan (continued)					recognized that "the lack of supportive frameworks of regulations as well as institutional mechanisms" for environmental issues are a problem.	<p>"feudal lords" in Pakistan.</p> <ul style="list-style-type: none"> There is a need to better implement the existing laws and policies.
Sri Lanka	Coastal erosion, mining of corals, deforestation, soil erosion, shifting cultivation, landslides, floods, pollution.	Formulated National Environmental Action Plan 1992-96. A national land use plan also exists.	<p>Enacted the National Environment Act (1980). Amended in 1988 to make it mandatory for projects to have an environment impact assessment done.</p> <p>Adopted the National Environmental (Protection and Quality) Regulation of 1990.</p> <p>EIA guidelines applicable to forestry development have been prepared.</p>	<p>Established a Central Environment Authority in 1981, to formulate policies and programmes for environmental protection and management. Set up an Environmental Council in 1982 and District Environment Agencies in 1984.</p> <p>Appointed a Minister of cabinet rank in 1990.</p>	<p>An environmental data base system- The Environmental Information Management System (EIMS)- has been designed and developed</p>	<ul style="list-style-type: none"> There is a need to strengthen the forest department by setting up a forest protection division and revise the existing arrangements of forest ranges and beats. There is a need to integrate environmental concerns in to many departments and ministries of the government. There is a land use policy planning division which is primarily responsible for use and conservation of land. However, there is a need to

Country	Main land degradation issues	Policy	Law	Institutional responsibilities/ Mission	Human, financial and information resources	Priority Needs
Sri Lanka (continued)						<p>strengthen its capability to provide land use planning data.</p> <ul style="list-style-type: none"> • A new soil conservation Act to supersede the Act of 1951 is required. • Development of economic incentives is required to encourage environment friendly technologies. • There is a need to increase incentives to small farmers for soil conservation, provide assistant in erodible areas for soil conservation, provide alternate employment to farmers cultivating erosion prone lands and ensure that private enterprise operating in erosion prone areas invest in soil conservation.

5.5 Lessons learned

Some of the more common constraints that emerge while analyzing the situation and experience of countries of the Asia Pacific Region are described below:

5.5.1 Policy

- (a) There is a need for national and sub-national policies that are specifically focussed on land degradation issues and cover not only the symptoms but also the root causes.
- (b) Such policies must be integrated into the larger national policy framework so that they are not isolated but actually complement and harmonize with other policy statements, especially those that also deal with natural resources, directly or indirectly.
- (c) The formulation of such a policy or set of policies should be a participatory and transparent process involving as many of the stakeholders as possible and especially the local communities. If this is not done, the acceptability of the policy gets seriously compromised.
- (d) The policy must also envisage an implementation process that is also participatory and transparent.

The expertise to formulate such a policy (or set of policies) and the data and information base required, are not always available in each of the countries. The access to "model" policies is important and, perhaps, there is a requirement for a policy formulation manual or, at the very least, a set of guidelines. Such a manual can not only suggest a process and indicate the sorts of expertise and information required, but also give examples (regularly updated) of good or innovative policy statements. Examples can also be given of how common difficulties can be tackled or 'frequently asked questions' answered.

5.5.2 Legislative Framework

- (a) To operationalize the policy, various instruments, institutions and resources are required. First, appropriate laws must be formulated to give the policy the necessary legal force. These laws must also be participatorily formulated and have elements of transparency and participation in the implementation. As far as possible, locus standi must be given to all citizens and the law must stipulate easy access to critical information and expertise. Often laws are regulatory in nature, laying down what should not be done. However, in some cases there might be a legal requirement to lay down what ought to be done. So, for example, laws relating to land management can stipulate the level and periodicity of the monitoring required and also lay down that the results of such monitoring would be regularly made public.

- (b) Like in the case of policies, these laws must also be integrated into the larger body of law so that internal contradictions are smoothed out and there is no ambiguity in the legal provisions
- (c) A major constraint that has emerged is that even where there are strong laws there is an institutional inability or unwillingness to enforce them. This might be a result of one or more of many reasons. First, some laws are so formulated that they are by their very nature impossible to enforce, being either too complex, or too harsh, or demanding the level of expertise, knowledge or effort that is not easy to come by. Such laws might require unrealistic levels of institutional structures.
- (d) Then there are some laws that in their formulation or operation seem to be unjust – being significantly harsher on one group people than on others. Such laws often do not take into consideration the fact that those who are violating them might not have any real options. Such laws are usually not formulated in consultation with the various affected parties and become difficult to implement because they cause too much resentment and political unrest.
- (e) Another major problem is that, often, laws are formulated in consultation with experts and scientists and the basis for the law is not widely known. Where officials and judges are not convinced of the importance and criticality of the problem that the law seeks to address, they are very likely to ignore the law.

Like for policies, expertise for formulating the right sorts of laws is not always available. Again, inputs in the form of model laws, guidelines, etc. could be of great use. There is also a need to establish the need and importance of the law and of all its sections to members of the judiciary and to the civil servants, especially those in the field. This needs to be done through a series of interaction sessions and meetings. Innovative methods to ensure that laws are respected, including the involvement of community institutions must be focussed on.

5.5.3 Implementation and Institutional Framework

- (a) However, all elements of a policy need not, and should not, be dependent on the law for implementation. Various other instruments, including fiscal incentives, rewards and honors, plans, schemes and programmes need to be developed to ensure that policy objectives are achieved.
- (b) A comprehensive strategy for the implementation of a policy needs to be designed, keeping in mind the specific conditions in each country and the constraints and opportunities. This strategy must assess the resources and support required, what is available and from where the balance is to be obtained.
- (c) Appropriate institutional structures have to be either created or existing ones identified and perhaps strengthened. Whereas the expansion of a bureaucracy must be a last resort, without adequate personnel and institutions, policies and programmes are hard to sustain.

Institutions must be available at all appropriate levels and have clear mandates and chains of command. Perhaps one of the most common constraints thrown up by this assessment is that, however, strong and competent an institution might be, its ability to interact, co-operate and work together with other institutions remains a major weakness. The hierarchical structure of most governments promotes vertical loyalty and horizontal animosity, or at least indifference. However, programmes related to land management necessarily need an integrated approach.

- (d) Apart from the lack of interaction and co-operation, another problem that has been reported from country after country is the poor co-ordination between different sectors. Though most government structures have institutional mechanisms designed to resolve conflicts between departments and sectors, they mostly seem to be ineffective. Consequently, less favored sectors like conservation and protection often get bulldozed by more powerful sectors like industry, mining, agriculture and energy. This absence of co-ordination often negates the impact of progressive laws and policies. A common example is the scant attention paid while making decisions to the results of environmental impact assessments.
- (e) A similar problem arises when national and sub-national governments are making decisions regarding the allocation of resources. Strong and enlightened policy statements rarely convert into adequate levels of funding. And even though most of the countries being studied are poor and, therefore, in absolute terms, cannot afford to allocate large amounts for land management, even the proportion of their budget that is earmarked seems mostly to be much below what is warranted.

Though the strengthening of institutional structures, including co-ordination structures, has been a stress in many countries, mostly it has not been effective. Perhaps the major reason for this is that most national and sub-national governments are preoccupied with economic growth. Where land degradation concerns are expressed in non-economic, scientific or social, terms, they do not have much of an impact. It seems, therefore, a high priority to initiate an assessment of the hard economic cost of land degradation, direct and indirect, immediate and long term, so that when coordinated decisions are being made the decision makers are not expected to compare apples and oranges but have in front of them the financial and economic costs of land degradation and of inaction to prevent or reverse it.

5.5.4 Capacity Development

- (a) Many countries see themselves as lacking the ability to effectively negotiate with international agencies in order to secure a fair share of funds, or get their projects approved, or even secure professional assignments for their nationals.
- (b) The development of expertise and human capacities, especially scientific and managerial, remains one of the highest priorities. In country after country, inadequacy of expertise and of trained personnel is identified as a major constraint. Added to this is the inability to harness properly the existing expertise.

Information about available expertise remains poor and experts find it difficult to upgrade their knowledge and keep abreast of the latest scientific discoveries. Though the access to the web and internet has made matters easier, information is still not always available in appropriate forms.

The major thrust must be on building up the capacity, nationally and regionally, to train and educate local experts. The international community would find it much more efficient and very much cheaper to identify existing institutions in the region, of which there are many, and help them to become regional training and research institutions. These institutions should also take on the responsibility of running information systems for experts in the field and for having a well-structured system of refresher courses. Such a system, if properly supported by institutions across the World, would have the dual advantage of being able to teach the best of science and to teach it within local and national contexts.

CHAPTER 6 SYNTHESIS AND CONCLUSIONS

6.1 Priority cross cutting areas (from workshop discussions)

The following have been identified as priority cross-cutting issues:

- (a) Policy overlaps and conflicts preventing effective implementation or co-implementation of conventions,
- (b) Poor inter-institutional coordination and synergy,
- (c) Inadequate mechanisms to provide sustaining finance,
- (d) Insufficient and ineffective technology transfer (including traditional technology),
- (e) Poor convention negotiation capacity and dissemination of decisions made,
- (f) Inadequate or ineffective awareness generation on cross cutting convention issues, and
- (g) Poor human resource management and development strategies.

6.1.1 Cross Cutting Convention Issues

Poor coordination and consultation

The subjects being referred to here are the negotiators on the one hand, and the technical support groups and those tasked with implementation, on the other. The lack of coordination may be attributed to the fragmentation and unclarity of institutional mandates of the component agencies of the national committee entrusted with addressing the global environmental issue, and the dispersed (or non-uniform) capacity skills across the different stakeholders.

A suggested capacity development approach on both the systemic and institutional levels is to strengthen these coordinative national committees and the multi-sectoral agencies that compose these bodies. On the individual plane, capacity intervention is needed to ensure that knowledge and skills of country teams engaged in the negotiation process are at a level where effective resolution of issues can move forward.

No continuity in negotiation process

The key persons involved in the negotiations are often saddled with many other responsibilities within their institutions. In addition, the perennial lack of stability in the composition of these negotiating teams is exacerbated by cooperation by other groups (such as intergovernmental

agencies). Travel commitments, training opportunities abroad likewise strain the national capability to pass on and multiply the negotiation experience and expertise within the country. On the other hand, the degree of participation or attendance in the Conventions is determined by the availability of travel funds.

Possible directions for capacity development are: managed information systems or databanks to facilitate the transfer and exchange of critical negotiating texts or issues; policies or regulations which aim at maintaining these key persons within the country negotiating teams; funding mechanisms for sustained participation of key negotiators in the Conventions.

Inadequate preparation for negotiating positions/options

This constraint may be broken down further into the following components: the absence or inadequacy of nation or region-based policy and scientific research think tanks; the lack of people with requisite expertise to compose these think tanks or technical support groups; the inadequacy of information exchange, of experience sharing among developing countries.

Capacity development approaches include: the formation and support of regional and sub-regional forums, roundtable discussions; the cultivation of negotiation skills for country teams; the establishment and strengthening of regional and national research institutions (both on science and policy).

Absence of systematic collection and dissemination of information

This has already been mentioned above as a critical component of constraints 2 and 3. It has been elevated here as a constraint in itself to stress its significance. One approach to address the information constraint is the establishment of institutional clearinghouses which in turn can facilitate wider and more efficient dissemination and exchange of information.

6.1.2 Technology Transfer

Absence of clear policy and entity responsible for technology transfer

On a systemic level, the clear definition of policies and institutional responsibilities is hampered by the multiplicity of agencies involved in this complex and cross-sectoral issue of technology transfer. Unavoidable overlaps between technology for environmental protection and for development may add to the institutional confusion. Moreover, policies on technology transfer may also be compromised by the lack or blurring of country priorities on the matter of development and environment.

One suggested approach has been to institute measures to clarify precisely country priorities and to establish or strengthen national entities tasked with oversight and coordination as far as technology transfer is needed in global environmental action.

Need for enhancing the role of local or regional expertise

One of the constraints identified by the countries are over dependency on foreign or outside consultants in environmental projects and activities. Part of the reason for this constraint is the unavailability of local professional expertise. Another is donor dependency in the face of donor-imposed conditions. There is, therefore, a need to strengthen the capacity of the local or regional expertise.

Approaches include: strengthening the role of civil society, e.g. the academe and NGOs; developing and maintaining local/regional experts; encouraging collaboration among regional centers.

Absence of or incomplete assessment of a country's technological needs as far as environmental protection is concerned

Components of this constraint are: the dearth of local expertise to undertake the assessment; the lack of information on local practices or traditional technologies; weak or absent national policy to direct such an assessment of needs. Assessment here is taken to mean both technical and economic evaluation of technology.

An approach considered was to facilitate the identification, assessment, and development of existing and traditional technologies where appropriate. Another was to encourage regional collaboration and exchange of good practices.

Ineffective technology diffusion

Reasons for this include: hindered access to information; insufficient local R&D, including research infrastructure; absence of motives and incentives for innovation; prohibitive market mechanisms.

Suggested approaches to capacity development are: establishing systems of information dissemination and exchange on effective and appropriate technologies; setting up the requisite national and regional research infrastructure; strengthening the role of NGOs in demonstrating successful technologies in local communities; exploring the feasibility and impact of incentives and subsidies in fostering country or region-based R&D.

6.1.3 Finance

Need to enhance commitment by government

This lack is reflected in government policy regarding budgetary allocations needed for obtaining funds to participate in and manage global environmental issues. Reasons for this are: the prioritization of other pressing development issues; low level of awareness and sense of urgency; ignorance of long term, economic costs of environmental degradation.

Suggested capacity development approaches include: promoting strategic consultations with the executive and legislative sectors to encourage financial support (e.g. co-financing) of environmental protection programs and projects; raising the environmental awareness of leaders and decision-makers; providing socio-economic valuation of country responses to environmental issues.

Incapacity for project development

Reasons for this constraint are: heterogeneous in-country distribution of capacity (e.g. in some countries, project development capacity is concentrated in just a few NGOs or a handful of consultants); difficulties in conforming to GEF project preparation requirements; inefficient coordination among multi-agency, multi-sectoral stakeholders; inadequacy or absence of expertise and professional staff.

Approaches include: harmonization of capacity among stakeholders; strengthening coordinative function of GEF focal points; training in project development.

Need to enhance capacity for mobilizing financial resources

Many of the developing countries in the region lack the necessary skills and capacity to raise funds for environmental projects.

Cost effective use of local and regional resources

This constraint was identified in the earlier section 6.1.2. There is need to increase the use of local or regional expertise or resources in environmental projects. Some countries have specifically indicated that there is a need to give priority for financial resources to be channeled to local or regional resources, whenever available for greater cost effectiveness.

Other issues

Expectations for greater financial support from bilateral donors

Developing countries' expectations for greater bilateral financial support from developed countries after negotiations at Rio in 1992 was generally not met. Some countries indicated that there had not been significant increase in bilateral funding for environment after the Rio Summit.

Difficulty in accessing multilateral funds

While negotiations at Rio had ultimately led to multi-lateral financial mechanisms such as the Global Environment Facility (GEF), many of the developing countries had indicated that they have difficulties in accessing the funds. This difficulty had been attributed to the complex and often lengthy process in obtaining the funds. Delays and inefficiency in the processing of funding applications by the implementing agencies have also been singled out as a cause of this constraint.

6.1.4 Education and awareness

Lack of information networks and coordination

It is often the case, that information from research and agencies or departmental activities/ studies are not well disseminated among the stakeholders, particularly to other sectors. One of the major constraints lies in the way information is shared and exchanged among the different groups. Mechanism for coordination and sharing of information is not well established in most of the countries.

Adding to this lack of coordination is also a lack participation among intended groups in awareness programmes. Most programmes may have been too narrow in its scope and failed to reach out to a broader public. The Mongolian government is taking steps to involve the public in its environmental awareness programmes, where a National Environmental Public Awareness programme was formulated with involvement of public and NGOs, with the aims of changing psychology and behavior of the population to environmental problems.

Lack of national strategy

In many countries, there is a lack of comprehensive strategy for awareness raising at the national level. This lack of strategy lead to very little cooperation / joint efforts between institutions. There is also poor coordination between the government agencies working on environment or natural resources. Some of the countries have strongly highlighted the need to integrate greater

environmental awareness into the education curriculum. For instance, the Philippines Department of Environment has worked with the Department of Education to integrate environmental awareness in the school curriculum.

Lack of communication or information expertise

A major constraint in most of the developing countries is a lack of trained information or communication specialist, for awareness or communication on environment issues. Information is often not disseminated effectively or properly to the right target groups. Technical staff, while technically competent may not be able to communicate effectively at the level that is easily accessible to the target groups.

6.1.5 Human Resources Management

Lack of training

In general, there is insufficient training at all levels. The following have been identified as key areas where training programmes should be enhanced:

- (a) Research, on socio-economic impacts, policy implications, vulnerability studies etc.,
- (b) Dissemination of information to all levels (greater awareness raising), and
- (c) Equal opportunity for training.

Specific training needs have been identified for the thematic areas:

- (a) Climate change: Vulnerability and adaptation studies,
- (b) Biodiversity: Taxonomy, bioprospecting, biosafety, and
- (c) Land Degradation: Ecosystem restoration.

Institutional capacity

At the national level, there is need to strengthen capacity across all sectors - government agencies, research institutions, universities, private sector and NGOs.

NGOs have been playing a crucial role in supporting the obligations of the countries in meeting global environmental conventions. Strong linkage and networks among NGO groups have been crucial in enabling the NGO community to provide this supporting role. Government of Papua

New Guinea recognizes the importance of NGOs, and has embarked on development of NGO partnership policies, as a way to enhance the capacity of the country to meet the obligation of global environment conventions.

At the regional level, institutional strengthening can be implemented by enhancing networking between the relevant institutions, better coordination and cooperation. Alternatively, a regional level institute can be created to enhance the capacity to coordinate at a regional level, e.g. In Southeast Asia, a Secretariat (coordinating body) was established for ASEAN, an intergovernmental entity to better coordinate cooperation at regional level. Within ASEAN, thematic or issue based working groups have also been established to promote better networking and capacity for collaborative action among the Southeast Asia countries.

The importance of regional level institutions cannot be overemphasized especially for countries like Maldives, where there is a lack of training institutions within the country. Regional or international training, thus, becomes an important need and priority for building capacity.

Decentralization of present system

The existing human resources development programme or strategy in most of Asia and Pacific region have been overly centralized. There is a need to shift the attention as well as the resources for capacity development programme to a lower and broader reach, e.g. rural communities. Decentralization of the human resources development programme must go in sync with the delegation of greater authority to the local government over use of its resources. Economic incentives should also be introduced to encourage the participation of the local communities in efforts for sustainable use of resources. For instance in Nepal, facilitating community involvement in natural resources management has led to forest restoration.

6.1.6 Policy Overlaps

It was generally agreed that, in most countries of the region, this was a major constraint to the proper conservation of the environment. The major reason why policies were not in harmony with each other was that there was no effort to assess each policy for its impact on the environment. As such, many policies had environmentally destructive results that were in violation of other policies, especially the policies relating to the environment.

There were many constraints to properly assessing the environmental impacts of policies. In most cases, access to critical information and even the basic availability of such information was not assured. Further, as most policies and plans were driven by economic considerations, the absence of a comprehensive economic assessment of the cost of environmental degradation was a significant handicap. Even the ability to carry out such an assessment was mostly absent. There was also an absence of the ability to carry out proper environmental assessments of policies and strategies.

It was recognized that no assessment of policies could be made unless there was a clear understanding of national goals and the overall strategy for sustainable development. Unfortunately, this was also missing in most countries. There were also no clear guidelines on how policies and strategies were to be assessed and none of the institutions had the mandate and the capacity to do such assessments. In most countries, there was little public awareness about the need for such assessments or about the implications of not doing it.

A lesson learnt in many countries was that, unless there were appropriate conflict resolution institutional mechanisms, even where policies and strategies were found to be conflicting with each other, no acceptable compromise could be arrived at. However, such institutional mechanisms were hard to come by and, even where they existed, they did not have adequate authority to get their decisions accepted within a system that was essentially ignorant about nature and natural resources.

Also, conflict resolution was often dictated by powerful vested interests and to the detriment of the environment. This happened because the system was not transparent and there was no requirement to make such decisions and their rationale public or to seek public views and consensus.

Trans-boundary co-operation and co-ordination and the strengthening of regional frameworks.

It was recognized that unless countries in the region, especially those sharing a common border, co-operated with each other, it would be difficult to conserve biodiversity or prevent land degradation. Endangered animal species often crossed international boundaries and the protection they got in one country would get negated if they were not similarly protected in the other countries of their range. Also, destruction of forests or inappropriate land management practices in one country could affect the land and water resources in another and also have a significant impact on biodiversity conservation and on climate change.

Regional co-operation is also critical in order to negotiate more effectively under the various conventions and in order to ensure that common interests and concerns are safeguarded. Even in research and development, the sharing of costs and expertise within regions would help develop scientific capability that is appropriate to the needs of the region and independent of countries of the North.

Strengthening and updating laws, especially those aimed at empowering communities.

Though most countries had laws about the environment, especially those relating to the conservation of forests, these laws were often outdated and did not adequately take into consideration contemporary concerns like biodiversity conservation and climate change. Also, laws relating to land management outside forest areas were also not commonly available.

Though the need to involve all stakeholders, especially local communities, in the conservation of nature was widely recognized, it was also recognized that in most countries the legal system did

not promote such participation. In fact, the mostly old laws often inhibited the involvement of communities and other stake holders in the management of natural resources and worked against empowering local communities.

Strengthening policy implementation and law enforcement institutions

Even the policies and laws that existed were not vigorously implemented and enforced. This was partly due to the earlier discussed disharmonies within policies and laws but also partly due to weak institutional structures, poor answerability of the system and low levels of motivation among the implementers and enforcers. Investments were also low and. Very often, the resources required to implement a policy or to enforce a law were not forthcoming.

6.1.7 Institutional Co-operation and Co-ordination

It was recognized that there were at least two levels at which institutional co-operation and co-ordination was required. These were:

- (a) Between government institutions, and
- (b) Within government institutions

Between institutions

Though in many countries a separate department or ministry had been set up to look at all natural resource and environment matters, it was a common lesson that the various other institutions of the government rarely co-operated with this department or ministry. What seemed lacking was a high level, empowered, body that could ensure co-ordination between the various government institutions. Of course, such a body would be effective only if it worked within an agreed framework of sustainable development that laid down the strategy for sustainability in each sector and sub-sector. The proceedings of such a body need to be transparent so that the public could monitor its work and decisions.

Within institutions

A commonly expressed constraint was the inability to get all levels of a department to have a shared perspective and a common level of commitment. It was recognized that it was usually the senior officers of a department who had opportunities to attend meetings and workshops (like the present one) and to understand the various global issues and perspectives. However, a system by which such experiences could be effectively shared with the junior staff and especially with the field staff, seemed missing. In many cases, even the ability to communicate effectively was not there between different levels of the government.

6.2 Priorities and needs in developing systemic capacities

Some of the overall priority needs at the systemic level include:

6.2.1 Regional & international policy framework

- (a) Better cooperation needed on transboundary /regional issues – e.g. common genetic resources, pollution, migratory species,
- (b) Exchange of information /management solutions to similar problems,
- (c) Strengthen regional frameworks e.g. ASEAN, SAARC, GCC, SPREP, and
- (d) Collaborative work on convention negotiation and implementation.

6.2.2 National Policy frameworks

- (a) Need for cross-sectoral dialogue and over-arching environmental policy for biodiversity, climate change and land degradation,
- (b) Better define mandates of various agencies and develop joint work plans or strategies,
- (c) Identify win-win synergy options – e.g. minimizing net GHG emissions from land use management - good for climate, biodiversity and land degradation, and
- (d) Lack of policy implementation mechanisms.

6.2.3 Legal & Regulatory Frameworks

- (a) Available in almost all countries in the region but may be outdated and enforcement remains weak,
- (b) Lack of laws to empower community /multi-stakeholder involvement,
- (c) Need to update outdated legislation with cross-sectoral or convention orientation,
- (d) Need to address new convention obligations in new legislation – e.g. access benefit sharing, climate change mitigation

6.2.4 Poor interagency coordination

Need for:

- (a) Establishing High level national committees to coordinate government policy on the 3 thematic areas,
- (b) Joint work programmes between different agencies, and
- (c) Initially focus on specific cross cutting issues of high national interest – e.g. protecting water supplies , preventing forest fires etc.

6.2.5 Insufficient financial and human resources

- (a) Need to mobilize more financial resources from international donors,
- (b) Ensure international funding allocation is country not donor driven,
- (c) Establish mechanisms to generate resources locally - user or polluter pay schemes, and
- (d) Need to redeploy and enhance capacity of existing human resources.

6.2.6 Economic Framework

- (a) Need economic incentives to maintain ecosystems for their non-extractive services, e.g. flood control, carbon storage, etc.,
- (b) Lack of Market promotion or development mechanisms of GHG abatement technologies and alternative energy systems,
- (c) Perverse incentives encourage land degradation, biodiversity loss or GHG emission - e.g. drainage or land conversion subsidies.

6.2.7 Lack of public awareness

- (a) Lack of awareness and understanding among decision makers and public on Biodiversity, Climate Change and Land degradation issues,
- (b) Linkage often not made with livelihood, health or economic interests - difficult to mainstream issues, and
- (c) Use public awareness to facilitate change.

6.3 Priorities and needs in institutional capacity development

6.3.1 Insufficient funding

- (a) Inadequate or inappropriate allocation or inefficiently used,
- (b) Procedures to access international funding resources e.g. GEF complex and lengthy,
- (c) Linked to efficiency of operations, and
- (d) Shift from capital intensive to people oriented management at lower cost.

6.3.2 Shortage of staff

- (a) Key agencies have shortage of technical or skilled staff to carry out implementation and monitoring, and
- (b) Current staffing often too centralized - while problems are decentralized

6.3.3 Inadequate information base

- (a) Lack of information on status and cost of biodiversity loss, climate change and land degradation,
- (b) Poor information on ecosystem management, land restoration or climate friendly management options,
- (c) Poor storage and management of information, and
- (d) Poor access to /dissemination of existing information.

6.4 Priorities and needs for developing individual capacities

6.4.1 Shortage of specialists in required technical fields

- (a) Some of the identified fields,
- (b) Biodiversity: Taxonomy, bioprospecting, ecosystem management,
- (c) Climate Change: Meteorologist, vulnerability assessor,

- (d) Land degradation: community mobilization, and
- (c) Negotiation & implementation of conventions

6.4.2 Lack of training

- (a) Very few specific training courses relating to convention understanding and appreciation,
- (b) Often only “on the job” training which is inefficient & trial and error,
- (c) Very few local language information or training materials, and
- (d) Insufficient use of on-line training and support options.

6.4.3 Other

- (a) Lack of incentives and motivation,
- (b) Individuals often not held accountable, and
- (c) Poor organizational and management skills

6.5 Lessons Learned

- (a) Process Driven, not Donor Driven: Capacity development across all thematic areas must be process and country driven, and not donor driven. There is the need for each developing country to set its own national priorities.
- (b) Detail assessment before developing programme: There is a need for detail study of the current situation and the needs of region/countries before programme is developed. One important aspect is that capacity building initiatives in technology transfer need to take into account the specific social and cultural context within which the technology is expected to thrive.
- (c) Effective engagement and participation of stakeholders: Because of the complex, multi-faceted nature of the issues in the 3 thematic areas, it can no longer be incumbent on the government alone to take on the challenges of capacity development. The base of action and implementation will have to be broadened to all the relevant stakeholders. There is also an urgent need for better coordination and increased dialogue between the various stakeholders.

- (d) Information sharing: In general, sharing of information on many environment projects and activities with similar objectives are not actively shared within government, leading to duplication of effort and wasted resources.

6.5.1 Climate change

- (a) A stable leadership is necessary because of the temporal shifts and multi-sectoral nature of the issue of climate change. The presence of a stable core group of senior climate change people (backed up by junior staff) should be maintained despite the shifting sands of the political landscape.
- (b) A consequence of recent moves towards democratization is the growing demand by local governments for greater autonomy in determining their development paths and a keen interest in taking the lead in managing their development problems. There is a need to formulate policies that will maximize environmental gains from decentralization that involves the redistribution of authority and functions across different levels of government.
- (c) On account of institutional constraints, projects lodged in certain government agencies are not adequately sustained. To avoid this, it may be necessary to consider whether a particular government agency that is 'sponsoring' the project, based on its track record, is the appropriate organization to implement such a project.
- (d) To be effective and comprehensive, capacity development programs must not confine themselves to providing technical and scientific competence. Institutional effectiveness and efficiency assumes a degree of administrative support for the implementation of projects.
- (e) Active participation in international efforts to address climate change issues may require an adequate national legal framework. The ability of government agencies to initiate and participate in activities responsive to international calls depends on the institutional support provided by such a framework.

6.5.2 Land Degradation

- (a) There is a need for national and sub-national policies that are specifically focussed on land degradation issues and cover not only the symptoms but also the root causes. The formulation of such a policy or set of policies should be a participatory and transparent process involving as many of the stakeholders as possible and especially the local communities. The policy must also envisage an implementation process that is also participatory and transparent.
- (b) To operationalize the policy, various instruments, institutions and resources are required. First, appropriate laws must be formulated to give the policy the necessary legal force.

These laws must also be participatorily formulated and have elements of transparency and participation in the implementation. As far as possible, locus standi must be given to all citizens and the law must stipulate easy access to critical information and expertise. Often laws are regulatory in nature, laying down what should not be done. However, in some cases there might be a legal requirement to lay down what ought to be done.

- (c) Like in the case of policies, these laws must also be integrated into the larger body of law so that internal contradictions are smoothed out and there is no ambiguity in the legal provisions.
- (d) A major constraint that has emerged is that even where there are strong laws there is an institutional inability or unwillingness to enforce them. This might be a result of one or more of many reasons. First, some laws are so formulated that they are by their very nature impossible to enforce, being either too complex, or too harsh, or demanding the level of expertise, knowledge or effort that is not easy to come by. Such laws might require unrealistic levels of institutional structures.
- (e) Then there are some laws that in their formulation or operation seem to be unjust – being significantly harsher on one group people than on others. Such laws often do not take into consideration the fact that those who are violating them might not have any real options. Such laws are usually not formulated in consultation with the various affected parties and become difficult to implement because they cause too much resentment and political unrest.
- (f) Another major problem is that, often, laws are formulated in consultation with experts and scientists and the basis for the law is not widely known. Where officials and judges are not convinced of the importance and criticality of the problem that the law seeks to address, they are very likely to ignore the law.
- (g) However, all elements of a policy need not, and should not, be dependent on the law for implementation. Various other instruments, including fiscal incentives, rewards and honors, plans, schemes and programmes need to be developed to ensure that policy objectives are achieved.
- (h) A comprehensive strategy for the implementation of a policy needs to be designed, keeping in mind the specific conditions in each country and the constraints and opportunities. This strategy must assess the resources and support required, what is available and where the balance is to be got from.
- (i) Appropriate institutional structures have to be either created or existing ones identified and perhaps strengthened. Whereas the expansion of a bureaucracy must be a last resort, without adequate personnel and institutions, policies and programmes are hard to sustain. Institutions must be available at all appropriate levels and have clear mandates and chains of command. Perhaps one of the most common constraints thrown up by this assessment is that, however, strong and competent an institution might be, its ability to interact, co-operate and work together with other institutions remains a major weakness. The

hierarchical structure of most governments promotes vertical loyalty and horizontal animosity, or at least indifference. However, programmes related to land management necessarily need an integrated approach.

- (j) A similar problem arises when national and sub-national governments are making decisions regarding the allocation of resources. Strong and enlightened policy statements rarely convert into adequate levels of funding. And even though most of the countries being studied are poor and, therefore, in absolute terms, cannot afford to allocate large amounts for land management, even the proportion of their budget that is earmarked seems mostly to be much below what is warranted.
- (k) Many countries see themselves as lacking the ability to effectively negotiate with international agencies in order to secure a fair share of funds, or get their projects approved, or even secure professional assignments for their nationals.
- (l) The development of expertise and human capacities, especially scientific and managerial, remains one of the highest priorities. In country after country, inadequacy of expertise and of trained personnel is identified as a major constraint. Added to this is the inability to harness properly the existing expertise. Information about available expertise remains poor and experts find it difficult to upgrade their knowledge and keep abreast of the latest scientific discoveries. Though the access to the web and internet has made matters easier, information is still not always available in appropriate forms.

ANNEX 1

Major References (Biodiversity and Climate Change)

- ADB and IUCN (1995). Biodiversity Conservation in the Asia and Pacific Region: Constraints and Opportunities. Manila, Philippines: Asian Development Bank.
- Asian Development Bank July 1994. Climate Change in Asia, Regional Study on Global Environmental Issues. Asian Development Bank: Bangladesh, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, and Vietnam.
- Asian Development Bank 1998. Asia Least-cost Greenhouse Gas Abatement Strategy (ALGAS): Country Reports. Asian Development Bank, Global Environment Facility, United Nations Development Programme.
- Baille, J. and Groombridge, B., eds. (1996). The 1996 IUCN Red List of Threatened Animals. Gland, Switzerland: World Conservation Union.
- Braatz, S. (1992) Conserving biological diversity. a strategy for protected areas in the Asian and Pacific Region. World Bank Technical Paper No. 193.
- Bright, C. (1996). State of the World 1996. New York, USA: Worldwatch Institute and W. W. Norton and Co. Inc., New York and London.
- CDI Questionnaires (climate change): Fiji, Israel, Mongolia, Niue (national government); India, Pacific Region, Thailand (UNDP); Pakistan, Philippines (UNDP & World Bank) and Jordan (World Energy Council).
- Conservation International (1998b) Megadiversity country tables.
<http://www.conservation.org/web/fieldact/megadiv/maps.htm>
- Conservation International (1998c) Global diversity hotspots: Indonesia.
<http://www.conservation.o.../fieldact/REGIONS/ASPAREG/Indonesi.htm>
- Conservation International (1998f) Global diversity hotspots: Philippines.
<http://www.conservation.o.../fieldact/HOTSPOTS/philippi.htm>
- Conservation International (1998g) Asia/Pacific Region.
<http://www.conservation.o...b/fieldact/REGIONS/aspareg/aspareg.htm>
- Cromarty (1996) cited by Moser, M., Prentice, C. and Frazier, S. (1996) A global overview of wetland loss and degradation. Wetlands International. http://www.ramsar.org/about_wetland_loss.htm
- Department of Environment, Ministry of Local Government, Housing and Environment (1997) Convention on Biological Diversity 1997 National Report to the Conference of the Parties by the Republic of Fiji.
<http://www.biodiv.org/natrep/Fiji/Fiji.pdf>
- ESCAP (1995) State of Environment Report for Asia and the Pacific 1995. Bangkok, Thailand.
- FAO (1998) Asia-Pacific Forestry Towards 2010. Bangkok, Thailand: FAO-RAPA.
- Green, M. and Paine, J. (1997) State of the world's protected areas at the end of the twentieth century. Paper presented at IUCN World Commission on Protected Areas Symposium on "Protected Areas in the 21st Century: From Islands to Networks," Albany, Australia, 24-29 November.
- Government of Bhutan (1997) Biodiversity Action Plan for Bhutan.
<http://www.biodiv.org/natrep/Bhutan/Bhutan.pdf>
- Government of China (1997) China's National Report on the Implementation of the Convention on Biological Diversity. <http://www.biodiv.org/natrep/China/China.pdf>
- Government of Indonesia (1997) National Report on the Implementation of Convention on Biological Diversity.
<http://www.biodiv.org/natrep/Indonesia/Indonesia.PDF>
- Government of Korea (1998) National Biodiversity Strategy of the Republic of Korea.
[http://www.biodiv.org/natrep/Korea%20\(Republic%20of\)/Korea%20\(Republic%20of\).pdf](http://www.biodiv.org/natrep/Korea%20(Republic%20of)/Korea%20(Republic%20of).pdf)
- Government of Marshall Islands (1997) Convention on Biological Diversity 1997: Preliminary Report to the Conference of the Parties. <http://www.biodiv.org/natrep/Marshall%20Islands/Marshall%20Islands.pdf>
- Government of Sri Lanka (1997) First National Report on the Implementation of the Convention on Biological Diversity. <http://www.biodiv.org/natrep/Sri%20Lanka/Sri%20Lanka.pdf>
- Government of Turkey (1997) National Biodiversity Strategy and Action Plan.
<http://www.biodiv.org/natrep/Turkey/Turkey.pdf>
- Government of Viet Nam (1997) Report of the Vietnamese Delegation at the Fourth Conference of the Parties to the Convention on Biological Diversity. <http://www.biodiv.org/natrep/Vietnam/Vietnam.pdf>
- Hannah, L., et al. (1994) A preliminary inventory of human disturbance of world ecosystems, Ambio, July.

- Hanna L., Carr, J. L. and Lankerni, A. (1995) Human disturbance and natural habitat: a biome level analysis of a global data set, *Biodiversity and Conservation*, 4.
- Karas Jacqueline, Climate Change and the Mediterranean Region.
<http://www.greenpeace.org/~climate/kimpacts/fulldesert.html>
- Mainguet, M. and Letolle, R. (1998) Human-made desertification in the Aral Sea basin: planning and management failures. *Desertification Control Bulletin*, No. 33.
- Ministry for Nature and the Environment of Mongolia-United Nations Development Programme-Global Environment Facility (1998) Biological Diversity in Mongolia (First National Report).
<http://www.biodiv.org/natrep/Mongolia/Mongolia.pdf>
- Ministry of Forests and Soil Conservation (1997) National Report on the Implementation of the Convention on Biological Diversity in Nepal. <http://www.biodiv.org/natrep/Nepal/Nepal.pdf>
- Ministry of Science, Technology and the Environment (1998) First National Report to the Conference of Parties to the Convention on Biological Diversity, Malaysia. <http://www.biodiv.org/natrep/Malaysia/Malaysia.PDF>
- Ministry of Planning, Human Resources and the Environment (1997) Biodiversity Conservation in Maldives: Interim Report to the Convention on Biological Diversity.
<http://www.biodiv.org/natrep/Maldives/Maldives.pdf>
- Moser, M., Prentice, C. and Frazier, S. (1996) A global overview of wetland loss and degradation. *Wetlands International*. http://www.ramsar.org/about_wetland_loss.htm
- Moser, M. (1999) Wetlands International and the Ramsar Convention-an intimate partnership. *Wetlands International Newsletter* No. 7, May
- National Communications to the UNFCCC: Cook Islands, Indonesia, Jordan, Kiribati, Lebanon, Marshall Islands, Micronesia, Nauru, Philippines, Republic of Korea, Samoa, Tuvalu and Vanuatu.
- National Environmental Action Plans. Worldbank: <http://www.worldbank.org>: China, Bangladesh, Pakistan, Sri Lanka, India
- Protected Areas and Wildlife Bureau-Department of Natural Resources and Environment (1998) The First Philippine National Report to the Convention on Biological Diversity.
<http://www.biodiv.org/natrep/Philippines/Philippines.pdf>
- Putterman, D. M. (1999) Genetic resources utilization: critical issues in conservation and community development. <http://bcnet.org/whatsnew/biopros.html>
- SPREP (1997) SPREP: South Pacific Regional Environment Programme.
http://www.sidsnet.org/pacific/sprep/whatsprep_.htm
- The Office of the Environmental Policy and Planning (1997) National Report on the Implementation of the Convention on Biological Diversity, Thailand. <http://www.biodiv.org/natrep/Thailand/Thailand.pdf>
- Tuxill, J. (1999). *State of the World 1999*. New York, USA: Worldwatch Institute and W. W. Norton and Co. Inc., New York and London.
- Tuxill, J. and Bright, C. (1998). *State of the World 1998*. New York, USA: Worldwatch Institute and W. W. Norton and Co. Inc., New York and London.
- UNDP (1999) Biodiversity conservation and sustainable livelihood options in the grasslands of Eastern Mongolia. Eastern Steppe Biodiversity Project, August 13.
- UNEP (1997) Global State of the Environment Report: Global Environment Outlook-1.
http://www.grida.no/prog/global/geo1/ch/ch3_14.htm
- UNEP (1997d) Global State of the Environment Report: Global Environment Outlook-1--Asia and the Pacific Regional Initiatives. http://www.grida.no/prog/global/geo1/ch/ch3_14.htm
- UNEP (2000a) East Asian Seas. <http://www.unep.org/water/regseas/easian.htm>
- UNEP (2000b) Regional seas programme. <http://www.unep.org/water/regseas/regseas.htm>
- UNEP (1995), *Global Biodiversity Assessment*.
- UNEP - Global Environment Facility. Project Document on Enhancement of Technical Capacity to Develop National Response Strategies to Climate Change. Project No. and Title: MAL/95/G31/A/1G/99.
- UNEP 1997. Programme for Governance and Economic Transition Programme Support Document. <http://magnet.undp.org>
- United States Country Studies Program October 1997. National Climate Change Action Plans: Interim report for developing and transition countries:
- World Conservation Monitoring Center (1992). *Global Biodiversity: Status of the Earth's Living Resources*. Cambridge, UK: WCMC.
- World Conservation Monitoring Center (1998) *Freshwater biodiversity: a preliminary global assessment*. WCMC Biodiversity Series No. 8, WCMC-World Conservation Press.

World Bank (1999). *Conserving Biodiversity through Ecodevelopment*. Washington, D.C: World Bank.
 World Resources Institute (2000a) <http://www.wri.org/wri/wr-98-99/fragment.html>
 World Resources Institute (2000b) The last frontier forests: regional overview-Asia. <http://www.igc.apc.org/wri/ffi/lff-eng/asia2.htm>
 World Resources Institute (2000c) Tropical forest species richness. <http://www.wri.org/biodiv/b01-koa.html>
 World Resources Institute (2000d) Pacific Ocean. <http://www.wri.org/wri/indicators/rstatus.html>

References (Land Degradation)

- ADB 1999. *Technical Assistance (Financed from the Japan Special Fund) to the Democratic Socialist Republic of Sri Lanka for Sustainable Natural Resource Management For Development*. Asian Development Bank (Tar:Sri 33087) October 1999.
- ADB 1999a. *Technical Assistance (Financed from the Asian Currency Crisis Support Facility) to the Republic of the Philippines for Preparing the Community-Based Forest Resources Management Project*. Asian Development Bank. October 1999.
- Ahmad and Muhammad 1998. Ahmad, Nisar and Tila Muhammad. 'Fertiliser, Plant Nutrient Management, and Self-reliance in Agriculture' in *The Pakistan Development Review*, 37, No. 4:217-33. 1998.
- Andreeva & Kust nd. Andreeva O.V, and Kust G. S. *Application of Desertification Assessment Methodology for Soil Degradation Mapping in the Kalmyk Republic of the Russian Federation*.
- Aneekasamphant et al 1991. Aneekasamphant, Chaayasit., Sawatdee Boonchee and Adisak Sajjapongse. 'Methodological issues for soil conservation measures on sloping lands: A case study in Thailand' in *Evaluation for Sustainable Land Management in the Developing World*. Volume 2 : Technical Papers. September 1991.
- Anon. 1996. Anonymous. *Report on the Capacity 21 SDA/EFP Meeting for Asia and the Pacific Island Countries*. May 02, 1996.
- Anon. nd. Anonymous. *The Conservation of Lands in Asia and the Pacific : A Framework for Action*. Not dated.
- APO 1993. *Development of Marginal Agricultural Land in Asia and the Pacific*. Report of an APO Seminar 20th – 29th April, 1992, Bangkok. Asian Productivity Organization, Tokyo. 1993.
- Arifin 1996. Arifin, Bustanul. *Economic Analysis of Land Degradation in Indonesian Upland*. Working Paper, Chr. Michelsen Institute, Norway. 1996.
- Atienza 1989. Atienza, Redia N. 'Soil and Water Conservation Training Programs at small-scale farm level in the Philippines' in *In-Service Training for Soil and Water Conservation. Report of the ASOCON Workshop in Serdang, Malaysia*. 11-15 December 1989.
- Baharuddin 1989. Baharuddin, Mustafa Kamal. 'In-Service Training in Soil Conservation in Malaysia' in *In-Service Training for Soil and Water Conservation. Report of the ASOCON Workshop in Serdang, Malaysia*. 11-15 December 1989.
- Baitullin & Bekturova nd. Baitullin, I. and G. Bekturova. *National Strategy to Combat Desertification in the Republic of Kazakhstan*. Not dated.
- Barrow nd. Barrow, C. J. *Land Degradation – Development and Breakdown of Terrestrial Environments*. Cambridge University Press. Not dated.
- Bentley 1991. Bentley, C. F. 'Workshop summary : is there hope for sustainable land management?' in *Evaluation for Sustainable Land Management in the Developing World*. Volume 2 : Technical Papers. September 1991.
- BHU 1992. *Development Co-operation: Bhutan. 1992 Report*. 1992.
- Bie nd. Bie, Stein W. *Cropping the drylands – is desertification for real?* ICRISAT Governing Board and Norwegian Centre for International Agricultural Development (NORAGRIC). Not dated.
- Bowen et al. 1989. Bowen, Goa., Zhou Zhide and Chen Fayang. 'Education and Training on Soil and Water Conservation in China' in *In-Service Training for Soil and Water Conservation. Report of the ASOCON Workshop in Serdang, Malaysia*. 11-15 December 1989.
- Chantaramanec et al. 1989. Chantaramanec, Sampop., Piyaporn Saliqupta and Sanya Sarnlump. 'Soil and water conservation training and technology transfer in Thailand' in *In-Service Training for Soil and Water Conservation. Report of the ASOCON Workshop in Serdang, Malaysia*. 11-15 December 1989.
- CHINA 1996. *China – Country Report*. South-South Solidarity. May 1996.
- Chopra 1996. Chopra, Kanchan. 'The Management of Degraded Land: Issues and an Analysis of Technological and Institutional Solutions' in *Indian Journal of Agricultural Economics*. January –June 1996.

- CIP 1986. *Arid Land Development and the Combat against Desertification : An integrated Approach*. Centre for International Projects GKNT. Moscow. 1986.
- Coxhead 2000. Coxhead, Ian. 'Consequences of a Food Security Strategy for Economic Welfare, Income Distribution and Land Degradation: The Philippine Case' in *World Development*. Vol. 28, No. 1. January 2000.
- CP/BAH&QAT-1998-99. *Country Profile : Bahrain and Qatar - 1998-99*. The Economist Intelligence Unit, United Kingdom. 1998-1999.
- CP/JOR-1999. *Country Profile : Jordan*. The Economist Intelligence Unit, United Kingdom. 1999-2000.
- Das and Kaul 1985. Das, D.C. and R. N. Kaul. *Consultants' Report : Iran Watershed Management : Programme, Manpower Assessment and Training Needs*. Food and Agricultural organisation of the United Nations. 1985.
- David and Angeles 1995. David, Cristina C. and Marian S. de los Angeles. 'Strengthening Human Resource Capacity for Natural Resource and Environmental Concerns: The Philippines' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- De Koninck 1999. De Koninck, Rodolphe. Deforestation in Viet Nam. *IDRC*. 1999.
- Dhar 1999. Dhar, T. N. *Land Policies, Land Management and Land Degradation in the Hindu Kush-Himalayas – India Study Report*. International Centre for Integrated Mountain Development (ICIMOD), Nepal. 1999.
- Dhawan 1994. Dhawan, B. D. 'Reclamation of Degraded Lands within Canal Commands' in *Economic and Political Weekly*. October 1, 1994.
- DRO 1998. Drought Around the World. National Drought Mitigation Centre. May – Sept. 1998.
- Dumanski et al 1991. Dumanski, J., H. Eswaran., and M. Latham. 'A proposal for an international framework for evaluating sustainable land management' in *Evaluation for Sustainable Land Management in the Developing World*. Volume 2 : Technical Papers. September 1991.
- ESCAP 1986. *Intergovernmental Meeting on Regional Network of Research and Training Centres on Desertification Control*. 9-15 September 1986. ESCAP, Bangkok. September 1986.
- FAO 1993. *Key Aspects of Strategies for the Sustainable Development of Drylands*. Food and Agriculture Organization of the United Nations Rome. 1993
- FAO 1993a. *Sustainable Development of Drylands and Combating Desertification*. Food and Agriculture Organization of the United Nations. Rome. 1993.
- FAO 1995. *Planning for Sustainable use of Land Resources; Towards A New Approach*. FAO Land and Water Bulletin 2. Food and Agriculture Organization of the United Nations. Rome. 1995.
- FAO 1997. *Drylands Development and Combating Desertification : Bibliographic Study of Experiences in China*. Food and Agriculture Organization of the United Nations. Rome. 1997.
- FAO 1998. Recent FAO Activities to Combat Desertification. *Report of the Food and Agriculture Organization of the United Nations (FAO) for the Second Conference of Parties of the Convention to Combat Desertification (CCD)*. November 1998.
- Faruquee 1995. Faruquee, Rashid. *Pakistan's Agriculture Sector : Is 3 to 4 Percent Annual Growth Sustainable? - Policy Research Working Paper*. The World Bank. January 1995.
- Faruquee 1996. Faruquee, Rashid. 'Role of Economic Policies in Protecting the Environment : the Experience of Pakistan' in *The Pakistan Development Review* 35:4 Part II (Winter 1996). 1996.
- FFTC 1984. *Ecology and Management of Problem Soils in Asia*. Food and Fertilizer Technology Center for the Asian and Pacific Region. Republic of China. August 1984.
- Freyne & McAlpine 1985. Freyne, D. F. and J. R. McAlpine. 'Land Clearing and Development in Papua New Guinea' in *Tropical Land Clearing for Sustainable Agriculture*. Jakarta. 1985.
- FSN 1999. *Forestry and Society Newsletter; Volume 7, No. 2*; Institute of Scientific and Technological Information Chinese Academy of Forestry. November 1999.
- GOI 1993. *Environment Action Programme – India*. Ministry of Environment and Forests, Government of India. 1993.
- GOM 1990. *National Environmental Action Plan for Mauritius*. Government of Mauritius. 1990.
- GOP 1992. *Pakistan National Report submitted to The United Nations Conference on Environment and Development- August, 1991*. Environment and Urban Affairs Division, Government of Pakistan. 1992.
- Gurung 1996. Gurung, Harka B. 'Conservation of the Environment in the Nepal Himalayas' in International Centre for Integrated Mountain Development – Newsletter No.24. April 1996.
- Hayes 1999. Hayes, Michael J. *Drought Indices*. National Drought Mitigation Center. 1999.

- Husain 1995. Husain, A. M. Muazzam. 'An Assessment of Environmental Policies and Policy Implementation in Bangladesh' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- HWP 1999. *Land Policies, Land Management and Land Degradation in the Hindu Kush-Himalayas – Pakistan Study Report*. (Prepared by Himalayan Wildlife Project). International Centre for Integrated Mountain Development (ICIMOD), Nepal. 1999.
- ICIHI nd. *Encroaching Desert : The Consequences of Human Failure*. A Report for the Independent Commission on International Humanitarian Issues. Zed Books Ltd. London and New Jersey. Not dated.
- ICIMOD nd. International Centre for Integrated Mountain Development -- Newsletter No. 34. Not dated.
- IGIDR nd. *Sustainable Land & Forest Regeneration Environmental Governance – 3*. Indira Gandhi Institute of Development Research. Not dated.
- IILRI 1982. *Papers International Symposium – Polders of the World*. Lelystad – The Netherlands – 1982. Volume I & II. International Institute for Land Reclamation and Improvement. The Netherlands. 1982.
- INDO-BAP 1993. *Biodiversity Action Plan for Indonesia – Project Profile (Selected)*. Ministry of National Development Planning and National Development Planning Agency, Jakarta. 1993.
- ISCDS 1999. *Resolution of the International Scientific Conference on Desertification and Soil Degradation (Moscow)*. November 1999.
- ISS 1999. *Desertification and Soil Degradation – Proceedings of the International Scientific Conference*. Institute of Soil Science of Moscow State University and Russian Academy of Sciences – 11-15 November, 1999. Moscow, 1999.
- Jabbar 1995. Jabbar, Abdul. 'An Assessment of Environmental Policies and Policy Implementation in Pakistan' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- Jain nd. J. K. Jain (Eds) *Combating Desertification in Developing Countries*. Scientific Publishers. Not dated.
- Jodha 2000. Jodha, N. S. 'Waste Lands Management in India – Myths, Motives and Mechanisms' in *Economic and Political Weekly*. February 5, 2000.
- Kamal et. al. 1999. Kamal, A., M. Kamaluddin and M. Ullah. *Land Policies, Land Management and Land Degradation in the Hindu Kush-Himalayas – Bangladesh Study Report*. International Centre for Integrated Mountain Development (ICIMOD), Nepal. 1999.
- Kharin nd. Kharin, Nikolai. *Strategy to Combat Desertification in Central Asia*. Not dated.
- Lal & Stewart nd. Lal R. And B. A. Stewart. 'Need for Action : Research and Development Priorities' in *Advances in Soil Science – Soil Degradation*. Volume II. Springer-Verlag. Not dated.
- Lal nd. Lal, R. 'Soil Erosion and Land Degradation : The global Risks' in *Advances in Soil Science – Soil Degradation*. Volume II. Springer-Verlag. Not dated.
- Lynden and Oldeman 1997. Lynden, van G.W.J. and L. R. Oldeman. *The Assessment of the Status of Human-Induced Soil Degradation in South and Southeast Asia*. International Soil Reference and Information Centre. Wageningen. 1997
- Malhotra 1984. Malhotra, S. P. 'Socio-economic desertification' in *Capital* June 25-July 8, 1984.
- Malik and Nazli 1998. Malik, Sohail Jehangir and Hina Nazli. *Rural Poverty and Land Degradation : A Review of the Current State of Knowledge*. The Pakistan Development Review 37: 4 Part II. Winter 1998.
- MAL-NDP 1993. *National Development Plan 1991–1993. Volume I & II*, Ministry of Planning & Environment, Government of Maldives. 1993.
- MAL-NEAP nd. *National Environment Action Plan*. Ministry of Planning and Environment. Male' Republic of Maldives. Not dated.
- MAL-UNCED 1993. *Maldives - National Report to United Nations Conference on Environment and Development*. Ministry of Planning and Environment, Republic of Maldives. June 1993.
- MB 1990. *Economic Policies for Sustainable Development : Ministerial Brief : Conference on Environment and Development in Asia and the Pacific*. 10-16 October 1990. Bangkok, Thailand. October 1990.
- MEPA 1991. *National Environmental Action Plan 1992-1996*. Ministry of Environment and Parliamentary Affairs, Government of Sri Lanka. October 1991.
- MPE nd. *Combating Desertification. Report of the National Seminar on Desertification and Land Improvement*. Organized by Ministry of Population and Environment in collaboration with Secretariat of the UNCCD. Not dated.
- National Reports on Implementing UNCCD – various countries.
- Navanugraha nd. Navanugraha, Charlie. *Land Use / Cover Change (LUCC) – A Case Study in Thailand*. Mahidol University, Salaya, Puttamonthon, Nakhon Pathom, Thailand. Not dated.
- NEP 1998. *Development Co-operation : Nepal. 1998 Report*. 1998.

- Njie and Thomson 1998. Njie, Ndey-Isatou and Koy Thomson. *Approaches to Sustainability; Learning for Real Bringing Sustainable Development Planning Down to Earth* (Issues Paper). United Nations Development Programme (UNDP). November 1998.
- Nurdin and Soedijanto 1989. Nurdin, E. and Soedijanto. 'Soil and Water Conservation Training in Indonesia' in *In-Service Training for Soil and Water Conservation. Report of the ASOCON Workshop in Serdang, Malaysia*. 11-15 December 1989.
- O'brien 1991. O'brien, G. C. 'Economic aspects of sustainable land management: regional experience' in *Evaluation for Sustainable Land Management in the Developing World*. Volume 2 : Technical Papers. September 1991.
- OECD 1997. *Capacity Development in Environment : Principles In Practice*. The Organization for Economic Co-operation and Development. Paris, France. 1997
- PAK 1993. *Development Co-operation : Pakistan. 1992 Report*. November 1993.
- Partap and Watson 1994. Partap, Tej and Harold R. Watson. *Sloping Agricultural Land Technology (SALT) : A Regenerative Option for Sustainable Mountain Farming*. ICIMOD Occasional Paper No. 23. International Centre for Integrated Mountain Development (ICIMOD), Nepal. 1994.
- Pearce 1995. Pearce, Fred. 'Shepherds & wise men' in *New Scientist*. December 23-30, 1995.
- RGB 1999. *Land Policies, Land Management and Land Degradation in the Hindu Kush-Himalayas – Bhutan Study Report*. (Prepared by Policy and Planning Division, Ministry of Agriculture, Royal Government of Bhutan.) International Centre for Integrated Mountain Development (ICIMOD), Nepal. 1999.
- RRIS nd. *Coasts*. Coastal Publication No. 3. Renewable Resources Information Series. Research Planning Institute, Inc. Not dated.
- Ruaysoongnern et al, 1991. Ruaysoongnern, Sawaeng and Aran Patanothai. 'Farmers' perceptions and the adoption of sustainable land-management technologies – Thailand's experience' in *Evaluation for Sustainable Land Management in the Developing World*. Volume 2 : Technical Papers. September 1991.
- Scharpenseel & Neue, 1991. Scharpenseel, H.W. and H. U. Neue. 'Global change and research needs for sustainable land management' in *Evaluation for Sustainable Land Management in the Developing World*. Volume 2 : Technical Papers. September 1991.
- Sekar and Ramasamy 1998. Sekar, C. and C. Ramasamy. 'Economics of Soil Conservation Structures in the Nilgiris' in *Indian Journal of Agricultural Economics*. Vol. 53, No. 4, October-December, 1998.
- Sharma et al. 1995. Sharma, Vijay Paul., B. L. Gajja & Deepak Shah. 'Managing Land and Water Resources for Sustainable Agricultural Development : Issues and Options' in *Artha Vijnana*. September 1995.
- Sinaga and Tampubolon 1995. Sinaga, Rudolf S., and S. M. H. Tampubolon. 'An Assessment of Environmental Policies and Policy Implementation in Indonesia' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- SRI_NEAP 1996. *National Environmental Action Plan – 1992-1996*. Ministry of Environment and Parliamentary Affairs. Government of Sri Lanka. October 1991.
- SRI-BAP nd. *Strategy for the Preparation of A Biodiversity Action Plan for Sri Lanka*. Ministry of Transport, Environment and Women's Affairs. Government of Sri Lanka. Not dated.
- Stewart 1997. Stewart, H. M. *Road From Rio; Industrialized Countries*. United Nations Development Programme (UNDP). June 1997.
- Suwardjo et al 1985. Suwardjo, H., M. Sudjadi and M.S. Ross. 'Potentials of, Constraints to, and Development Strategies for Agricultural Land Development in Indonesia' in *Tropical Land Clearing for Sustainable Agriculture*. Proceedings of an IBSRAM Inaugural Workshop. Jakarta. 1985.
- Thapa 1995. Thapa, Ganesh. 'An Assessment of Environmental Policies and Policy Implementation in Nepal' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- TIBET 1992. *Tibet : Environment and Development Issues 1992*. Department of Information and International Relations, Central Tibetan Administration of His Holiness the XIV Dalai Lama, Himachal Pradesh. April 1992.
- Tongpan 1995. Tongpan, Sopin. 'An Assessment of Environmental Policies and Policy Implementation in Thailand' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- UN 1999. *Convention to Combat Desertification : Report of the Conference of the parties on its third session, held in Recife from 15-26 November, 1999*. United Nations. 1999.
- UNCCD 1999. United Nations Convention to Combat Desertification (UNCCD) - Regional Implementation Annex for Asia - National Reports on the UNCCD Implementation Help Guide. December 1999.

- UNCCD nd. Fact Sheet from UNCCD Website on Land Degradation in Asia; Combating Desertification in Asia. Not dated.
- UN-CCD nd. Fact Sheet 1- An introduction to the United Nations Convention to Combat Desertification.
- UNCED 1992. Report of the United Nations Conference on Environment and Development (Rio de Janeiro, 3-14 June 1992). June 1992. UNDP 1998. *Asia and the Pacific - Approaches to Sustainability; Localizing Agenda 21 Experiences from China*. United Nations Development Programme (UNDP). November 1998.
- UNDP 1998a. *Asia and the Pacific; Approaches to Sustainability : Mongolia's Journey towards A Sustainable Future*. United Nations Development Programme (UNDP). November 1998.
- UNDP 1999. *Capacity Building for Environmental Management (A Best Practices Guide)*. United Nations Development Programme (UNDP). October 1999.
- UNDP 1999a. *Local Action, National Impact, Annual Report – 1999*. United Nations Development Programme (UNDP). 1999
- UNDP/BAH01- 1998. *UNDP : Country Cooperation Frameworks and Related Matters : First Country Cooperation Framework for the State of Bahrain (1998-2001)*. United Nations Development Programme. February 1998.
- UNDP/JOR01. *UNDP: Country Cooperation Frameworks and Related Matters : First Country Cooperation Framework for Jordan (1998-2002)*. United Nations Development Programme. June 1997.
- UNDP/JOR02. *Building Capacity for GII G Inventory and Action Plans the Hashemite Kingdom of Jordan in response to UNFCCC Communications Obligations*. United Nations Development Programme. Not dated.
- UNDP/JOR03. *Biodiversity Strategy and Action Plan (BSAP), and Report to CoP*. United Nations Development Programme. Not dated.
- UNEP 1997. *Global State of the Environment Report 1997. GEO-1*. United Nations Environment Programme. 1997.
- UNEP 2000. *Global Environment Outlook – 2000*. United Nations Environment Programme. 2000.
- UNSO 1998. *Programme Activity Report – 1995-1998*. United Nations Development Programme, Office to Combat Desertification and Drought (UNSO). 1998.
- UOM 1992. *National Report on Environment and Development of the Union of Myanmar*. June 1992.
- Vinogradov & Glazovskiy 96. Vinogradov, B. V., N. F. Glazovskiy and E. B. Gabunshina. 'Plan of Action in Combat Desertification in Kalmykia' in *Grid Ecosystems*. Volume 2, No. 2-3. 1996.
- Vinogradov 96. Vinogradov, B. V. 'Indicators of Desertification in the South of Russia' in *Grid Ecosystems*. Volume 2, No. 4. 1996
- Vyas and Reddy 1995. Vyas, Vijay S. and V. Ratna Reddy. 'An Assessment of Environmental Policies and Policy Implementation in India' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- Wandil et al. 1989. Wandil, M., M. Kanua and Leslie Lavong. 'In-Service Training for Soil and Water Conservation in Papua New Guinea' in *In-Service Training for Soil and Water Conservation. Report of the ASOCON Workshop in Serdang, Malaysia*. 11-15 December 1989.
- WB 1989. *Indonesia - Forest, Land and Water : Issues in Sustainable Development*. The World Bank. June 1989.
- WB 1995. *Environmental and Natural Resource Degradation in Intensive Agriculture in Bangladesh*. Environment Department, Dissemination Notes No. 38. World Bank. November 1995.
- WB 1998. *Mapping of Social Science and Environmental Organizations with potential for Social and Environmental Assessment Capacity- Final Report*. The World Bank. August 1998.
- Williams & Balling nd. Williams, Martin A. J. and Robert C. Balling Jr. *Interactions of Desertification and Climate*. For World Meteorological Organisation, United Nations Environmental Programme. Not dated.
- WRI 1995. *World Resources – 1994-95. A Guide to the Global Environment – People and the Environment*. A Report by the World Resources Institute in collaboration with the UNEP and UNDP. Oxford University Press, New York. 1994.
- Xuan 1995. Xuan, Vo-Tong. 'An Assessment of Environmental Policies and Policy Implementation in Vietnam' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- Young 1994. Young, Anthony. *Land Degradation in South Asia : Its Severity, Causes and Effects Upon the People. Food and Agriculture Organization of the United Nations*. Rome. 1994.
- Zakaria et al, nd. Zakaria, Mohd. Nor., F. K. Yew., E. Pushparajah., and Bahtian A. Karim. 'Current Programs, Problems, and Strategies for Land Clearing and Development in Malaysia' in *Tropical Land Clearing for Sustainable Agriculture*. Proceedings of an IBSRAM Inaugural Workshop. Jakarta. 1985.

- Zhong 1995. Zhong, Funing. 'An Assessment of Environmental Policies and Policy Implementation in Chinese Rural Industrialization' in *Educating New Environmental Leadership for Asia*. Kenzo Hemmi and John C. Cool (Eds.). 1995.
- Zimsky 1999. Zimsky, Mark. *National Biodiversity Action Plan – Nepal*. Draft Report for distribution to Ministry of Forests and Soil Conservation and United Nations Development Program / Nepal. May 30, 1999.