A Guiding Frame for Mainstreaming Biodiversity and Development into National Adaptation Programmes of Action (NAPAs)

Regional Biodiversity Programme, Asia

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Foreword

In 1992, at the Rio Earth Summit the international community responded to pressing global environmental problems and adopted the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and agreed to start negotiations for what later became the United Nations Convention to Combat Desertification (UNCCD), all with the overarching goal of achieving sustainable development. Important linkages and potentials for synergy exist between the three conventions. Climate change and desertification/land degradation can adversely affect natural resources and ecosystems thus decreasing biological diversity. At the same time, conservation and management of biodiversity can increase ecosystems' resilience thus lowering their vulnerability to climate change.

One of the identified areas for possible synergies is adaptation to the adverse effects of climate change, which is a necessity regardless of the level of action taken to mitigate global warming. Activities that promote adaptation to climate change can also contribute to the conservation and sustainable use of biodiversity and sustainable land management. So far the UNFCCC process has progressed farthest in the implementation of adaptation activities in least developed countries (LDCs), whereby a process to prepare and implement National Adaptation Programmes of Action (NAPAs) has been established to help communicate the urgent and immediate needs of LDCs relating to adaptation.

NAPAs offer opportunities to identify and utilize synergies between the three Rio conventions. In accordance with the NAPA guidelines, NAPAs should build upon existing plans such as National Biodiversity Strategies and Action

Plans (NBSAPs) under CBD; National Action Plans (NAPs) under UNCCD as well as other sustainable development plans and poverty reduction strategies. Given that all relevant stakeholders are involved during the preparation of NAPAs, a holistic bottom-up approach focussing on vulnerable livelihoods and ecosystems can be ensured thus enhancing the utilization of synergies.

The search for synergy between the three Rio conventions is generally hailed as a desirable initiative. Due to numerous barriers, however, it often remains challenging in practice to move beyond statements of goodwill and to implement concrete initiatives, even with modest initial targets. In the case of NAPAs, a focus on their country-driven character could help promote synergy among conventions, including the promotion of jointly-implemented activities, and the systematic exchange of information. Given that climate change is a major challenge to sustainable development and poverty eradication in LDCs, the economies of which are generally based on climate-dependent primary commodities, the pursuit of positive linkages among the activities under different MEAs, and even under other broader national priorities, is an essential cornerstone in the promotion of sustainable development in these countries.

In addition to the NAPAs, other areas remain where existing linkages could be strengthened and potential synergies should be utilized. This publication provides a valuable contribution towards enhancing joint efforts towards the achievement of the objectives of the UNFCCC and the CBD.

IUCN-Regional Biodiversity Programme (RBP), Asia is working on issues of synergies among Rio Conventions using a local approach to sustainable development. This publication is a part of that effort to support national

adaptation planning based on local needs and to conserve natural resources. We hope that this publication will help countries develop their NAPAs in a significant way.

Janos Pasztor
Coordinator
Sustainable Development Programme
UNFCCC Secretariat, Bonn

Balakrishna Pisupati
Head
Regional Biodiversity Programme, Asia
IUCN -The World Conservation Union

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Authors
2005 January

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Chapter 1

Introduction to the Rio Conventions

Introduction

The current degree of international consensus on the need to improve environmental management and reduce poverty is laudable. International commitments within the Convention on Biological Diversity (CBD), UN Framework Convention on Climate Change (UNFCCC) as well as the UN Convention to Combat Desertification (UNCCD) and the Millennium Development Goals (MDGs) signify major advances in both the understanding of environmental degradation and its links to poverty, and a strong commitment to improve environmental management and, in doing so, improve the biological integrity of the earth's ecosystems.

Despite overlaps among the goals of the conventions and the importance of capitalizing on potential synergies, much work remains to be done to strengthen linkages and implement synergies. This document addresses these issues of synergies, focusing upon mainstreaming biodiversity and development objectives into National Adaptation Programmes of Action (NAPAs) - documents that are being developed by least-developed countries (LDCs) to address their urgent and immediate climate change adaptation needs. The main objective of developing a guiding frame is to influence policy makers in their decision-making and to encourage best practices through biodiversity in adapting and mitigating to climate change in Least Developed Countries (LDCs) using National Adaptation Programmes of Action (NAPA).

The Rio Conventions

The UN Conference on Environment and Development (UNCED) held in 1992 (also known as the Rio Earth Summit), was the first

major step of the international community to use a coordinated effort to address global environmental problems. The outcomes of the UNCED included the Rio Declaration on Environment and Development, the Agenda 21 Action Programme and the formation of the Commission for Sustainable Development (CSD). The UNCED led to the adoption of the UNFCCC, the CBD and the Forestry Principles.

United Nations Framework Convention on Climate Change (UNFCCC)

The Intergovernmental Panel on Climate Change (IPCC) was established under UN auspices in 1988 in order to provide a scientific assessment on climate change. Its findings, published in its first assessment report in 1990, prompted the negotiations that resulted in the UNFCCC.

The UNFCCC, signed by 153 countries and the European Community at the Earth Summit in Rio in June 1992, came into effect on 21 March 1994. It now has over 188 Parties. UNFCCC represents a concerted effort to address global warming occurring as a result of human-induced climate change. Its ultimate objective is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, in order to ensure that food production is not threatened and to enable continued economic development.

Under the UNFCCC, both developed and developing countries agreed to develop and submit inventories on both greenhouse gas emissions by sources as well as removals by "sinks" (such as forests which absorb carbon dioxide) and report on measures taken to implement the UNFCCC. Parties should also adopt national climate change mitigation programmes and adaptation strategies, promote technology transfer, co-operate on scientific and technical research, and promote public awareness, education and training.

The convention makes several references to the special situation of developing countries and LDCs (Articles 4.8 and 4.9 of the Convention), highlighting their heightened vulnerability to the adverse impacts of climate change. Beyond the guiding principle of "common but differentiated responsibilities and capabilities" (requiring developed countries to take the lead in combating climate change) other principles set out in the convention deal with the special needs of developing countries for furthering economic development and the importance of encouraging sustainable development. Furthermore, the convention calls for the application of the precautionary principle.

According to Article 4, certain developed countries shall provide new and additional financial resources to cover (i) the full costs related to developing countries inventory and reporting obligations and (ii) the agreed full incremental costs incurred by developing countries in the implementation of their other commitments. For this purpose, the convention works with the Global Environmental Facility (GEF).

To supplement support provided by the GEF Trust Fund, two new funds have been established under the UNFCCC. These are the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF). Furthermore, a political declaration was made by the EU and several other developed countries at the resumed sixth session of the Conference of the Parties in Bonn in July 2001 in which the group pledged USD 410 million per year by 2005 in climate change funding for developing countries.

Kyoto Protocol (KP)

At the UNFCCC Third Conference of Parties (COP), held in Kyoto in December 1997, 160 nations met to negotiate legally binding emissions reductions for industrialised countries. The Kyoto Protocol had a "double trigger" to enter into force. The first trigger was the ratification of the Protocol by 55 governments. The second trigger ensured that the ratifying governments represent developed countries (Annex 1 countries) that account for at least 55% of the world's carbon dioxide emissions at the 1990 baseline.

To date, over 128 countries have ratified the Kyoto Protocol. Russia, with its 17.4% of 1990 emission levels, fully ratified the protocol surpassing the 55% threshold and KP will enter into force on 16th of February 2005. This would result in the binding emission reductions for 37 of the Annex 1 countries requiring them to cut their carbon dioxide emissions by an average of 5.2% below 1990 emissions levels by the first commitment period. (between 2008-2012).

Convention on Biological Diversity (CBD)

The UNCED also paved the way to the first global agreement on the conservation and sustainable use of biological diversity, known as the Convention on Biological Diversity (CBD) which gained rapid and widespread acceptance.

Box 1

Facts about the Convention on Biological Diversity (CBD)

- Over 150 Governments signed the binding document at the Rio Conference in December 1992.
- Entered into force on 29 December 1993 and there are over 175 signatories to date.
- Main goals
  - The conservation of biological diversity
  - Sustainable use of its components
  - Sharing the benefits arising from the commercial and other utilisation of genetic resources in a fair and equitable way
- It recognises for the first time that the conservation of biological diversity is a "common concern of human kind" and an integral part of the development process.
- Offers decision maker guidance based on the precautionary principle that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimise such as threat.

While past conservation efforts were aimed at protecting particular species and habitats, the CBD recognizes that all ecosystems, species and genetic resources must be used for the benefit of humans. However, this should be done in a way and at a rate that does not lead to the long-term decline of biological diversity.

The CBD has three main goals (Box 1): the conservation of biodiversity, the sustainable use of biological resources, and the sharing of benefits arising from commercial and other utilizations of genetic resources in a fair and equitable way. It links traditional conservation efforts to the economic goal of using biological resources sustainably.

The CBD also offers decision-makers guidance based on the precautionary principle, that where there is a threat of significant reduction or loss of biological diversity, a lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat. The CBD acknowledges that substantial investments are required to conserve biological diversity and also recognizes that conservation will bring significant environmental, economic and social benefits in return.

Some of the many issues dealt with under the CBD include measures and incentives for the conservation and sustainable use of biological diversity; regulated access to genetic resources, access to transfer technology including biotechnology, technical and scientific cooperation, impact assessment, education and public awareness, provision of financial resources, and national reporting on efforts to implement treaty commitment.

United Nations Convention to Combat Desertification (UNCCD)

Desertification is the end result of faulty land use practices and degradation of land in arid, semi-arid, and dry sub-humid areas. This is primarily caused by anthropogenic activities coupled with climatic variations. Desertification does not refer to the expansion of existing deserts. It occurs because dryland ecosystems, which cover over one third of the world's land area, are extremely vulnerable to over-exploitation and inappropriate land use. Poverty, political instability, deforestation, overgrazing, and bad irrigation practices can all undermine the

land's productivity. Over 250 million people are directly affected by desertification. In addition, some one billion people in over one hundred countries are at risk. These people include many of the world's poorest, most marginalized, and politically weak citizens. Combating desertification is essential to ensuring the long-term productivity of inhabited drylands. Unfortunately, past efforts have too often failed, and around the world the problem of land degradation continues to worsen. Recognizing the need for a fresh approach, 179 governments have joined the United Nations Convention to Combat Desertification as of March 2002. This Convention aims to promote effective action through innovative local programmes and supportive international partnerships. The treaty acknowledges that the struggle to protect drylands will be a long one - the causes of desertification are many and complex, ranging from international trade patterns to unsustainable land management practices. To combat desertification, real and difficult changes will have to be made, both at the international and the local levels (www.unccd.int).

The Convention is termed the 'people-centred convention' because of its emphasis on livelihood issues that affect poor people. The Convention encourages governments to establish national action programmes (NAPs) in co-operation with local NGOs and with the help of donors. Although most countries have accepted or ratified this Convention, thus far it has fewer resources to implement its work programme than the other Rio conventions.

Linkages

The aim of the CBD of encouraging the conservation and sustainable use of biological resources creates an important link to the UNFCCC. The use of natural resources, for example in forestry, agriculture, and energy production, can lead to greenhouse gas emissions when natural greenhouse gas sinks are destroyed. The UNFCCC promotes the protection and the enhancement of greenhouse gas sinks and reservoirs and the sustainable use of natural resources.

In addition, the introduction of renewable energy technologies like solar, wind and hydropower is encouraged as a means of

reducing greenhouse gas emissions. These technologies can also reduce pressure on land and forests for harvesting of biomass fuels. However, these renewable energy technologies can also have negative implications for biodiversity. Solar and wind energy often require large tracts of land and hydropower often requires the inundation of large areas of land, leading to habitat loss, and in the case of hydropower, frequently leading to mercury contamination.

The CBD and UNFCCC also have strong linkages to sustainable development objectives. The continued progress of poverty-reduction initiatives requires communities to be able to adapt to changing climatic conditions and successfully mitigate the negative effects of climate change whilst ensuring that the adaptation capacities of humans and ecosystems are not exceeded. The Conservation of biodiversity and the maintenance of ecosystem services is critical to the livelihoods of all people, but is particularly vital to poor communities whose incomes are strongly dependent upon their natural environment.

There are critical links between UNCCD and the other Rio conventions. In many regions climate change is expected to exacerbate the problem of desertification, with implications for local livelihoods and sustainable development. Links to biodiversity are also apparent, as protecting ground cover and biodiversity is important in preventing desertification, and initiatives to reverse the effects of desertification rely upon the use of biological capital.

The text of the UNCCD refers frequently to sustainable development, climate change, biological diversity, water resources, energy sources, food security, and socio-economic factors. Recognizing that the links between these issues and desertification are often not understood, the UNCCD emphasizes the need to coordinate desertification-related activities with the research efforts and response strategies inspired by these other concerns.

The need to address vulnerability and promote good governance is also addressed in the UNCCD. The UNCCD has facilitated the creation of programmes of action and enhanced the capacities of institutions which can serve to implement the UNFCCC and

CBD provisions. Article 8 in the UNCCD addresses relationships with other conventions, specifically in conducting joint programmes in the fields of research, training, systematic observation and information collection and exchange.

Planning Processes, Parties and Relevant Meetings

Planning

The first step in the implementation of the Rio conventions is to develop planning documents which review the current status of resources and prioritise on-the-ground activities. These plans are termed National Biodiversity Strategy and Action Plans (NBSAPs) under the CBD and National Action Plans (NAPs) under the UNCCD. Under the UNFCCC, the LDCs are provided the opportunity to develop National Adaptation Programmes of Action (NAPAs) while all Parties to this convention are required to develop National Communications (NatComs).

The three Rio conventions also require parties to develop strategies and action plans to implement the provisions and decisions of COP and countries have to submit regular National Reports. However, these reports do not often require nor encourage countries to address cross-convention synergies in both development and implementation of strategies and action plans.

Status of planning related documents

Several countries have already developed NBSAPs under the CBD. Many of them are being revised and having their implementing options revisited. It is critical that NBSAPs address issues of climate change and desertification, and provide guidelines on how these tasks should be developed.

Many LDCs have already submitted national communications. Most LDCs are developing or initiating the development of NAPAs. However, the exact methods of development and the elements of NAPA are still unclear regarding how to integrate biodiversity and desertification concerns into NAPAs as well as how to mainstream climate change into development planning.

Action plans developed by countries under the UNCCD often fail to address the issues of climate change and its role in desertification, and the role of biodiversity in mitigating desertification. Supporting the implementation of UNCCD with synergistic action dealing with climate change mitigation and biodiversity conservation will help to achieve & maximise the benefits & results of these activities, which would not be possible otherwise if each of these activities are undertaken individually.

Conference of Parties

The three Rio conventions hold regular Conferences of Parties (COPs) every 12-18 months. The COPs make decisions on policy issues related to the convention, adapt specific work programmes and set budgets and secretariat staffing levels. They can also make amendments to the basic texts, although these have to be endorsed by special procedures. Although the procedures for the conventions suggest decisions should be voted upon, in many cases the parties to the conventions have not been able to agree upon rules, and as a result the COPs often operate almost entirely on the basis of consensus, which makes progress slow. In between COPs, there are meetings of subsidiary bodies to consider scientific and technical issues or questions of implementation.

Joint Liaison Group (JLG)

A joint liaison group (JLG) was formed between the three Rio conventions with the objective of enhancing coordination and explore options for further cooperation among the three Conventions, such as the possibility of joint work plans, joint workshops etc. The Ramsar Convention on Wetlands has been invited to participate in JLG meetings, as appropriate, and its continuous involvement in the JLG has recently been encouraged by the UNFCCC's SBSTA (SBSTA 20, June 2004). Thematic areas of common interest that have been addressed in the context of cooperation among Conventions and also within the JLG are the following:

- Development and transfer of technologies
- Education and outreach
- Research and systematic observation

- Capacity building
- Impacts and adaptation
- Reporting

As one contribution to enhance coordination, among other activities, a joint calendar of events relevant to the three Rio conventions was published and posted on all three websites. In response to a request from the Parties to the UNFCCC during COP-7 in Marrakech, a workshop addressing synergies among the conventions was organized by the UNFCCC secretariat in cooperation with the other members of the JLG in Finland in early July 2003. The workshop addressed ways to improve cooperation and develop synergies and linkages among the conventions, including improved cooperation and communication among national focal points to the conventions, and discussed options to increase cooperation and capture synergy among the conventions using existing channels in areas such as technology transfer, education and outreach, capacity building, research and systematic observation, reporting, and impacts and adaptation.

UNFCCC COP Decisions on Adaptation

UNFCCC Article 4, Paragraph 9, deals with matters relating to LDCs. The Conference of the Parties (COP) at its seventh session (decision 5) recognized the particular vulnerability of LDCs to climate change, and the human, infrastructure and economic conditions which limit their capacity to adapt to climate change and participate in climate change processes. In decision 28 (COP 7, annex), guidelines for the preparation of national adaptation programmes of action (NAPAs) were adopted. In the same decision, the COP invited Parties to make submissions to improve the NAPA guidelines. Decision 29/CP.7 established the Least Developed Countries Experts Group (LEG).

The UNFCCC and the Kyoto Protocol have already established many provisions that support adaptation to climate change impacts in developing countries. These are the following:

- Article 4.1: Parties are committed to formulate, implement national and, where appropriate, regional programs to facilitate adequate adaptation.

- Article 4.4: Developed countries shall assist the developing countries in meeting the costs of adaptation.
- Article 4.8: Parties are to give full consideration to the needs of countries with special characteristics (specifies 8 disadvantaged areas and countries including low-lying coastal areas and fossil fuel-dependent economies).
- Article 4.9: Parties shall take full account of the LDC needs in their actions with regard to funding and transfer of technology.
- Article 12.8 of the Protocol: The COP shall ensure that a share of CDM [Clean Development Mechanism] proceeds is used to assist developing countries that are particularly vulnerable to meet the costs of adaptation.

The specific needs of LDCs are referred in UNFCCC Article 4.8 and 4.9, which considers vulnerability of coastal, arid, semi-arid, fragile mountains and other areas liable to floods and drought in low lying Small Island Developing States (SIDS). The COP through its decisions 11/CP.1, 3/CP.3, 1/CP.4, 5/CP.4, 12/CP.5 and 5/CP.7, is determined to protect the climate system for present and future generations through adaptive measures wherever applicable.

Implementation of Key Decisions by Rio Conventions

The decisions taken at the Conference of Parties (COP) of the individual conventions on key thematic areas are under different stages of implementation. It is a useful exercise to review and do a comparative analysis of some of the decisions taken at the COPs, as a benchmark and as an indicator of synergies among the three Rio Conventions (Table 1).

Table 1
Comparative Analysis of Key Decisions Implemented by the Three Rio Conventions

COP Decisions	CBD	UNCCD	UNFCCC
Synergies and interlinkages with other organisations and conventions	Realises that it is necessary to apply the ecosystem approach in national policies and legislation, and to integrate the approach in thematic and cross - sectoral programmes, with a view to facilitate the integration … highlights and re-affirms the importance of cooperation and the need to design and implement mutually supportive activities with other conventions, international organisations and initiatives. ***(Decision VI/20)***	Affirms that there is a need for enhanced cooperation among the UNFCCC, CBD and the UNCCD, with the aim of ensuring the environmental integrity of the conventions and promoting synergies under the common objective of sustainable development, in order to avoid duplication of efforts, strengthen joint efforts and use available resources more efficiently. ***(Decision 13/CP.8)***	Recognises that synergies among scientific and technological bodies are of fundamental importance and requests to include land/soil degradation, and its linkages to other environmental conventions. Encourage Parties to share information, experience and recommendations. ***(Decision 12/COP.6)***
Capacity Building	The Clearing-House Mechanism (CHM) was created to promote and facilitate technical and scientific cooperation. Information systems and activities were established at an international, regional/sub-regional levels and enhanced cooperation among them were promoted to build capacity and thereby meet the objectives of the CBD. ***(Decision II/3)***	An agreement was reached to provide capacity-building support for developing countries and economies in transition (EITs) and that capacity building should be country driven, *learning by doing* and build on existing activities and provide an initial set of priority areas for both sets of countries including the specific needs of Least Developed Countries (LDCs) ***(Decision 2/CP.7 and 3/CP.7)***	In the guidelines for Capacity Development Initiative (CDI) and National Capacity Self Assessment (NCSA) initiatives at the country level, priority has been on building institutional and individual capacities on ways and means of combating desertification through integrated land degradation assessment, early warning systems and millennium ecosystem assessment. ***(Decision 18/COP.6, 19/COP.6)***

Table 1
Comparative Analysis of Key Decisions Implemented by the Three Rio Conventions

COP Decisions	CBD	UNCCD	UNFCCC
Communication, Education and Public Awareness	Adopts the Global Initiative on Education and Public Awareness, effectively promote biodiversity related issues through the media and other communication networks nationally… develop adequate capacity to deliver initiatives, taking into account the special needs of developing countries, in particular LDCs and small island developing States (SIDS) ***(Decision VI/19)***	Parties have agreed on a list of activities that could be undertaken at the national level called "the New Delhi work programme" in order to enhance climate focussed education and training programmes, increase the availability and dissemination of information to improve the understanding and the participation of the public in climate change related issues. Also recognises the role of NGO's and IGO's in supporting these activities. ***(Decision 11/CP.8)***	Parties have been encouraged to initiate and enhance activities that assist improved ecosystem management, aforestation and reforestation through community campaigns and awareness programmes. Special emphasis has been to raise public attention to reduce rates of deforestation and encourage regeneration, re-growth of semi-arid and arid ecosystems, especially in least developed countries. ***(Decision 19/COP.6)***
Financial Support	Global Environmental Facility (GEF) will serve as the institutional structure to operate the financial mechanism under the Convention and explore the possibility of promoting diverse forms of public involvement and more effective collaboration among all tiers of government and civil society. The GEF provides funding for enabling activities. ***(Decision II/6)***	GEF was designated as an operating entity of the financial mechanism and the COP provides updated policy guidance on its climate change activities and the GEF reports back on an annual basis. GEF is the main funding channel for climate change projects in developing countries. As an additional guidance to GEF LDC Fund and the Special Climate Change Fund were created. ***(Decision 5/CP.9)***	GEF decides to take appropriate measure to identify, prepare and implement GEF-financed activities to combat land degradation as they relate to biodiversity, climate change and international waters. ***(Decision 6/COP.6)***

Table 1
Comparative Analysis of Key Decisions Implemented by the Three Rio Conventions

COP Decisions	CBD	UNCCD	UNFCCC
Technology transfer	Priority is accorded to document the process of technology transfer, highlighting the importance of biotechnology, especially to developing countries as well as to enable the role of capacity-building and the provision of financial resources. These background documents should also consider regional and sub-regional inputs and comments highlighting the key priority issues relating to opportunities for and obstacles to the transfer of technology ***(Decision II/4)***	Recognises the meaningful and effective actions to enhance the implementations of technology needs and needs assessments, the development of a technology transfer information clearing-house that will improve the effectiveness of the transfer of environmentally sound technologies, in particular adaptation technologies, and capacity building activities. These include practical steps to promote, facilitate and finance as appropriate, transfer of and access to environmentally sound technologies and know-how. ***(Decision 4/CP.4 and 10/CP.8)***	Recognises that transfer of modern techniques to civil society in areas such as agro-forestry, agro-silvi pastoralism, community forestry and so on, as an urgent and immediate need. Techniques of rain-water harvesting and alternate source of energy generation are the other areas where transfer of technology is considered urgent and immediate to combat the spread of desertification. In addition, an integrated approach is suggested to address issues of land degradation, vulnerability and rehabilitation. ***(Decision 20/COP.6)***
Monitoring and Evaluating	Identification and monitoring of fragile ecosystems and species, impact assessment, exchange of information for their better protection during and following disaster. ***(Decision III/10)***	Response to climate change should be coordinated with social and economic development in an integrated manner to avoid, adapt and mitigate the adverse impacts with new technologies. ***(Decision 8/CP.3 and 9/CP.3***)	Use of Global Mechanism (GM) that enables better support and participatory approach at the local level and promotes replicable, flexible project designs. ***(Decision 5/COP.6)***

Table 1
Comparative Analysis of Key Decisions Implemented by the Three Rio Conventions

COP Decisions	CBD	UNCCD	UNFCCC
Reporting	Requires Parties to develop National Biodiversity Strategies and Action Plans (**NBSAPs**) for the conservation and sustainable use of biological diversity, with a sequence of steps taken to meet these goals of the Convention. ***(Decision II/7 and III/9***)	Requires Parties to report on the steps they are taking to implement the convention through National Communications (**NatComs**) with a national inventory of antropogenic emissions by sources and other steps to meet the goals of the Convention. The least developed countries (LCDs) may choose to first develop National Adaptation Programmes of Action (**NAPAs**) to address their urgent and immediate adaptation needs to climate change owing to their economic state and increased vulnerability. ***(Decisions 9/CP.2,10/CP.2, 4/CP.8 and 8/CP.7)***	Requires Parties to develop National Adaptation Programmes (**NAPs**) to identify the factors contributing to desertification and practical measures necessary to combat desertification and mitigate drought. It should specify the respective roles of government, local communities and land users and resources available and needed. UNCCD encourages international organisations and initiatives and requests to continue activities on the Land Degradation Assessment in Drylands (LADA) and the Millenium Ecosystem Assessment (MEA) ***(Decision 19/COP.6)***

Chapter 2

National Adaptation Programmes of Action

What are NAPAs?

National Adaptation Programmes of Actions (NAPAs) are documents specifying a list of priority activities that will communicate immediate and urgent needs of LDCs, taking into account their high vulnerability and low adaptive capacity to climate change. The development of a NAPA document is not only intended to identify and prioritise urgent adaptation needs of LDCs but also help build capacity for the development of NatComs and to mainstream adaptation into regular development planning. An overview of climate variability, and observed and projected climate change and associated actual and potential adverse effects of climate change should be documented. This overview should be based on existing and ongoing studies and research, and/or empirical and historical information as well as traditional knowledge.

The main characteristics of a NAPA are that it should be easy to understand, action oriented and country driven, and should set clear priorities for urgent and immediate adaptation activities identified by each individual country. These adaptation activities and measures will also take into account the national planning processes, development goals and other multilateral environmental agreements and also identify potential barriers to implementation. The objective of a NAPA is to "serve as a simplified and direct channel of communication for information relating to urgent and immediate adaptation needs of LDCs" *(UNFCCC, 2002).* The key outcome of the NAPA process is the identification of activities that should be pursued immediately, because further delay in implementing the activities could lead to increased vulnerability, or higher costs for delayed implementation. It has been highlighted by the UNFCCC that NAPAs should have a bottom-up action plan, not be just another lengthy document that joins the ranks of other action plans. The

end product should be a concise and well justified list of actions and projects to address priority vulnerabilities for the country or to build capacity to address those vulnerabilities.

Criteria for identifying LDCs

In its latest triennial review of the list of Least Developed Countries in 2003, the Economic and Social Council of the United Nations used the following three criteria for the identification of the LDCs, as proposed by the Committee for Development Policy (CDP):

- a low-income criterion, based on a three-year average estimate of the gross domestic product per capita (under $750 for inclusion, above $900 for graduation);

- a human resource weakness criterion, involving a composite Augmented Physical Quality of Life Index (APQLI) based on indicators of: (a) nutrition; (b) health; (c) education; and (d) adult literacy; and

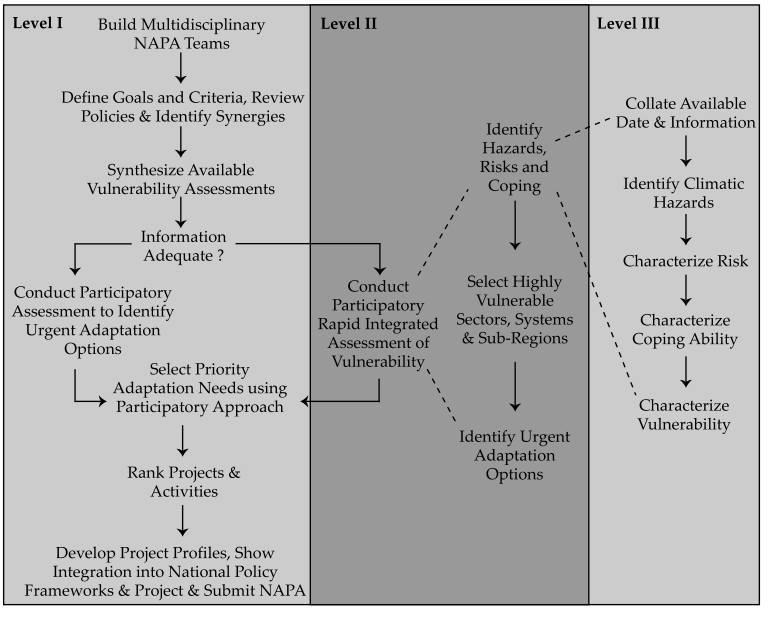
- an economic vulnerability criterion, involving a composite Economic Vulnerability Index (EVI) based on indicators of: (a) the instability of agricultural production; (b) the instability of exports of goods and services; (c) the economic importance of non-traditional activities (share of manufacturing and modern services in GDP); (d) merchandise export concentration; and (e) the handicap of economic smallness (as measured through the population in logarithm); and the percentage of population displaced by natural disasters.

To be added to the list, a country must satisfy all three criteria. To qualify for graduation, a country must meet the thresholds for two of the three criteria in two consecutive triennial reviews by the CDP. In addition, since the fundamental meaning of the LDC category, i.e. the recognition of structural handicaps, excludes large economies, the population must not exceed 75 million. In the 2000 review, Senegal was included in the list of LDCs.

Timor-Leste was added to the list in 2003, bringing the total number of LDCs to 50. With regard to the 2003 triennial review of the list, the CDP concluded that Cape Verde and Maldives qualified for graduation and recommended that they be graduated from the LDC category. The CDP also concluded that Samoa was eligible for graduation in 2006. Based on the CDP report, the ECOSOC will make a recommendation to the General Assembly, which is responsible for the final decision on the list of LDCs. (United Nations, 2004)

Developing a NAPA

Whilst recognising the importance and the need to be consistent with other national and international obligations, wider planning processes and overarching development goals, the preparation of NAPAs by these LDCs can be followed using the steps mentioned below. (UNFCCC Annotated guidelines 2002)



Source: UNFCCC, 2004

Fig 1: Main steps in participatory process of developing NAPA

Step 1: Designating a NAPA team

The process of NAPA preparation starts with the designation of a NAPA team (decision 28/CP.7) by the national climate change focal point. The NAPA team comprise of a lead agency and representatives of stakeholders, including government agencies and civil society. The team is intended to ensure that the NAPA preparation process is flexible, inclusive, open and transparent. The team leader will be selected based on issues relevant to the country. This means that the national climate change focal point does not necessarily have to lead the NAPA team, and in some cases, other team members may be more appropriately selected for the role of team leader. The team should assemble a multidisciplinary group that includes representatives from all sectors, including agriculture, coastal communities and marine ecosystems, forestry, health, urban planning and women's issues. These representatives will help ensure that the NAPA address issues from and within their sector, and that the sectoral plans are complementary. The NAPA team will be responsible for:

- collating and synthesising available information—this includes reviewing existing national strategies and action plans on expected adverse effects of climate change and on coping strategies;
- assessing the risks through participatory vulnerability assessment; (Fig 1)
- identifying and prioritising country-driven criteria for selecting priority activities;
- identifying key climate change adaptation measures;
- identifying potential areas for synergies among the Rio conventions in the country.

Step 2: Following the guiding elements of NAPA

NAPAs should be developed using the following guiding elements: (UNFCCC Annotated Guidelines 2002)

a) A multi-stakeholder participatory approach, particularly local communities;

b) A multidisciplinary approach;

c) A complimentary approach, building upon existing plans and programmes, including national action plans under the United Nations Convention to Combat Desertification, national biodiversity strategies and action plans under the Convention on Biological Diversity, and national sectoral policies;

d) Sustainable Development;

e) Gender equality;

f) A country-driven approach;

g) Sound environmental management;

h) Cost-effectiveness;

i) Simplicity, and;

j) Flexibility of procedures based on individual country circumstances.

The steps of NAPA are:

(a) Build multidisciplinary NAPA teams.

(b) Define goals and criteria, review policies & identify synergies.

(c) Synthesize available vulnerability assessments.

(d) Conduct participatory assessments to identify urgent adaptation options.

(e) Select priority adaptation needs using participatory approach.

(f) Rank projects and activities.

(g) Develop project profiles, show integration into national policy frameworks & projects and submit NAPA.

Step 3: Completing the six sections of NAPA

1. Introductions and settings

- Country Background Information
  - Current Characteristics (Geographic & Socioeconomic)
  - Key Environmental Stresses
  - Affected Biophysical Processes and Sectors

2. Framework for Adaptation Programme

- Overview of Climate Variability, Observed and Projected Climate Change and Potential Adverse Effects
- A Description of the Goals, Objectives and Strategies, taking MEAs into Account
- Relate the NAPA framework to the country's socio-economic and development goals
- Description of Potential Barriers to Implementation

3. Identifying Key Adaptation Needs

- Assessment of Past and Present Adaptation Practices
  - Capacity building
  - Policy reform
  - Integration of Sectoral Policies
  - Project level activities
- Identify and assess to what extent vulnerabilities needs addressing

Contd;

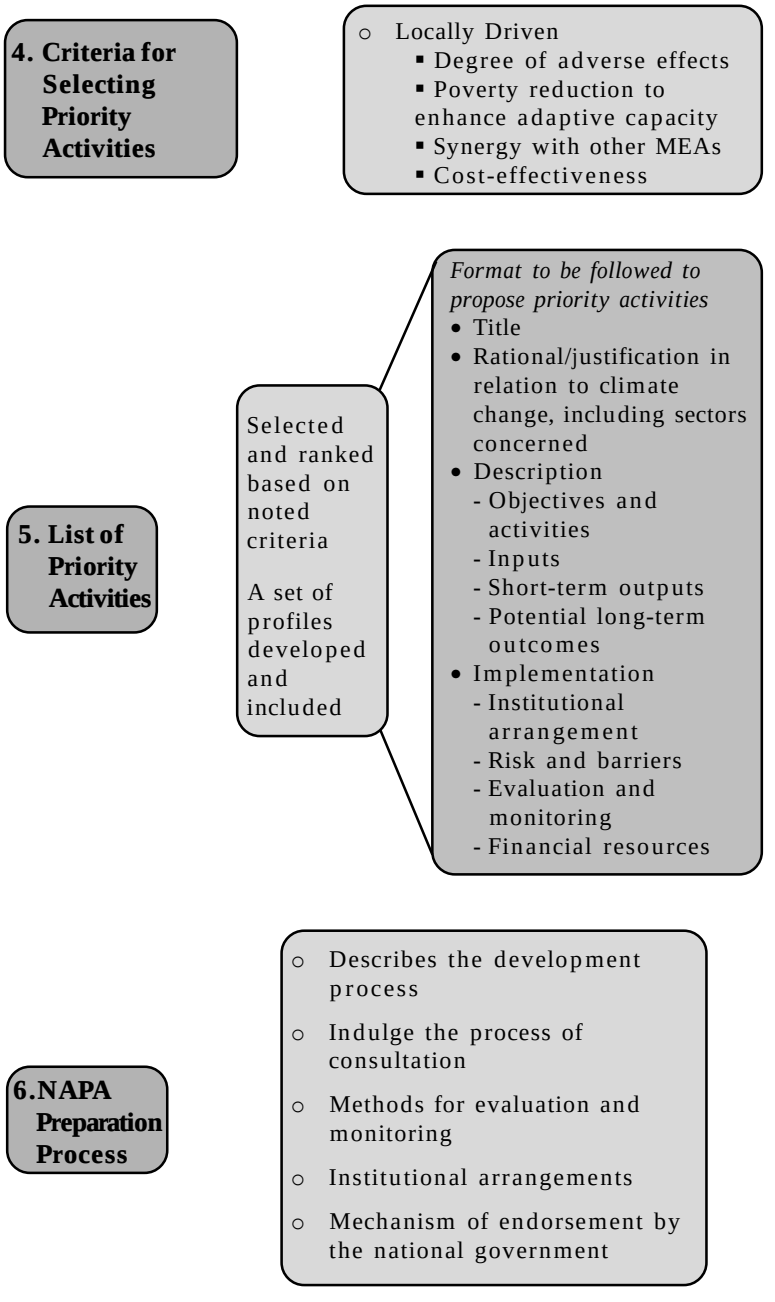


Fig 2: Completing the six sections of NAPA

The criteria for prioritisation involve issues related to cross cutting themes such as biodiversity, livelihoods and natural resource management (Fig. 3).

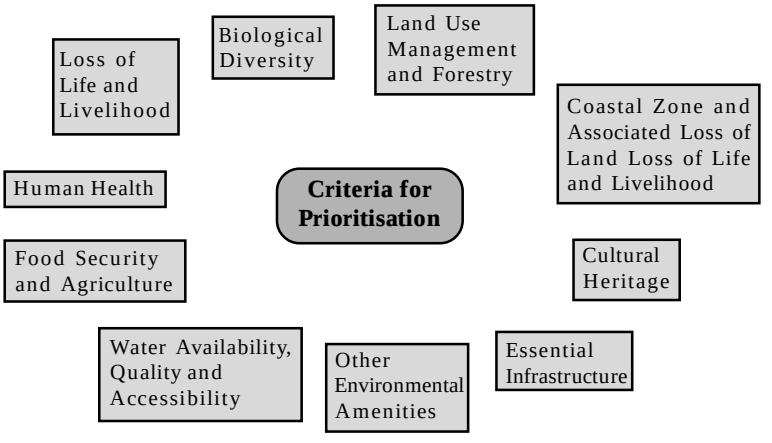


Fig 3: Criteria for prioritisation in NAPA

Review and communication of lessons learned

The NAPA should be presented for public review as well as review by the government, civil society representatives and the private sector. In particular, comments on proposed adaptation activities should be subject to careful scrutiny of stakeholder groups. The NAPA may also be shared with the LEG prior to endorsement by the national government.

Because the NAPA development process is really an exercise in "learning by doing", it is important that country experiences be shared. Experiences with developing, evaluating and implementing NAPAs should be communicated among LDCs, and used to expedite the process. The secretariat of the UNFCCC, the LEG, or the GEF implementing agencies could assist with information dissemination. In addition, lessons learned and cross-accord issues should be communicated to the secretariat of the CBD and UNCCD.

Support for NAPA implementation

The LDC Fund is mandated to support the implementation of NAPAs in accordance with decision 5/CP.7 and 6/CP.9. In addition, co-financing may be sought from national, bilateral or other multilateral sources, including existing funding channels under the UNFCCC process such as the GEF Trust Fund, the Special Climate Change Fund and the Adaptation Fund once operational.

Prerequisites for effective implementation

Once the NAPA has been completed and the immediate adaptation needs of a nation have been identified, the challenge becomes implementing the NAPA. Effective implementation of NAPA and the priority activities identified within NAPA requires adequate awareness of the issues and adaptation needs within government, affected sectors and by the public. Building adequate capacity to implement the NAPA is also required. Capacity building and awareness-raising activities should be pursued throughout the entire NAPA development and implementation process.

Awareness-raising

Implementing NAPA will require cooperation of numerous agencies and individuals, many of whom have limited knowledge of climate change and its impacts, or knowledge of how to integrate other environmental and development objectives. In addition, the support of local communities is critical to ensuring success of adaptation activities, and this support can only be attained through ensuring that communities have adequate understanding of the issues, and have been involved in the planning process. Awareness-raising needs to involve both top-down initiatives, but also bottom-up teaching, where communities can share their local knowledge and traditional practices.

Capacity building

Developing countries are required to identify their capacity building needs as a part of their National Capacity building Self Assessments (NCSAs). Capacity building activities should be planned to complement activities required to implement other multilateral environmental agreements (MEAs), and to support continued development work.

Progress of NAPA development in LDCs

Of the 48 LDC Parties to the Convention, 30 are in Africa, eight in Asia and ten are SIDS (Small Island Developing States) (those marked with an asterisk have a summary of NAPA progress included in this paper):

African LDCs: Angola, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Dem. Rep. of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Tanzania, Togo, Uganda, Zambia

Asia: Afghanistan, Bangladesh (*), Bhutan (*), Cambodia, Lao People's Dem. Rep. (*), Myanmar, Nepal (*), Yemen

SIDS: Cape Verde, Comoros, Haiti, Kiribati, Maldives (*), Samoa, Sao Tome & Principe, Solomon Islands, Tuvalu, Vanuatu.

Status of NAPA process in some LDCs

NAPA preparations are at various different stages. According to the GEF Council *Status report on the Least Developed Countries Trust Fund for Climate Change* of 14 April 2004, projects for the preparation of NAPA had been approved for 37 countries by the Least Developed Country Trust Fund (LDCF), four project proposals are at an advanced stage (for Burundi, Guinea Bissau, Rwanda, and Sierra Leone) and another four (for Afghanistan, Myanmar, Nepal, and Solomon Islands) are under development

with the Implementing Agencies. Thus 45 countries out of 48 LDC Parties to the UNFCCC are either approved or working with the Implementing Agencies to prepare NAPA projects.

Among those 37 approved projects, 26 projects have begun the preparation of their NAPAs. Most of the approved projects are expected to complete the preparation of the NAPA within a period of 12 to 18 months. In terms of progress, based on preliminary reports from UNDP and UNEP, 19 countries have established their NAPA teams and a few have initiated NAPA related studies. A more comprehensive report is to be provided for the Council at its meeting in November 2004.

The following (Table 2) below shows the geographical location and its vulnerability to climate change apart from the status of the NAPA development in LDCs.

Table 2:
Status of NAPA implementation in selected LDCs (as of October 2004)

Country and Location	Status of NAPA
Bangladesh Bangladesh, with its long coastline and rural economy based largely on marine resources, is highly vulnerable to climate change. In particular, effects of sea level rise and coastal cyclones may be particularly severe. The nation has a population of over 140 million people, largely residing in rural areas (rural to urban ratio - 3:1) and a low per capita income (USD 350).	NAPA process has been initiated with the Ministry of Environment and Forests as the focal agency for implementation.
Bhutan Bhutan is one of the poorest countries in Asia with a GDP per capita of USD 755. It is prone to natural disasters like Glacial Lake Outbursts Floods (GLOFS) and landsides. Climate change projections indicate that the frequency of these hazards will intensify, and models suggest that the vulnerability of human populations to tropical diseases and heat stress will increase due to climate change. This country is rich in biodiversity and is considered an Eastern Himalayan hotspot. Currently 72.5% of the land area is under forest cover. Eighty percent of the country's population work in the agricultural sector.	NAPA Process has begun under the National Environmental Commission of Bhutan, the NAPA team is identified and planning workshop was organised recently.
Lao PDR Lao has a per capita of USD 326 and a population of 5.4 million with a large rural to urban ratio (4:1). This country, being one of the lower Mekong countries, has enormous water and wetlands resources, but is also highly vulnerable to adverse impacts of climate change such as floods.	Implementation of NAPA is yet to begin. However Scientific, Technical, Environment Agency (STEA) is nominated as focal point for NAPA implementation.

Country and Location	Status of NAPA
Maldives The Maldives has a small population (0.3 million), high per capita income (USD 2082) and high GDP (USD 4798). However, it is extremely vulnerable to sea level rise. The country has submitted its initial NatCom to the UNFCCC on the 5th of November 2001.	The process of preparation of the NAPA has just begun in Maldives, with the submission of proposal for GEF funding.
Myanmar Myanmar has a low GDP (USD 1027), high population (48.2 million) and a high rural to urban ratio (3:1).	The NAPA proposal is under development and is expected to be submitted soon.
Nepal In Nepal, 38% of the population currently lives below the poverty line. However, using plans detailed in the Tenth Plan, the government intends to reduce this rate to 30% by 2007. The country's Biodiversity Strategy (2002) was prepared under the UNDP/GEF Biodiversity Conservation Project. It lists several climate-related threats to biodiversity, such as flooding and sedimentation. High altitude systems are at particular risk due to the faster warming and increased variability in precipitation that will affect glaciers and contribute to increased runoff.	Nepal's NAPA has begun and is coordinated by The Ministry of Population and Environment (MOPE). A steering committee and an executive committee will oversee technical and administrative issues, while National Study Teams (NST) will carry out sector-related work.
Mali This Western African country with a population of 12 million has a land area of 1,240,192 km^2. The country's GDP per capita is about US$ 200 and its adaptation capability any vulnerability is extremely low. The country submitted its initial national communication on the 13th of November 2000.	NAPA process has begun and the national executing agency is the Ministry of Environment.

Country and Location	Status of NAPA
Ethiopia An East African country, Ethiopia has experienced frequent and extensive droughts in the recent decades which have caused severe food shortage and famine. A spread of malaria to the highlands and an increased loss of biodiversity as well as a decline in wildlife has been observed. This country has also faced internal conflicts and has a GDP per capita of just US$ 90 (*2001*) which shows that the country has a low adaptive capacity and is particularly vulnerable to climate change. The country's population is 64 million and the land area is 1,104,300 km^2. The initial national communications was submitted on the 16th of October 2001.	NAPA process has begun under its national implementing agency.
Tuvalu A highly fragmented tropical state comprises nine atolls and low islands totalling a land area of only 26km^2. Located 5-11 °S and 176-179°E in the Pacific spread over a sea area of 900,000 km^2, these islands are prone to cyclones, variable rainfall and inundation and the first nations to be directly affected by sea level rise where the whole population is being relocated in countries such as New Zealand. Tuvalu has submitted it NatCom on 30th October 1999.	NAPA process has begun with the Ministry of Natural Resources and Environment being the implementing agency.
Kiribati Is a small island state with 32 low lying atoll islands and one raised limestone atoll in the Pacific Ocean. The population is about 85,000 and surface area of 726 km^2 spread over a sea area of 3.5 million km^2. Kiribati is one of the most vulnerable states to the adverse impacts of climate change and accelerated sea level rise. The country has submitted its NatCom on the 30th of October 1999.	NAPA process has begun under its national implementing agency.

Chapter 3

Mainstreaming Biodiversity into Climate Change Activities

Background

Climate change threatens to impact all ecosystems and livelihood securities. Effects will range from subtle effects, like minor changes in species ranges with no ecosystem-level consequences, to severe effects, like the loss of coastal and island habitats. Changing climatic conditions will lead to changes in the ecosystems, in some cases destabilizing them and interfering with their use by human populations for provision of goods and services. It is estimated that forest conversions, mainly deforestation contribute to 30% of atmospheric build up of carbon dioxide (WRI 1998).

This chapter first reviews some anticipated effects of climate change on ecosystems and human settlements, focusing on biodiversity. It then explores on-the-ground options for adaptation and mitigation, and ways in which biodiversity can benefit from these activities. As well, biodiversity conservation projects with side-benefits for climate change adaptation and mitigation are noted. Finally, selected recommendations are presented for implementation of mitigation and adaptation activities to ensure sustenance of biodiversity and ecosystem integrity, and to ensure the success of these activities.

Current and future impacts of climate change on ecosystems

The issues of climate change and biodiversity are intrinsically linked. Biomes and ecosystems have developed and changed over thousands of years to adapt to specific climatic conditions. Although there is general scientific consensus that the climate is changing, there is less agreement on whether changes in biodiversity can be attributed to climate change. To address this question, the IPCC Third Assessment Report reviewed over

2500 scientific studies on a large variety of plant and animal species (Gitay et al., 2002). Of these studies, 44 showed long-term trends in both climatic parameters and biological parameters and eighty percent of these studies showed changes that were consistent with climate change predictions, leading the IPCC to conclude that there have been "discernable impacts of regional climate change, particularly increases in temperature, on biological systems in the 20th century" (Gitay et al., 2002). These biological changes include shifts in the timing of reproduction and egg-laying, changes in body size and in species ranges. In addition, increased temperatures have led to increased egg-laying by the spruce budworm, worsening outbreaks of this pest. Human populations have been affected by changes in the distribution of water, food and vector-borne diseases.

Future impacts are likely to be much more severe. Significant increases in sea level, and major regional changes in precipitation amounts, intensity and timing are projected. In addition, predicted increases in air temperature have major implications for the sustainability of ecosystems. A poleward shift in some ecosystems is predicted as the climate warms, and even minor changes in climate will disrupt agriculture. The yields of fisheries will also change in some regions. Increased frequency of flood, drought, and extreme events have major implications for ecosystems, and for human activities.

Maintaining biological options for adaptation – integrating biodiversity into adaptation and mitigation projects

Multiple stressors, including habitat fragmentation, pollution, and the introduction of invasive species will limit the resilience of ecosystems to climate change. In addition, climate change may further accelerate current high rates of biodiversity loss, precisely at the time when diversity, and the range of ecosystem adaptation options diversity provides, are most needed. Incorporating biodiversity conservation objectives into climate change adaptation and mitigation activities will help maintain the biological capital of adaptation options, and foster achievement of maximal mitigation benefits.

Mitigation refers to activities to reduce greenhouse gas emissions, or enhance sequestration of greenhouse gases. Activities to mitigate climate change include:

- improving land use planning and land management practices (e.g. Box 2);
- improved forest management practices including encouraging afforestation and reforestation and preventing or limiting deforestation;
- improving agricultural practices, including crop and grazing land management practices (e.g. Box 3);
- use of agroforestry activities and bioenergy plantations (e.g. Box 4);
- encouraging use of renewable energy sources while reducing dependence on fossil fuels (e.g. Box 4);
- encouraging energy conservation and more efficient energy generation and transmission;
- large scale implementation of agroforestry activities and bioenergy plantations (e.g. Box 4).

Iceland conserves soil, sequesters carbon and rehabilitates habitat

Box 2

The start of human settlement in Iceland 1100 years ago brought with it massive changes in the ecology of the island. Unsustainable land use practices have led the emission of at least 460 million tonnes of carbon. Ninety-five percent of forests and 50% of vegetative cover has been destroyed. Many of the remaining vegetated areas have low productivity and impoverished biodiversity.

As a part of Iceland's efforts to implement the Kyoto Accord, the government is intensifying its soil conservation efforts. The country is investing in re-vegetation, reforestation and aforestation activities which not only sequester large amounts of carbon and improve soil fertility, but will also create valuable habitats and contribute to ecosystem rehabilitation.

(Source: Orlando et al., 2002)

Protecting a world heritage site, while mitigating climate change and helping rural Nicaraguans

Box 3

Nicaragua's Bosawas Biosphere reserve is a unique ecosystem and a UNESCO world heritage site. However, local people, who were converting forested lands to agricultural uses were threatening the reserve. Now, expansion of agricultural lands is no longer necessary, as a project intended to improve food security and protect the reserve has led to more than two-fold increases in productivity.

The Campesino to Campesino project encouraged local people to use a crop rotation system, and plant leguminous plants on some of their lands, to increase the nitrogen content of the soil. The soil fertility has increased so much that there is no need to further expand agriculture. In addition, the project is working to restore the area, and trees have been planted along riparian areas, protecting bodies of water. And, local fire-fighting squads protect the forests from fire.

By protecting forests from agricultural expansion, fire, and by planting riparian zones, emissions of carbon due to land-use change have been avoided, carbon has been sequestered, biodiversity has benefited, and most of all, local peoples have benefited.

(Source: Equator prize

http://www.undp.org/equatorinitiative/secondary awards_finalists.htm*)*

Mitigation and improving livelihoods in Cuba's poorest region

Box 4

By involving local communities in protecting and conserving forests, the Bayamo Whole Forest Company has improved the livelihoods of residents of the Granma province of eastern Cuba, Cuba's poorest region. It has also led to biodiversity protection, and protection of one of Cuba's most important freshwater resources, the Rio Cauto.

Local people have embraced the Ecological Forest Farms Initiative, and as a result, 1300 hectares of deforested land have been replanted, and the condition of the Rio Cauto has improved.

The project involved establishing fifty-five plots, each 25-hectares in size. Each plot, or Fincas forestales ecologicale was assigned to family for a 30-year period. Families were given trees to replant the lands, and could use agricultural and agroforestry products from their plots of land, and take their excess to market. Participating families were also given a fuel efficient stove and a photovoltaic panel for electricity. The switch to fuel efficient technologies, and the replanting of forests provide additional benefits to climate change mitigation.

(Source: Equator prize

http://www.undp.org/equatorinitiative/secondary/awards_finalists.htm*)*

Adaptation measures are intended to reduce the impacts of climate change. Specifically, the goals of adaptation are to allow ecosystems to adapt naturally to climate change, to allow sustainable development to proceed, and to ensure that the production of food is not threatened. These activities include:

- *hazard-reduction* – hazard reduction activities include flood management and prevention, drought preparedness and planning, and coastal zone management to contend with sea level rise and a possible increase in the frequency or severity of extreme events (e.g. Box 5, Box 6);

Mangrove restoration - potential for multiple benefits

Box 5

There are numerous examples of successful mangrove restoration activities with benefits to biodiversity, development, and climate change mitigation and adaptation. Mangrove restoration creates valuable habitat, and improves local livelihoods by creating fisheries opportunities. In addition, by buffering the effects of tropical storms, disaster frequency is reduced, allowing further progress in development. Because climate change in many regions is expected to lead to stronger and more frequent tropical storms, this buffering effect also constitutes an important climate change adaptation activity. And, by developing large tracts of forest, local communities are also sequestering carbon and contributing to climate change mitigation.

Viet Nam-

In Viet Nam, the restoration of 12,000 hectares of mangroves has had major benefits to coastal peoples. Already, the work has been credited with minimizing damage and saving lives during Typhoon Wukong in 2000. And, this work, initiated in 1994 by the Viet Nam Red Cross, has helped 7750 families by creating work in replanting and protection efforts, and creating a fishery for shrimp, crab and molluscs. A diverse ecosystem has been re-established, aided by the planting of four different mangrove species, and carbon has been sequestered in mangrove biomass. The project has faced numerous challenges, in particular from shrimp farmers and developers competing for use of waterfront lands.

(Sources: International Federation of Red Cross and Red Crescent Societies. 2002.; African Development Bank, Asian Development Bank et al. 2002.)

Sri Lanka-

The Sewa Lanka Foundation is working with local fisheries cooperatives in Pottuvil and Thirukkovil to replant mangroves in areas where the forests have been destroyed or degraded. The initiative will help improve local fisheries, which have declined as a result of mangrove destruction. It will also provide a buffer to tropical storms, and sequester carbon. And, by offering tours of the mangroves to visitors to resorts in the neighbouring Aragam Bay, local people can diversify their incomes.

The project has placed a strong emphasis on education, using theatre as one means of educating local children and their families about the importance of mangroves, and trying to ensure vital support of local residents for the work.

(Source: Sewalanka Foundation, 2003)

Rehabilitating watersheds to improve livelihoods, now and in the future

Box 6

Drought and human activities are to blame for what was a vicious cycle in a semi-arid region of India's Maharashtra state. Lands became barren, and soil eroded. As a result these lands were then unable to support plant life and retained little water. Rapid runoff further increased erosion, and decreased water availability.

But, through the work of the Watershed Organization Trust (WOTR), this cycle is ending, and the livelihoods of local communities that depend on rain for agriculture, cottage industries and personal use are improving.

WOTR works with communities to help them develop plans to restore watershed areas. Activities include erosion control programmes, projects to encourage infiltration of groundwater, improved crop and livestock management techniques, afforestation projects, and improved energy practices, which include banning tree-felling and encouraging use of planted shrubs and grasses to meet fuel needs.

As a result of the work of local communities in partnership with WOTR, vegetative cover is returning to previously barren areas, soil moisture and groundwater levels are increasing, and food security has improved. Associated work to support cottage industries and diversify local economies will also make the community more resilient to drought. Together, all of these efforts help communities to improve their current circumstances, but also provide a buffer against the effects of climate change, helping them to adapt to future changes in moisture, by making their current practices less vulnerable.

(Source: Hammill, 2003)

- *sectoral activities* – sectoral activities address adaptation issues within areas such as agriculture, water resources, tourism, forests, biodiversity, and health. For example, incorporating climate change predictions into regional agricultural practices and maintaining agrobiodiversity (Box 7) are adaptation options in the agricultural sector. Riparian zone management is a land-use/forestry option which can help maintain water quality, prevent erosion and limit the effects of changes in precipitation (Box 3, Box 6);

Preserving agricultural options: Agrodiversity and climate change adaptation

Box 7

Tribal communities in the Jeypore Tract of Orissa (India), with the support of the M.S. Swaminathan Research Foundation, have started working to conserve the biodiversity of their agricultural crops. Over the years, the number of plant varieties has been declining, largely due to the widespread use of commercial varieties. But, local communities concerned with the threat to biodiversity, and with the sustainability of their food supply have started working to preserve local varieties, and to protect the environment

The project, which was established in 1997, is now working on developing community seed banks and grain banks. The project also encourages cultivation of overexploited medicinal plants in community gardens, to reduce dependence on, and damage to local forests. Concurrent work to increase the market for traditional varieties of rice and medicinal plants has helped ensure that local communities can also reap fiscal benefits. The maintenance of traditional plant varieties is an important tool in adapting to climate change, ensuring that varieties suitable for different conditions are available.

(Source: Equator prize

http://www.undp.org/equatorinitiative/secondary/awards_finalists.htm*)*

- *regional initiatives* – regional initiatives take into account the predicted local impacts of climate change, and the ecology and economy of the region;
- *economic and social systems* – actions in the field of economic and social policy aim to ensure a smooth financial and societal transition to new climatic conditions;
- *physical planning* – physical planning involves incorporating climate change predictions into local and regional planning. These activities involve determining the location and design of infrastructure and future settlements, and when necessary, moving populations from vulnerable lands or preventing the development of settlements in unsuitable areas like flood plains. This can also involve planning to establish protected areas which will be resilient to climate change (Box 8).

Protected areas - planning for climate change

Box 8

At the local level there are many ways in which biodiversity projects could consider their effects on climate change. Similarly, there are ways in which climate change project planners could take into account the implications for biodiversity conservation.

This is already happening in some countries. For example, proposals to form the Greater Addo National Park in South Africa have addressed the potential future effects of climate change. By including a large range of altitudes and latitudes and a number of ecosystem types, park planners are ensuring that species will be able to shift their ranges, and that the maximum number of ecosystem types will persist.

(Source: http://www.upe.ac.za/zoo/addo/addoprop.htm*)*

A list of types of adaptation activities with benefits under each of the three conventions is given in Table 3.

Table 3:
Possible adaptation strategies envisaged by individual Rio instruments

Adaptation option	UNCCD	CBD	UNFCCC
Disaster planning framework: early warning systems, emergency measures to respond to floods, droughts, etc.	Help ensure protection of vulnerable communities (e.g., creating food and water reserves, cattle protection schemes).	Identification of fragile ecosystems and species prior to a crisis, to maximize protection during and following a disaster.	Determine priority measures to minimize loss of life and damage to livelihoods as a result of extreme weather events.
Integrated watershed management: agroforestry (firewood, fodder, annual crops), run-off harvesting for trees and range.	No over-exploitation of local water hence low salinization risk; run-off harvesting, terraces and trees conserve soil.	Conserves much of the watershed's biological diversity, utilizes parts of it thus contributing to overall sustainability.	Increases water retention and hence its availability in times of drought. Slows water movement, reducing the risk of flash floods. Maintains vegetation as carbon sink and reservoir.
Intensive greenhouse agriculture and aquaculture (cash crops, fish, industrial materials from algae).	High income per unit soil and water used, thus economizing on land and water resources.	Reduced pressure on land leaves habitats for in-situ biodiversity conservation, thus promoting its utilization.	Reduced pressure on land (a) allows conservation of biodiversity resistant to climate change; (b) maintains carbon sink and reservoir.
In-situ conservation of biological resources, wildlife conservation.	Potential for economic exploitation as an alternative livelihood; promotion of ecotourism.	Global benefits from dryland biodiversity assets.	Conservation of genetic diversity instrumental in restoring climate change damaged ecosystems.

Adapted from: "Review of Activities for the Promotion and Strengthening of Relationships with other Relevant Conventions and Relevant International Organizations, institutions and Agencies." ICCD/COP3/9. 1999

Linking adaptation and mitigation

Maximizing the number of benefits of adaptation and mitigation activities is critical for nations with limited resources. Activities should be developed to incorporate biodiversity objectives and maximize benefits for local livelihoods. In addition, adaptation activities should be designed to maximize mitigation benefits, and adaptation options should maximize carbon sequestration or emissions avoidance to the greatest extent possible. Likewise, projects should be developed to help achieve local sustainable development goals.

Guidelines for mainstreaming biodiversity into adaptation and mitigation strategies

- Initial activities should focus on win-win options. These adaptation options will lead to benefits even if the rate of climate change is slow, and these mitigation options will lead to benefits for local communities in the absence of external financial incentives.
- Prioritize projects that offer multiple benefits (adaptation in conjunction with mitigation, biodiversity or local livelihoods goals)
- Adaptation and mitigation activities should be consistent with the local goals for sustainable development.
- All measures should have clearly defined objectives, and measurable outcomes.
- The support of local communities is critical to the success of adaptation and mitigation activities. Ensuring stakeholder involvement and documenting and using local knowledge and expertise as much as possible will help attain support.
- Measures should be reviewed for their social and environmental impacts.
- Adaptation measures should clearly identify the aspects of climate change and adaptation needs that they are addressing.

- Adaptation cannot be static. Activities and policies must evolve based on past experiences and observing which practices are successful and which are not, and based on improved understanding of on-the-ground impacts of climate change.
- Adaptation planning is most relevant in the short-term. Projects should be tailored to these short-term needs, when climate predictions are most reliable, while considering how activities can be modified to meet future needs.
- Promoting insurance for ecosystems and humans should be considered to minimize economic and ecological losses in the event of a climate-related disaster.
- Carbon sequestration initiatives must improve or maintain local livelihoods. Initiatives that protect carbon sinks at the expense of local communities are likely to fail.
- Reforestation and aforestation should be done using local species. Planting a mixture of species will provide greater biodiversity benefits, and may provide more benefits to local communities due to the greater variety of non-timber forest products.
- Mitigation measures should address issues of leakage and permanence.

Chapter 4

Integrating synergies among MEAs and NAPA

Progress in achieving synergies

The World Summit on Sustainable Development and agreements resulting from the Rio Earth Summit promise to improve the quality of human life throughout the globe, and the integrity of the environment. The implementation of the three Rio conventions, namely the CBD, UNFCCC and the UNCCD as well as the Forestry Principles are at varying stages. However, without improved coordination of the work under these conventions and work to achieve sustainable development, the promise of better environment and improving human livelihoods will be more difficult to achieve.

The path towards achieving synergies is shown in Figure 4. Despite the lack of success in implementing many synergies to date, the process is quite advanced. Numerous linkages and potential synergies have been identified, their benefits have been determined, and people are determining how to make these synergies work. In many cases, we are quite close to the realization of synergies. Working to eliminate disconnects between separate government departments that are implementing the conventions, working to foster interlinkages among the conventions, and encouraging activities with broad environmental benefits at the ground level, will allow for the realization of synergies, and resulting social, environmental and economic benefits.

This chapter reviews some of the linkages among the conventions, barriers to achieving synergies, and ways to promote synergies and linkages. This chapter focuses not only on biodiversity and climate change, but also addresses the forestry principles and UNCCD, to help present a more complete idea of the tremendous opportunities for synergies that are available.

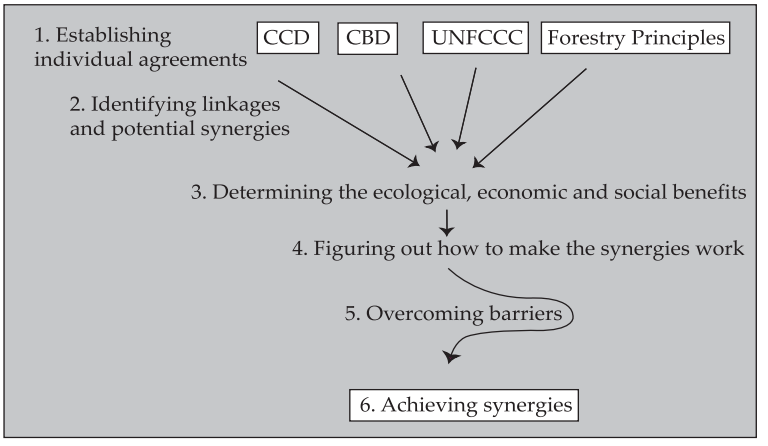


Figure 4: Process of achieving synergies among the Rio conventions

Identifying and building on interlinkages

Linkages refer to common objectives, processes and other elements of the conventions and the Forestry Principles. These agreements are linked in many ways, creating numerous opportunities for building synergies. (Table 4) Potential linkages and linkages that require strengthening are noted in the following sections.

Scientific linkages

Scientific assessments are key to informing the negotiation processes. These assessments include an estimate of the socio-economic implications of climate change, biodiversity loss, desertification and deforestation. In addition, these assessments should address interrelationships – such as the importance of deforestation to carbon emissions, and the effects of deforestation on biodiversity and desertification.

Implementation linkages

The key environmental agreements contain many similar requirements for action, research, reporting and other necessary activities agreed to by their signatories.

- *Approaches to goals* – The instruments adopt similar approaches to achieve their goals. They recognise needs for national action guided by international experiences. All of them recognise the need for capacity building and awareness raising as a pre-condition to their successes. All of them also identify the need for cooperation.
- *Approaches to activities* – All of these instruments promote activities of research, assessments, information exchange, training, development of strategies and action plans and inventories. However, the decisions of design and detail are left open for interpretation by individual governments.
- *Subsidiary Bodies for Scientific and Technological Advice* – All of the conventions require the creation of an international body of scientific and technical expertise. CBD works through SBSTTA, UNFCCC through SBSTA and UNCCD through Committee on Science and Technology. However, the linkages between these bodies are relatively weak.
- *Awareness raising and education, public participation* – Ensuring that the public and workers in the fields of environment and development are aware and educated about environmental issues, and multilateral environmental agreements is important to the implementation of all of the conventions. Further, engaging the public in the implementation process is important to establishing community support. Activities in these sectors can be strongly linked, with excellent opportunities for synergies.
- *Information, Monitoring and Reporting* – The UNFCCC, CBD and UNCCD have independent ways of addressing information needs and information generation and have independent monitoring and reporting requirements. They fail to underline the common principles of monitoring among the conventions and fail to facilitate common reporting from national governments.
- *Clearing House Mechanisms* – Both the CBD and UNCCD, through Article 18, call for the establishment of a Clearing House Mechanism to share information. The UNFCCC does not have such a provision; however, the IPCC fulfils the need to a limited extent. Considering the need for both technical, scientific and policy information in addition to sharing experiences, a CHM for climate change may be

very useful. Learning from the experiences of other CHMs, it is important that the CHM on Climate Change should be designed to cater to the needs of cross-sectoral issues. Unlike the CBD and UNCCD CHMs, the UNFCCC CHM can be the effort of IPCC and be supported by a consortium of agencies like UN agencies, NGOs, IGOs and others.

Planning processes

The three Rio conventions require parties to develop strategies and action plans to implement the provisions and decisions of COP. Countries also submit National Reports regularly. However, they do not require or encourage countries to address cross-convention synergies in both strategies and action plans. Guidelines on how to incorporate biodiversity and desertification concerns into NAPAs are required. In addition, given that NBSAPs are currently being revised, and implementation options are being reviewed by many countries, additional recommendations on how to incorporate climate change and desertification concerns should be developed. Finally, action plans under the UNCCD should be reviewed, to ensure that they adequately address the issues of climate change in desertification, and of biodiversity in mitigating desertification. Some key linkages and complementarities between the three Rio Convention are elaborated in Table 4.

Table 4:
Linkages and Complementarities - overlapping requirements of the Parties to the Rio agreements *(Source: UNDP, 1997)*

	Climate Change	Biological Diversity	Desertification	Forestry Principles
National Inventories	Article 4.1(a)			Principle 12 (a)
National and Regional Action Plans	Article 4.1(b)	"Strategies" Article 6 (a), (b)	Articles 9,10	Principles 3 (a), 5 (a), 6(b), 8 (d & h), 9 (c) Article 4 (b) and IPF Proposals for Action
Identification & Monitoring		Article 8	Article 16	
Develop Protected Areas		Article 8		Principles 7 (b), 8(f)
Legislation 13 (d & 3)	Preamble	Article 8 (k)	Article 5 (e)	Principles 8 (f),
Research	Article 5	Article 12(b)	Article 17, 19 (b)	Principle 12 (a)
Public Education	Article 6	Article 13	Article 5 (d), 19, 6	Principle 12 (d)
Environmental Assessment	Article 4.1(f)	Article 14		Principle 8 (h)
Clearinghouse for technical information		Article 18	Article 18	
Public Participation	Article 6	Article 9	Article 19(4)	Principle 2 (d)
Conference of Parties (COP) / regular reviews	Article 7			
Exchange Information	Article 4.1(h), 5 (b), 6, 7	Article 17	Article 16	Principles 2 (c), 11, 12 (c)
Training	Article 6	Article 12 (a)	Article 19	Principles 3 9a), 11, 12(b)
Reports	Article 12	Article 26		
Data Collection	Article 5		Article 16	Principle 12 (a)
Examine obligations-Assess implementation	Articles 4.2 (d), 7 (e)	Article 23		Principle 12 (a)
Report Steps to COP	Article 12	Article 26	Article 26	
Compatible Data/Standards				Article 16

Synergies among MEAs and NAPA

After identifying opportunities for linkages and synergies and assessing their benefits, the next step to achieving synergies is to figure out how to make them work, and how to overcome barriers to their implementation. (Box 9) There are numerous ways to start this work, but some of the most critical steps are improving coordination in implementation of the accords at a national and local levels, and building capacity and knowledge.

International Initiatives Seeking Synergies between MEAs.

Box 9

In recent years, the Secretaries of the UNFCCC, CBD and UNCCD have made several recommendations, conclusions and decisions to increase mutual understanding and coordination. In March 2001, the CBD's Scientific Body requested that its Executive Secretary explore the formation of a joint Liaison Group (JLG) responsible for enhancing coordination between the CBD and the UNFCCC. The establishment of a JLG was endorsed by the Parties to the UNFCCC in July 2001, and agreed to by the UNCCD in August 2001. The JLG held its first meeting in December 2001, with subsequent meetings taking place in January and April 2002. The JLG has established a common web-based calendar of events related to the three conventions, and is exploring the possibility of holding a joint workshop on cross-cutting thematic areas and activities.

In addition, the CBD has established the Ad Hoc Technical Expert Group (AHTEG) to prepare scientific advice on the interlinkages between biological diversity and climate change. The first meeting of the AHTEG took place in January 2002; a follow-up meeting is planned for October 2002. The CBD is also developing a joint work programme with the UNCCD to examine options for conservation and sustainable use of dry and sub-humid lands.

UNCCD's Secretariat examined how it may promote and strengthen its relationship with related conventions, international organizations and other institutions at its fifth Conference of the Parties held in October 2001. Prior to this, the Secretariat of the UNCCD participated in the April 2001 workshop in which draft guidelines for the preparation of NAPAs were developed.

Contd;

Exploration of synergies is also taking place through a number of other initiatives at the international level. These include: an IPCC technical paper on the interlinkages between climate change, biodiversity and desertification; OECD DAC [Development Assistance Committee] study on synergies in the national implementation of the Rio Agreements; UNEP's work on synergies amongst conventions; and the United Nations University's inter-linkages initiative.

(Source UNFCCC, 2002)

Guidelines at the national level

Bringing together a crosscutting national committee on sustainable development comprised of key players will help facilitate the achievement of synergies at the national level. This approach has been used in several countries, where National Planning Commissions have been established to develop plans and budgets. An additional strategy, which has been used in sectors like finance, banking and health, is to establish a coordinating mechanism to link the separate institutions responsible for implementing the conventions. Finally, instead of maintaining separate institutions for implementing the different accords, a single institution could be made responsible for all instruments. This would remove disconnects often observed when countries have separate ministries for environment and for natural resources.

National planning processes and environment and developmental plans also need to be reviewed to ensure that synergies can be achieved. This review should ensure that plans:

- are consistent with development goals;
- clearly identify the roles of the Rio conventions and other commitments at all levels;
- identify potential overlaps and conflicts among obligations and activities, and wherever possible, identify ways to make potential conflicts into synergies;
- are integrated into existing national frameworks;
- are managed in a manner that ensures effective consideration of multiple objectives and stakeholders.

At the local level, implementation of the conventions and sustainable development objectives could be better linked by creating a coordinating committee representing all sectors, by making locally elected democratic institutions responsible for environment and development, or by encouraging community-based organizations, religious groups and women's groups to help coordinate environmental efforts and achieve synergies. .

Building capacities

Many countries are overtaxed by the conventions' competing demands and obligatory activities. Capacity building will help countries address these demands. Specific capacity building requirements are the needs to:

- develop inventories, perform monitoring and make systematic observations;
- develop policy, plan effectively and reform legal frameworks;
- perform impact assessments and research;
- improve information, knowledge and data management;
- perform reporting and monitoring; and,
- enhance education, training and public awareness.

The synthesis report of Country Capacity Development Needs and Priorities (2000) provides the following as more general requirements that will benefit implementation of all of the accords:

- improve awareness and knowledge to foster more effective discussion, decision-making and action;
- improve information management, monitoring and observations to facilitate policy-making and decision-making;
- synchronize national policy, legal and regulatory frameworks to avoid confusion between sectors and among national, regional and local levels;
- develop incentive systems and market instruments;

- ensure institutional mandates are clear, and do not overlap or have gaps;
- ensure that key institutions are involved in policy-making and communications between institutions are effective;
- effectively mobilize science and technology in support of policy and decision-making;
- build skills for participating in international agreements and negotiations, and reporting back on these activities;
- improve coordination and processes for interaction within the country and among regions;
- improve management abilities to make sure individuals are effectively deployed, mobilized, motivated, and are given appropriate and adequate responsibilities; and,
- ensure access to adequate resources and technology.

Strengthening the information base and communicating experiences

There is a need to strengthen the information base. This does not simply entail more research, but instead involves synthesizing research to address goals and needs of individual countries and communities. Strong information management systems, efficient knowledge networks, and perhaps most importantly, strong communications are required. The information base should be designed to facilitate cross-sectoral linkages, and regular assessments.

Improved communications of lessons-learned within countries and among countries are one of the most important information needs. By building upon experiences of other nations, faster progress can be achieved in meeting development goals and fulfilling the obligations of the Rio Conventions. However, without building adequate capacity within nations, appropriate information cannot be tabulated, and nations will not be able to implement effective actions built upon the strengthened information base.

Chapter 5

Mainstreaming Poverty and Development into NAPA

Mainstreaming risks of climate change into NAPA

Climate change and development are intrinsically linked. Climate change has the potential not only to harm the environment, but also to arrest, or reverse development progress. By integrating climate change concerns into development planning, development progress can be sustained and local communities can address their climate change adaptation and mitigation needs. This is particularly important in LDCs where poverty reduction initiatives are critical, but there is limited capacity available to help meet climate change and development objectives.

Mainstreaming climate change into development planning must address both extreme events, and more minor changes which can have more severe impacts upon livelihoods. However, mainstreaming climate change into development planning is complicated by the lack of integration of the climate change and development planning communities, and lack of funding for cross-cutting initiatives.

Need for integration

Given the linkages between climate change and development, it is critical that activities addressing these issues are also interlinked. To do this, there is a need to build the capacity of development workers to understand issues of climate change vulnerability and adaptation, and for climate change planners to understand the local development framework.

Improving coordination between the groups will require strong leadership at national and regional levels. At the national level, policy documents must be integrated – for example PRSPs, NAPAs and NBSAPs should be complementary. At the regional level, it is important that adaptation activities take into account the effects of the activities themselves, as well as climate change

effects on local livelihoods. Development activities must be planned to ensure that they are robust to a changing climate, facilitate adaptation, and should be developed in a way to minimize greenhouse gas emissions.

This need for integration extends beyond the sustainable development and climate change communities. Development and climate change planning and implementation of activities also needs to be integrated into hazard-planning and disaster management, and individual sectors such as agriculture, water resources, forestry, tourism and health. Economic and social policies, regional and rural policies, and physical planning also need to address climate change and sustainable development. Clearly, a strong coordinating body needs to be established to ensure effective communication and coordination among these sectors. There are examples of cross-sectoral cooperation in many countries, but in all cases, there is more work to be done. Experiences of other nations can be used to guide local initiatives, but must be adapted to account for differences in climate change vulnerability and adaptation, development frameworks, and institutional structures. Needs for cross-sectoral management and progress in several regions are discussed in boxes 10-12.

Box 10

Environmental Management Strategies

Bangladesh has improved inter-ministerial cooperation in hopes of better addressing climate change adaptation needs, and to help improve management of Haor areas. However, additional work is required to review policy documents in different sectors, and ensure that climate change vulnerability and adaptation, and development concerns are addressed. Specifically, although the National Environment Management Action Plan (NEMAP) and National Conservation Strategy (NCS) mention climate change, more attention should be given to the effects of climate change. And, climate change should be integrated into the Sustainable Environment Management Plan (SEMP). Interlinkages between climate change and biodiversity have been addressed to some extent within the NBSAP, but like all of the other policy documents noted, the NBSAP could better address development-related issues.

Prioritising interventions

One of the most critical stages of the NAPA preparation process is identifying and prioritising intervention options to address climate change vulnerability. This should be done with stakeholder involvement, and with strong consideration for development objectives and achievement of the Millennium Development Goals. Bangladesh has addressed some prioritised actions at the national policy level, by creating a Ministry of Disaster Management and changing policies in sectors like water. However, the country needs to work on ground level prioritisation of actions. And, development considerations could be more effectively addressed in climate change planning.

Challenges for Africa

Box 11

Health, environmental, political and economic problems as well as extreme poverty have placed a huge burden upon Africa. Climate change impacts on human health and the environment will add to this burden. Meeting peoples' basic, daily needs for survival is a challenge in many African nations, so understandably, planning for future climate change has not been a priority.

One way forward is to support the establishment of a national monitoring programme on ecosystem disruption and human health. The programme should focus on: monitoring vector-borne diseases and the movement of vectors, human migration, and changes in agricultural productivity. Although initiatives of the World Health Organization are addressing some of these issues, they are not adequately linked to climate change vulnerability and adaptation. However, there are relatively strong links to biodiversity conservation and desertification.

Source: African Development Bank et al., 2002

Drinking water for small island nations

Box 12

The Tarawa atoll, a series of islands belonging to Kiribati in the Pacific Ocean, is dependent on rain for its drinking water, with very limited underground storage capacity to buffer their supplies in times of drought. Tuvalu, another Pacific island nation is already experiencing salt-water intrusion, and impacts on crops, forests and drinking water supplies. It is necessary that these vulnerable island nations use a cross-sectoral approach to address the multiple dimensions of water management, and foster adaptation to climate change.

Some nations, like Fiji and Kiribati have developed improved mechanisms for water management, but would benefit by building water partnerships, rather than water authorities, to help foster development of necessary institutional capacities and financial support. Effective use of ICTs (Information and Communication Technologies) will help build the necessary partnerships, and ensure effective exchange of information among partners in water management (African Development Bank et al., 2002).

Guidelines for mainstreaming poverty and development into NAPA

Challenges to integrating development, climate change and other objectives are clear from the examples in Boxes 10-12. In many cases, nations lack adequate capacity to approach these issues and the institutional framework does not encourage cross-sectoral approaches. In addition, in developing nations and LDCs, priorities are often focussed upon meeting immediate needs, rather than ensuring future ones can be met. However, the development of NAPAs provides an opportunity to plan for the future, foster cross-sectoral work, and ensure that climate change, development and other needs are understood and addressed in a more holistic, productive manner. Funding available through capacity-development initiatives, and the process of developing a NAPA should help address some of these limitations. Other recommendations follow:

Policy Guidelines

- Ensure that NAPA is developed to fit into the existing environmental and development frameworks, and that these existing frameworks are reviewed to assess climate change impacts, vulnerabilities and adaptation needs.
- Whilst ensuring that all sectors are included in NAPA development process, they should involve the most influential and important ministries for strategy development and incorporate climate change vulnerability and adaptation information gained during this process into planning for their own sectors.
- The NAPA process and the creation of multidisciplinary teams can contribute to an ongoing dialogue among sectors, even once work on NAPA is complete.
- Hold pre-meeting consultations on multilateral environmental agreements (MEAs) that involve individuals involved in managing implementation of each MEA, individuals involved in development planning and representatives from all sectors. This will facilitate dialogue about national priorities and build capacities

for intergovernmental negotiations. This will also improve communications among sectors.

- Encourage cross-sectoral initiatives by funding activities with multiple benefits.
- Ensure that an informative NCSA is developed and the funding opportunities through GEF to meet capacity building needs are utilized.
- Place a priority on adaptation planning and integration into development work at a local level, as opposed to often supported global interventions.

Improving communications among sectors

- Using examples drawn from local development and climate change adaptation and mitigation activities to encourage dialogue about cross-over areas at national and regional levels.
- Establish inter-institutional committees to deal with vulnerability and adaptation issues.

Capacity building

- National and regional institutions with capacities and experiences should be identified. After such identification they should be mandated to work on integrating climate change into development process, including conservation and sustainable use.
- Create national and sub-regional networks of government institutions to deal with capacity enhancement, with support from other stakeholders.
- Establish a Clearing House Mechanism (CHM) on adaptation issues that incorporates development issues.
- Develop regional and national knowledge networks on vulnerability and adaptation.
- Organize structured training programmes on synergistic actions to deal with climate change (e.g. climate change, biodiversity and development).

- Organize regional workshops aimed at reaching community-based organizations to educate them about cross-over work, and encourage communication among groups.
- Develop communications and awareness raising training material so that 'trainers' can be trained..
- Organize study-tours, internship and exchange visits to enhance capacities and ensure regional collaboration.
- Strengthen initiatives like the Vulnerability and Adaptation Research Group (VARG) to reach and influence national actions.
- Establishment of regional centres of excellence or chairs for promoting sustained capacities and training (on the model of UNESCO Eco-technology chairs).
- Develop catalogue of 'Implementation Options' on key COP and SBSTA outputs.
- Develop educational materials in local languages to educate the public on key issues and interventions.
- Develop local "information banks" and rural information centres.

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Abbreviations

ADB	Asian Development Bank
ASEAN	Association for South East Asian Nations
CBD	Convention on Biological Diversity
CDI	Capacity Development Initiative
CDM	Clean Development Mechanism
CHM	Clearing House Mechanism
COP	Conference of Parties
CSD	Commission for Sustainable Development
DSS	Decision Support Systems
GEF	Global Environmental Facility
ICT	Information and Communication Technologies
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JLG	Joint Liaison Group
UNFCCC	United Nations Framework Convention on Climate Change
LDCs	Least Developed Countries
LEG	Least Developed Countries Expert Group
LULUCF	Land Use, Land Use Change and Forestry
MDGs	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MOP	Meeting of Parties
NAP	National Action Plans
NAPA	National Adaptation Programme of Action
NatComs	National Communications
NBSAPs	National Biodiversity Strategy and Action Plans
NCS	National Conservations Strategy
NCSA	National Capacity Building Needs for Self-Assessment
NEMAP	National Environment Management Action Plan
PRSPs	Poverty Reduction Strategy Papers
RIC	Rural Information Centres

SBSTA	Subsidiary Body for Scientific and Technical Advice
SBSTTA	Subsidiary Body for Scientific, Technical and Technological Advice
SEMP	Sustainable Environment Management Plan
SIDS	Small Island Developing States
TAR	Third Assessment Report
UEQES	Urban Environmental Quantitative Examination System
UNCED	United Nations Conference on Environmental Development
UNCCD	United Nations Conference to Combat Desertification
UNDP	United Nations Development Programme
UNESCO	United Nations for Education, Science and Cultural Organisation
VIS	Virtual Information Systems
V&A	Vulnerability and Adaptation
WEHAB	Water Environment Health Agriculture Biodiversity
WHO	World Health Organisation
WSSD	World Summit on Sustainable Development