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FIRST DRAFT OF THE POLICY GUIDANCE ON MAINSTREAMING THE GLOBAL ENVIRONMENT CONVENTIONS IN DEVELOPMENT CO-OPERATION

(Note by the Netherlands and Germany)

24-25 January 2001

This document is the First Draft of the policy guidance on Mainstreaming Global Environment Conventions in Development Co-operation. It was prepared by a Task Force led by the Netherlands and Germany. It is submitted to the Working Party for REVIEW AND COMMENTS under agenda item 5a) of the draft annotated agenda, at its meeting on 24-25 January 2002. Detailed comments can also be provided in writing. The document will be revised by the Task Force on the basis of Members' suggestions, possibly shortened, and submitted to the Working Party for final endorsement under the written procedure.

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OVERVIEW

Since they were negotiated at the UN-Conference in Rio and subsequently entered into force, the three global environmental conventions concerning climate change, biodiversity and desertification signify a global consensus **in principle** that there are environmental threats of global scale which endanger the sustainable development of our societies and thus our common future. All countries depend on natural surroundings for ecosystem services and resources to achieve their development goals. Although to differing degrees, the global environmental threats[1] of increasing greenhouse gases, biodiversity loss and expanding desertification constitute social, economic and political problems to all countries. Developing countries are especially susceptible to the consequences of environmental threats to their societies.

In practice, however, much still needs to be done to integrate the Rio Conventions into countries' development strategies and harness them as instruments to achieve sustainable development. This document provides orientations for development co-operation in this regard.

Section I introduces the goals of the guidance. These are to:

a) Elucidate the linkages between the global environmental conventions and sustainable development objectives, notably poverty reduction.

b) Raise awareness of the opportunities for mainstreaming global environmental issues in the context of the poverty reduction efforts of developing countries.

c) Provide orientations for development co-operation to translate these opportunities into reality.

d) Generally stimulate coherence and co-ordination between the efforts of different donors in this regard.

Section II provides an overview of the linkages between the global environment, development, and poverty. It then reviews the impact of the global environmental issues on development.

Ecosystems and Sustainable Development

Nearly a billion rural households rely directly on healthy ecological systems for their daily livelihood. The Earth's natural ecosystems provide humans with a vast array of marketable ecosystem ***goods***, such as forage, timber, seafood, biomass fuels, natural fibres, medicinal products. Ecosystems also provide ***services*** that typically are not traded in the marketplace, but are fundamental parts of our life-support system. These services include air and water purification; detoxification and decomposition of wastes; moderation of floods and droughts; pest control; generation and renewal of soil and soil fertility; and many others.

Global Environmental Issues and Sustainable Development

Although all countries are affected by global environmental changes, the poorest countries are most often the ones that are most threatened by the degradation of regional and global environment commons, and by the environmental issues of worldwide importance.

[1] There are others which will not be dealt with in this document for reasons of focus. These include depletion of stratospheric Ozone Layer; Persistent Organic Pollutants; Marine Pollution, Destruction of Wetlands etc.

Climate change is projected to cause significant increases in hunger in many of the world's poorest areas, in part because of decreasing precipitation in many arid and semi-arid areas affecting agricultural production, especially in Sub-Saharan Africa.

Loss of biodiversity (including ecosystems and species) also poses serious threats for developing countries. Genetic varieties, species, and plant and animal communities have critical uses as food, sources of new crop varieties, commodities, medicines, pollinators, soil formers, attractions for tourists, and moderators of climate and hydrology.

Desertification and land degradation directly affect over 250 million people, and a further one billion are at risk.

Clearly, these global environmental issues – climate change, loss of biodiversity, and desertification – are fundamentally linked to poverty, human welfare and to the broader development agendas of all countries, and particularly to the challenge of meeting the priority development needs of developing countries. An understanding of these synergies among climate change, biodiversity, and desertification is important if the magnitude of the threat to development is to be appreciated.

Responses to Global Environmental Problems: Dealing with Tradeoffs

In designing and agreeing on a basis for responding to climate change, loss of biodiversity, and desertification, governments were clearly aware that there could be potential conflicts between the strategies needed to respond effectively to these global environment threats and the policies and measures that countries might adopt to pursue their respective development agendas. Adaptation and response strategies to global environmental threats do have costs and, in some cases, if not designed properly, there might be direct or indirect impacts on development priorities.

Section III considers the synergies between national development objectives and the policy choices countries have as they respond to climate change, loss of biodiversity and desertification. Global environmental issues are not just threats to national development, they can also be opportunities for developing countries to promote their development needs and priorities to the extent that development strategies can incorporate the response measures identified for such global issues. The perspective of this analysis is the development priorities of developing countries as expressed in national development processes (e.g. Poverty Reduction Strategy) and as articulated in such sectors such as agriculture, energy, and forestry.

Development Strategies and Response Measures to Global Environmental Issues

Many development strategies could incorporate response measures to global environmental issues. The focus should be on such response measures which are called "no regrets" measures. They respond not only to the problem at hand but also to other environmental as well as developmental concerns, have multiple benefits and make sense regardless of whether climate change or other global issues happen. Their starting point would be development needs and priorities.

Section IV looks at how an integrated approach towards implementing the Conventions can be an effective vehicle for meeting both environment and development goals. The Rio Conventions provide an important opportunity for all countries to incorporate the principle of sustainable development and environmental concerns into their respective national development agendas. Negotiated by governments to provide the legal basis for an international response to the global environmental concerns of climate change, loss of biodiversity and desertification, the Conventions offer the best opportunity for developing

countries to participate and join in the global efforts to deal with these issues. But more importantly, they provide developing countries the opportunity to respond to these global threats in a manner consistent with their development needs and priorities.

The Rio Conventions and Sustainable Development

While the Rio Conventions were negotiated as a response to what were perceived as global environmental issues – the threat of climate change, the acceleration of global biodiversity loss, and the urgency to combat desertification and drought – it would be a mistake to consider these Conventions as solely or principally international environmental agreements. From the outset, i.e., from the start of the negotiations that culminated in the adoption of these Conventions, it was clear that the Rio Conventions would receive universal acceptance only if they were designed to become instruments of national development.

An Integrated Approach to Implementing the Rio Conventions

Recognising that each Convention has its own focus, the most effective way of mainstreaming the Rio Conventions into development agendas of countries is an integrated approach to implementation. While acknowledging their individual priorities and strengths, synergistic approaches to the implementation of the Rio Conventions can become strategies for improving developing-country capacity for responding to global issues, eliminating redundancies among the instruments, co-ordinate policy agendas, and more effectively addressing multiple environmental problems that share common root causes.

Tackling the issues addressed by the Rio Conventions effectively, and in a manner consistent with priority national development objectives, implies mainstreaming global environment objectives into general social and economic development policies and plans at the international, national, sectoral, and local/project levels. This is a major challenge, calling for special attention to analytical, governance and management approaches and tools.

Section V outlines some of the main opportunities for mainstreaming global environmental concerns. These strategies and tools are already in use to varying degrees, making them opportunities and viable entry points.

A Key Starting Point for this purpose are Sustainable Development Strategies (SDSs). Building blocks include:

- A broad vision of long term socio-economic development objectives.
- Mechanisms for cross-sectoral policy formulation.
- Multi-stakeholder forums.
- A capacity to monitor socio-economic and environmental conditions and likely future trends.

Poverty Reduction Strategies

A variety of established strategic planning processes, such as “National Visions”; national or local “Agenda 21 Plans”; National Conservation Strategies or Poverty Reduction Strategies (PRS) provide useful entry points to develop Sustainable Development Strategies. Because of their high profile in developing countries, PRSs deserve special attention here.

"Action Plans" developed in response to the Rio Conventions

All three Rio Conventions call for the formulation of "National Action Plans" for the implementation of their respective national conventions (e.g. a Biodiversity strategy under the CBD, the National Action Plan of the CCD, and the National Climate Change programme under the FCCC).

The approaches and instruments available to ensure that appropriate linkages are made across different sectors include:

- Ecosystem based approaches, which aim to match Development Strategies with Countries' Physical and Ecological Conditions
- Land Use Planning and Management, which is one of the critical entry points for the effective integration of global environmental issues into social and economic development plans.
- Strategic Environmental Assessment (SEA), which involves analysing the likely environmental (and social) consequences of development policies at the strategic level in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making.
- Project-level Environmental Assessment, which is concerned with predicting, estimating and evaluating, the environmental, and social consequences of a proposed (usually large-scale) development project from the formulation to the implementation and, where applicable, decommissioning stages.

Section VI outlines priority areas for action.

At the International Level, these include:

- Helping raise awareness of global environmental issues in relevant international for a.
- Harmonising the reporting of DAC Members' efforts.
- Enhancing global environmental governance.

At the National Level and in Development Agencies Headquarters, these include:

- Making a clear commitment to mainstreaming global environmental issues.
- Intensifying links with other ministries and agencies involved in global environmental issues.
- Mainstreaming in the context of sector policies and strategies.

*A t the Partner Country Level***,** these include:

- Integration in country-level planning frameworks.
- Adopting sector-wide approaches.
- Fostering integration through existing projects and programs.
- Donor co-ordination.
- Capacity building.
- Mainstreaming at the Project level: Building on existing 'safeguard' procedures.

FIRST DRAFT OF THE POLICY GUIDANCE ON MAINSTREAMING THE GLOBAL ENVIRONMENTAL CONVENTIONS IN DEVELOPMENT CO-OPERATION

I. THE GOALS OF THE GUIDANCE

1.1. The Current Situation

1. Since they were negotiated at the UN-Conference in Rio and subsequently entered into force, the three global environmental conventions concerning climate change, biodiversity and desertification signify a global consensus **in principle** that there are environmental threats of global scale which endanger the sustainable development of our societies and thus our common future. All countries depend on natural surroundings for ecosystem services and resources to achieve their development goals. Although to differing degrees, the global environmental threats[2] of increasing greenhouse gases (covered by the Framework Convention on Climate Change), biodiversity loss (covered by the Convention on Biological Diversity), and expanding desertification (covered by the Convention to Combat Desertification) constitute social, economic and political problems to all countries. Developing countries are especially susceptible to the consequences of environmental threats to their society: on social structures and life, natural resources, and the economy.

2. The "Rio Conventions"[3] present a legal framework to address these environmental threats and to reverse current trends of environmental degradation. The commitments established by the conventions for developed and developing countries reflect the common but differentiated responsibility of all countries. Unfortunately, after almost 10 years, these conventions are still not integrated into countries' development strategies and therefore, are not seen as instruments to achieve and sustain their development objectives and to raise awareness about the growing problems. The main reason for this is the insufficient recognition of the direct and indirect linkages between the conventions issues and the sustainable development objectives of developing countries. Therefore, neither developing countries nor donors have placed high priority on the national implementation of the Rio Conventions issues for donor assistance. To-date, implementation efforts have focused on the conventions' formal obligations and their legal stipulations rather than on the underlying substantive issues and the broader development context in which implementation has to materialise. Finally, although the issues raised by the conventions are in many ways interlinked, they tend to be addressed through separate channels, requiring multiple institutional capacity. The systematic recognition of these linkages would allow significant synergies to be reaped, making it possible to pursue sustainable development goals more effectively and efficiently.

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2 There are others which will not be dealt with in this document for reasons of focus. These include depletion of stratospheric Ozone Layer; Persistent Organic Pollutants; Marine Pollution, Destruction of Wetlands etc.

3 A key outcome of the 1992 Earth Summit in Rio were the six international environmental agreements (two agreed at Rio and four since), which defined specific government commitments to address the issues of Biodiversity; Climate Change; Desertification; Persistent Organic Pollutants (POPs); Prior Informed Consent (PIC); Straddling and Migratory Fish Stocks. The agreements support specific aspects for the implementation of Agenda 21 and the Rio Principles.

1.2. The Goals of the Guidance

3. The goals of the guidance are to:

a) Elucidate the linkages between the global environmental conventions and sustainable development, including sustainable poverty reduction objectives of developing countries.

b) Raise awareness of the opportunities for mainstreaming the implementation of these environmental conventions issues in the context of sustainable development and sustainable poverty reduction efforts of developing countries.

c) Describe the spectrum of opportunities for development co-operation agencies to integrate the implementation of environmental conventions issues related to climate change, biodiversity and desertification into their development co-operation efforts (and consequently into their organisations).

Generally stimulate coherence and co-ordination between the efforts of different donors.

1.3. Audience

4. This document is primarily intended to elucidate and disseminate the above linkages among decisions makers and high (senior) level management of donor organizations. This will help to redirect and focus development assistance more effectively on policies with a double positive effect. However, developing country partners should also benefit from this document. It may help developing country partners to identify the integration and implementation of the conventions issues as a priority for development cooperation, while providing insights as to how donors can support developing countries in this effort.

1.4 Guiding Principles

1. The goals concerning environmental sustainability and regeneration of the OECD–DAC *Shaping the 21st Century* Strategy.
2. There is an International Consensus on and collective responsibility towards the management of all living species and natural resources, in accordance with the precepts of sustainable development (*see the Millennium Declaration 2000*).
3. The Principles of sustainable development, the Rio declaration and Agenda 21.
4. The Partnership relation between developed and developed countries as well as the common but differentiated responsibility of partners as recognized in the MEAs.
5. Awareness and ownership are pre-conditional to mainstreaming and implementation of global environmental conventions issues.
6. The sustainable use of environmental resources and the reduction of poverty are linked.
7. Good governance is a precondition for sustainable development and proper environmental management (including the application of the precautionary principle).
8. Acknowledging the unique role of development cooperation and its limitation to support developing country implementation of Multilateral Environmental Agreements (MEA) as one way to further their national sustainable development priorities.

II. THE GLOBAL ENVIRONMENT AND THE DEVELOPMENT AGENDA: UNDERSTANDING THE LINKAGES

2.1. Linkages between Sustainable Development, Poverty Reduction and the Global Environment

5. Since the World Summit in 1992, the world has seen significant changes in population growth, globalisation and domestic and global environmental degradation. However, the earlier identified challenge of pursuing long term sustainable development and poverty reduction remains. Major challenges are how to ensure social and economic stability, deploy natural resources to feed a larger and richer population and protect the global commons, and last but least how to manage it all.

6. The global community has dedicated itself to helping lesser developed countries to reduce poverty and tackle environmental degradation. Extreme poverty is considered morally unacceptable and has undesired effects on social stability, economic development and environment. This section provides an overview of the linkages between the global environment, development, and poverty. It then reviews the impact of the global environmental issues on development, and, conversely, the impact of development on the global environment.

2.1.1. Ecosystems and Sustainable Development[4]

7. Nearly a billion rural households rely directly on healthy ecological systems for their daily livelihood. The Earth's natural ecosystems provide humans with a vast array of marketable ecosystem ***goods***, such as forage, timber, seafood, biomass fuels, natural fibers, medicinal products. Ecosystems also provide ***services*** that typically are not traded in the marketplace, but are fundamental parts of our life-support system. These services include air and water purification; detoxification and decomposition of wastes; moderation of floods and droughts; pest control; generation and renewal of soil and soil fertility; and many others. In general, the ecological system supplies goods and services to society.

[4] This description of ecosystem goods and services is adapted from *World Resources 2000-2001* and *Protecting Our Planet, Securing Our Future.*

Box 1. The economic value of ecosystems

Ecosystems provide the backbone for the production of natural resources used by social and economic development sectors (e.g. energy, agriculture, forestry, tourism, sanitation and health). Ecosystems perform indispensable services such as water filtration, climate regulation, waste treatment, and soil formation, to name a few. Very often, decision-makers ignore the value of ecosystem services that are not traded on the market. Although is very difficult to put an economic price tag on these services, one way of expressing their value is in terms of the cost of replacing the functions performed by ecosystems. For example:

- In Malaysia, the value of mangroves for flood control alone has been calculated at $300,000 per kilometre, which is the cost of rock walls that would be needed to replace them. In Bangladesh the Sunderbans coastal mangroves protect the hinderland and safeguard peoples' lives from the impact of tidal waves and storms.

- One 223,000 hectare swamp in Florida is valued at $25 million a year just for its services of storing water and recharging the aquifer.

- The increasing deterioration of the quality of drinking water supply due to habitat degradation and increased pollutants resulted in the US EPA notifying New York City that it would be required to construct a water purification plant at a cost of about $4 billion. To avoid the cost of the plant, New York City residents found that they could invest in green infrastructure at a cost of $1.4 billion. No only could they restore the forest ecosystem services of water purification, but also increase their flood protection.

Source: USAID

8. Ecosystems and the environmental impacts of development do not respect administrative boundaries or a country's institutional organisation. The successful pursuit by individual countries of environmentally sustainable development will ultimately depend on finding ways to also address the major global environmental issues. These issues can be separated into two groups:

1. **Global Commons issues** involve major components of the Earth system, such as the atmosphere, oceans, and land surface. Climate change, ozone layer depletion, marine pollution, and the build-up of persistent organic pollutants in the environment are global commons issues. They can be addressed effectively only through the involvement of all countries.

2. **Issues of worldwide importance** do not directly relate to the global commons, but, as they grow in scope and scale, these problems will have serious cumulative impacts on the planetary life-support system. These issues can be addressed effectively on a regional basis, but often require multilateral agreements.

Table 1. Global Environmental Issues and Impacts on National Sustainable Development

Types	*Examples*	*Distinguishing Features*	*Impact on National Sustainable Development*	*Ways to Address the Issues*
Global Commons Issues	▪ Climate change ▪ Ozone layer depletion ▪ Marine pollution ▪ Persistent organic pollutants ▪ Loss of biological diversity	▪ Cause global changes in the Earth's biophysical systems ▪ Global changes caused by releases into the atmosphere or the oceans, independently of where they occur	▪ Occur in the mid-to long term ▪ Indirect or diffuse	▪ Co-ordinated actions among nations
Issues of Worldwide Importance not directly involving Global Commons Issues	▪ Loss of biological diversity ▪ Desertification and land degradation, degradation of fresh waters ▪ Deforestation and unsustainable use of forests	▪ Local and regional problems ▪ As these problems grow in scope and scale, will have serious cumulative impacts on planetary life-support system	▪ Immediate (short through long term) ▪ Direct (loss of food, water, agriculture, etc.)	▪ Can be addressed effectively on local and regional basis ▪ Often require multilateral agreements

Note: Adapted from R.T. Watson, J.A. Dixon, S.P. Hamburt, A.C. Janetos, and R.H. Moss. 1998. *Protecting Our Planet, Securing Our Future; Linkages Among Global Environmental Issues and Human Needs.* UNEP, NASA, World Bank; and from *The World Bank and the Global Environment: A Progress Report.* May 2000.

2.1.2. Global Environmental Issues and Sustainable Development[5]

9. Although all countries are affected by global environmental changes, the poorest countries are most often the ones that are most threatened by the degradation of regional and global environment commons, and by the environmental issues of worldwide importance.

10. **Climate change** is projected to cause significant increases in famine and hunger in many of the world's poorest areas, in part because of decreasing precipitation in many arid and semi-arid areas affecting agricultural production, especially in Sub-Saharan Africa. It could also displace millions of people from small island states and from low-lying delta areas; increase the incidence of vector-borne diseases such as malaria; and lead to rapid shifts in the distribution and productivity of terrestrial and aquatic ecosystems, resulting in loss of biodiversity and livelihoods (see Box 2).

5 This description of the global environment and poverty reduction is excerpted from the World Bank's Environment Strategy and the WP/ENV's Poverty-Environment Linkages.

Box 2. Impacts of Climate Change on Coastal and Marine Resources

The Intergovernmental Panel on Climate Change (IPCC) has identified coastal zones and marine ecosystems as highly vulnerable to climatic impacts such as sea level rise and increased intensity of extreme weather events, particularly in coastal nations throughout the Caribbean, the Pacific and Sub-Saharan Africa. Coastal and marine resources are particularly vulnerable to the impacts of climate change, specifically increased temperatures, rising sea levels and more intense extreme weather events.

In general, the changes can be categorised as

- Changes in coastal pelagic fish stock due to shifting migration patterns.
- Impact on coral reefs and others coastal ecosystems.
- Changes in sea level (resulting in shoreline displacement, exacerbated coastal erosion, higher base for floods).

Specific development impacts include those on food security as a result of declining fisheries and the degradation of coral reefs and other critical marine habitats and on public works infrastructure (transportation systems, protective dams, etc.) that are at risk due to sea level rise and extreme weather events. Likewise, tourism will be severely affected.

11. **Loss of biodiversity** (including ecosystems and species) also poses serious threats for developing countries. Genetic varieties, species, and plant and animal communities have critical uses as food, sources of new crop varieties, commodities, medicines, pollinators, soil formers, attractions for tourists, and moderators of climate and hydrology. In particular, agricultural production is sustained by a number of ecosystem services, including pest control, flood control, carbon sequestration, and habitat for birds, pollinators and soil organisms, where e.g. pollinators are made up of far more wild species and far more habitat types than have been considered in most discussions of agriculture's dependence on biodiversity. Loss of biodiversity thus undermines agricultural productivity both now and in the future, reduces water quantity and quality, and compromise economic benefits from recreation opportunities. In addition, many people consider biodiversity as having intrinsic value, for moral, religious, or cultural reasons. The planet is losing species at a rate higher than at any time in its history – a trend that undermines future options. Maintenance of biodiversity is thus one component of the broader definition of human welfare.

12. **Desertification and land degradation** directly affect over 250 million people, and a further one billion are at risk. These people include many of the world's poorest, most marginalized and politically weak citizens. Africa is most affected. While desertification has long been regarded as a technical issue, it is now recognised to be inextricably linked to social, cultural, economic and political issues (see Box 3). The feedback between poverty and desertification creates a vicious cycle where deteriorating natural resources contribute to declining livelihoods, as people are forced to encroach further on fragile soils, sparse vegetation and limited water resources to meet basic needs. As with many processes of environmental deterioration, the poor are likely to be affected most, as wealthier groups assert their rights to limited resources.

Box 3. Impacts of Desertification on Socio-Economic Development

The impacts of an issue of world-wide importance on development needs are best illustrated by desertification. What is significant about desertification is that the countries least prepared to respond to it – the least developed countries of Africa – are already feeling the impacts. Further more, it is the poorest communities in these countries that are disproportionately bearing this burden. Desertification undermines development in a number of ways:

- **Food production is undermined**. A nutritionally adequate diet for the world's growing population implies tripling food production over the next fifty years. The relationship between soil degradation and crop yields is complex and also depends on socio-economic variables. Desertification is likely to be a major threat to food security.

- **Desertification contributes to famine**. Famine typically occurs in areas that also suffer from poverty, civil unrest, or war. Drought and land degradation can aggravate or help trigger such crises.

- **Desertification has enormous social costs**. There is now increased awareness of the relationship between desertification, movements of people, and conflicts. In many countries, a large number of people have become internally displaced or forced to migrate to other countries due to drought, and dryland degradation. In many dryland areas conflicts occur between nomadic cattle ranchers and farmers over the scarce available resources (water and fodder).

- **Desertification is a huge drain on economic resources**. At the global level, it is estimated that the annual income foregone in the areas immediately affected by desertification amounts to approximately US$ 42 billion each year. The indirect economic and social costs suffered outside the affected areas, including the influx of "environmental refugees" and losses to national food production, may be much greater.

- **Desertification exacerbates poverty and political instability.** Famine, civil unrest, and large-scale migration are a recipe for political instability, civil strife, tensions between neighbouring countries, and even for armed conflict.

Source: Adapted from CCD Website: www.unccd.int, *The Consequences of Desertification*.

13. Clearly, these global environmental issues – climate change, loss of biodiversity, and desertification – are fundamentally linked to poverty, human welfare and to the broader development agendas of all countries, and particularly to the challenge of meeting the priority development needs of developing countries. The linkages between the global environmental issues and development operate in two directions. Annex 1 illustrates the impacts of global environmental issues on four selected development sectors. Social-economic development, in turn, has an impact on the global environment.

2.1.3. Global Environmental Issues: Collective Impacts on Development

14. The global environmental problems (as well as other global threats, such as ozone depletion, not included in this analysis) do not act individually or in isolation. They are linked to each other through a set of physical, chemical and biological processes – interlinkages that magnify their threat to development and the meeting of priority development needs.

15. The major components of the Earth system continually interact with each other. Human activities that affect one component of an ecosystem may have an impact on other components as well. Box 4 illustrates how, in arid and semi-arid regions, desertification is linked to both climate change and loss of biodiversity. An understanding of these synergies among climate change, biodiversity, and desertification is important if the magnitude of the threat to development is to be appreciated.

Box 4. Desertification, Biodiversity and Climate Change

Climate change could worsen the effects of desertification. "Countries with arid and semi-arid areas or areas liable to floods, drought and desertification ... are particularly vulnerable to the adverse effects of climate change." Changes in temperature, evaporation, and rainfall will vary from region to region. Therefore, desertification is likely to be aggravated in some critical areas but eased in other places.

Desertification may temporarily affect climate change. Land degradation tends to reduce surface moisture. Because less water is available for the sun's energy to evaporate, more energy is left over for warming the ground and, as a result, the lower atmosphere. The periodic burning of arid and semi-arid grasslands, often associated with unsustainable slash-and-burn agriculture, emits greenhouse gases. So does the unsustainable use of fuel-wood and charcoal, a major cause of land degradation.

Efforts to combat desertification complement efforts to protect biological diversity. While many people tend to identify the issue of biodiversity with tropical rain forests, dryland ecosystems also contain a rich biota, including plant and animal species not found elsewhere. Many of humanity's most important food crops, such as barley and sorghum, originated in drylands. Though disappearing fast, indigenous varieties remain a vital resource for plant breeders because of their resistance to stresses such as disease. Dryland species also provide drugs, resins, waxes, oils, and other commercial products. Finally, drylands provide critical habitats for wildlife, including large mammals and migratory birds. These habitats are particularly vulnerable to land degradation.

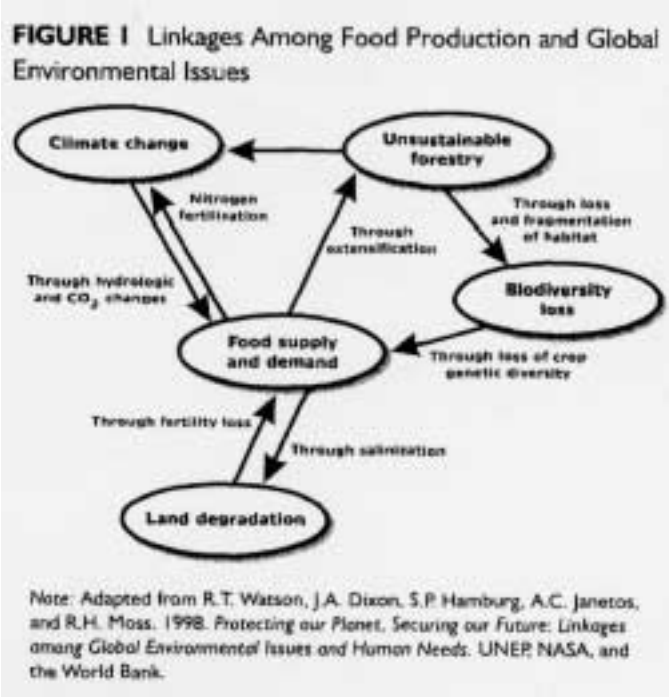
Source: CCD Website, Basic Facts about Desertification

Illustration: Collective impacts on Agriculture and Food Security

16. The collective impact on development of these global environmental issues can be illustrated in the field of agriculture and food security. To meet their food requirements, most developing countries are faced with two difficult challenges. First, many countries are depending on increases in agricultural productivity to help meet the needs of a growing population, increase their exports.[6] Second, countries need to ensure that the basic biological productivity of land is maintained for supporting agriculture as well as other essential land uses. Figure 1 illustrates some of these risks and the linkages among food production and a number of global environmental issues.

[6] Nearly 800 million people in today's world are malnourished. While the food security of most countries could be improved through better and more equitable distribution systems, full success in meeting the nutritional needs for growing populations would likely require continued growth in production.

Figure 1.



2.2 Pressures and Driving Forces of Global Environmental Problems[7]

2.2.1. Human Activities as Pressures on Ecosystems

17. Despite our increasing awareness of the detrimental effects that our development choices and human activities are having on our planet's ecosystems, our actions continue to accelerate ecosystem degradation.

18. Some of the human activities that put pressure on ecosystems include:

- **Overuse** -- too much fishing, logging, water diversion, or tourist traffic. Overuse not only depletes the plants and wildlife that inhabit the ecosystem, but also can fragment the system and disrupt its integrity – all factors that diminish its productive capacity.
- **Conversion** of forests, grasslands, and wetlands to agriculture or other uses.
- **Fragmentation**: The disconnection of natural areas increases the vulnerability of each area to external natural or unnatural shocks.

[7] This section is drawn from Protecting Our Planet, Securing Our Future, and World Resources 2000-2001.

Box 5. Human Activities and Ecosystem Degradation

Human activities have put global ecosystems under siege:

- Some 75% of the major marine fish stocks are either depleted from overfishing or are being fished at their biological limit.
- Logging and conversion have shrunk the world's forest cover by as much as half, and roads, farms, and residences are rapidly fragmenting what remains into smaller forest islands.
- Some 58% of coral reefs are potentially threatened by destructive fishing practices, tourist pressures, and pollution
- Fully 65% of the roughly 1.5 billion hectares of cropland worldwide have experienced some degree of soil degradation.
- Overpumping of groundwater by the world's farmers exceeds natural recharge rates by at least 160 billion m^3 per year.

Source: World Resources Report, 2000-2001

2.2.2. Underlying Drivers of Global Environmental Problems

19. Understanding the common underlying drivers of climate change, biodiversity loss, and desertification is fundamental for shaping the implementation of global environmental governance strategies. Most global environmental problems share a number of key root causes: population growth; increased consumption; choice of technologies; market failures; inefficient use of natural resources; and flawed public policies.

- **Population growth** is in many ways the most basic of environmental pressures because everyone requires at least some minimum of water, food, clothing, shelter, and energy – all ultimately harvested directly from ecosystems or obtained in a way that affects ecosystems.

- **Increased consumption**, particularly in the richer nations, has greatly outpaced growth in population for decades. The countries in the northern hemisphere contain less than one quarter of the world's population, but they are responsible for more than half of the annual consumption of a number of resources.

- **Market Failure**. Market prices can send the wrong send the wrong signals when the cost of environmental degradation is not accounted for. Market-based national income accounting systems have tended to inappropriately account for natural resource values and global environmental damage.

- **Inefficient use of natural resources:** Natural resources, such as water, are often used in a very inefficient manner and high losses have to be taken into account (e.g. irrigation, drinking water pipelines). This is partly due to subsidies and lack of know-how. This negative effect is reinforced by inadequate public policies.

- **Flawed Public Policies and Institutional Responses**. The failure or inability of many governments to adequately plan and regulate the use of natural and biological resources is also a factor. Governments frequently do not have sufficient or appropriate capacity, knowledge, skills and tools to deal with long-term planning, enforcement, budgeting and assessment of the affordability of the consequences of the proposed development. In various countries the problem of insufficient capacity is aggravated by the existing institutional organisation, its

structure and mandate (including government, NGO's, private sector and communities), vis-a-vis the management requirements of sustainable development. This is expressed through institutional fragmentation, conflicting decisions, in-efficient use of human and financial resources, and non-performance.

- **Choice of Technology**. Many countries have chosen inappropriate technologies that degrade habitats, dramatically alter ecosystems services function, deplete biodiversity, and contribute to Greenhouse Gas emissions.

- **Other Forces**. Other cultural, social, and institutional forces also influence these basic drivers of environmental change and the interactions among them. Whether these are religious beliefs, or political rights, or the functioning of economic markets, these forces dramatically influence the environmental impact of any specific technology or government policy.

2.3. Responses to Global Environmental Problems

2.3.1. Dealing with Tradeoffs

20. In designing and agreeing on the international basis for responding to climate change, loss of biodiversity, and desertification, governments were clearly aware that there could be potential conflicts between the strategies needed to respond effectively to these global environment threats and the policies and measures that countries might adopt to pursue their respective development agendas. Decisions on long term development strategies (>10yrs) are often in line with the principle of sustainable development and conflicts may often simply result from insufficient information. On the short term (3-5yrs) however, the social and economic priorities (i.e. poverty) may be in direct conflict with short term environmental concerns (e.g. biodiversity loss) and decisions about these trade-offs have to be made and conflicts may also occur between short term economic needs and long term environmental concerns (e.g. the production function of ecosystems, land degradation).

21. Adaptation and response strategies to global environmental threats do have costs and, in some cases, if not designed properly, there might be direct or indirect impacts on development priorities. This is the reason why developing countries continually insisted that implementing these long term strategies must always take into account that economic and social development and poverty eradication are their first and overriding priorities.

2.3.2. Short Term vs. Long Term Needs

22. An approach to dealing with the potential tradeoffs between responding to global environmental issues and development priorities has been to make a distinction between short-term and long-term impacts. It has been argued that sustainable development strategies, i.e., strategies that meet both current and future development needs, are in the long run better and more cost-effective because they also ensure more sustained economic growth and development. While short-term development goals might be sacrificed, the tradeoff is justified by the avoidance or mitigation of environmental threats that ultimately impose their costs on national development.

23. This approach, however, ignores the reality that some development priority needs require, by their nature, a more limited time horizon. Intensifying agricultural production to meet basic food needs is an example of a development priority that needs to be addressed immediately in many countries. Providing livelihoods for impoverished communities is another example where the luxury of time is not an

option. A delay in providing essential infrastructure, such as building farm to market roads for and supplying the energy and water needs of rural villages is likewise difficult to justify in the name of long term objectives.

24. Among the problems inherent in "mainstreaming" the global environment issues into development is the perception that the response strategies to these issues are important over the long-term but do not address critical short-term needs that are inherent to successful sustainable development. Unless this perception is overcome, many developing countries would find it difficult to participate as fully as they might want in the global efforts to respond to climate change, loss of biodiversity and desertification. Developing, supporting and implementing long term response strategies that explicitly and purposely take into account critical short-term development needs (as well as long term development objectives and priorities) is therefore an imperative.

III. IDENTIFYING LINKAGES BETWEEN NATIONAL DEVELOPMENT OBJECTIVES AND RESPONSES TO GLOBAL ENVIRONMENTAL ISSUES

25. Section II described the linkages between the global environmental issues and the development agenda by looking at how the global issues have an impact on, and may be a threat to the national development priorities of developing countries. This section looks at these linkages from another perspective: the synergies between national development objectives and the policy choices countries have as they respond to climate change, loss of biodiversity and desertification. Global environmental issues are not just threats to national development, they can also be opportunities for developing countries to promote their development needs and priorities to the extent that development strategies can incorporate the response measures identified for such global issues.

26. The perspective of this analysis is the development priorities of developing countries as expressed in national development processes (e.g. Poverty Reduction Strategy) and as articulated in such sectors such as agriculture, energy, forestry and water.

3.1. Development Strategies and Response Measures to Global Environmental Issues

27. Many development strategies could incorporate response measures to global environmental issues. The focus should be on such response measures which are called "no regrets" measures. They respond not only to the problem at hand but also to other environmental as well as developmental concerns, have multiple benefits" and make sense regardless of whether climate change or other global issues happen. Their starting point would be development needs and priorities.

Box 6. Illustration of response strategies

Energy efficiency policies meet energy objectives but also address climate change and may avoid biodiversity loss and land degradation (by not having to build roads, dams or power plants or cut down trees for firewood in biologically sensitive areas). Increased energy efficiency translates into lower energy costs for the same level of use, and compels the development of more efficient technologies that are good for national development. But it also results in less fossil fuel burned and, therefore, reduced emissions of carbon dioxide and other pollutants such as lower level ozone.

Another example of a no regrets policy are measures to preserve and enhance forests that increase local benefits from increased forest cover while protecting biodiversity and ensuring watersheds, the preservation of endangered species, and reduced erosion. Introducing conservation techniques in agriculture is another example where both socio-economic objectives (enhances production at less cost) and environmental goals (addresses all three global issues) are met. Indeed, sustainable agriculture strategies contribute to enhancing food security but are also critical for responding effectively to climate change, loss of biodiversity and desertification. Adopting a sustainable fisheries policy and integrated coastal management, key elements of a coastal development strategy, also respond to the threat of climate change to and loss of biodiversity of coastal and marine resources.

28. Transforming the responses to global environmental threats into development opportunities can be done at different levels. Opportunities for these synergies can be identified in national development processes. More importantly, they can also be identified at the sectoral level. In the same way that some sectoral strategies can aggravate a global environmental threat, alternative strategies can mitigate the threat while meeting the identified goal of a specific development sector.

3.2 Agriculture

29. The main concern for many countries is to reduce rural poverty and improve livelihoods (including food security[8]). Hence, the agricultural sector is key. In many countries this sector is concerned with intensifying agricultural production. This concern is reflected in policies, the crops promoted and macro-economic regulations and subsidies. Development priorities within the agriculture sector are often to:

- Increase production both to guarantee food security and to boost export revenues.
- Regulate rights over resources, access to resources and security of tenure.
- Improve market access and improving rural infrastructure.
- Develop and improve technology and agricultural practices.
- Improve access to financial services.
- Enhance human resource and institutional capacity.

30. When considering agriculture sector strategies, a distinction can be made between industrial agriculture (large scale, export oriented) and traditional agriculture (small scale and subsistence farmers). In rural areas of developing countries, many of the local poor are subsistence and small scale farmers with specific livelihood strategies. The well being of rural households can be increased provided there is an increase in agricultural productivity and an expansion of non-farm rural employment. An important underlying challenge is to increase overall production by improving productivity, and not by agricultural expansion (mostly into marginal lands which are not productive in the long term). Environmental issues of global concern related to the agriculture sector are degradation of ecosystems, loss of biodiversity, soil fertility, desertification, pollution and greenhouse gas emissions.

31. Environmental issues of global concern related to the agriculture sector are degradation of ecosystems, loss of biodiversity, soil fertility, desertification, pollution and greenhouse gas emissions. Identified causes for environmental problems are the inappropriate practices vis-à-vis the (agro)ecosystem, inadequate crop-management, over-mechanisation, overgrazing, misuse of agrochemicals, and expansion to frontier areas. Genuine sustainable land management and agricultural production is based on socio-economic concerns (e.g. income, rights, equity issues), biodiversity concerns and the functioning of the (agro)ecosystem. An alternative approach to increasing agricultural production may also respond to global issues and can result in measures with multiple benefits (see Box 7).

Box 7. Illustration of an alternative strategy for agriculture production

One approach to achieving increase agricultural production is the expansion of the cultivated areas. When done without regard to its ecological impacts, expanded cultivation results in habitat fragmentation and wildlife extinction, thus in biodiversity loss. Such a strategy may also result in loss of carbon sinks where forests are cleared and land permanently converted for agriculture use. Climate change is aggravated as a result. In drylands, unrestricted expansion of cultivation can lead to increased runoffs and soil loss due to decreased vegetation. Further land degradation would be the consequence. On the other hand, increasing production primarily through ecologically based methods and approaches maintains habitats for wildlife and beneficial organisms, increases soil micro-organisms, and fosters crop diversity. By protecting forests and vegetative cover from conversion to agricultural use, such an agricultural strategy would enhance the carbon sequestration capacity as well as increase organic content and moisture retention in the soil as well as reduce overall soil loss.

[8] Food security should not be regarded as equal to 'self-sufficient food production' but more as 'having purchasing power' and being 'resilient to external shocks', thereby including all agricultural development options.

32. Illustrative examples of synergies between global environmental concerns and agriculture are presented in Annex 2A. The various articles from the Rio Conventions FCCC, CBD and CCD relating to these examples are also indicated.

3.3.1 Agriculture and Biodiversity

33. A major concern for agriculture and future food supply in developing countries is the loss of agricultural biodiversity (e.g. genetic crop varieties) and uncontrolled introduction of genetically modified organisms. This issue has been described in Section II. General environmental concerns regarding agriculture are the negative impacts of unsustainable agricultural practices resulting in degradation of the natural resource base, erosion, loss of biodiversity, pollution and emissions. Identified causes are the inappropriate practices vis-à-vis the (agro)ecosystem, inadequate crop-management, over-mechanisation, overgrazing, misuse of agrochemicals, and expansion to frontier areas. Genuine sustainable land management and agricultural production is based on socio-economic concerns (e.g. income, rights, equity issues), biodiversity concerns and the functioning of the (agro)ecosystem. Synergistic opportunities exist between socio-economic concerns and environmental concerns, for example a more efficient use of agrochemicals and integrated pest management, soil erosion control measures, and tillage practices. An important synergy exists between alleviating poverty of the rural poor and improving farming systems and land management practices in dry lands, marginal and fragile lands.

3.3.2 Agriculture and Climate Change

34. The agricultural sector is linked to climate change concerns through the production of greenhouse gases (agricultural methane, or N_2O), the sustainable management, conservation and enhancement of sinks and reservoirs of GHG, and by the implications of climate change for agriculture (See Section II). The second most important greenhouse gas after carbon dioxide is methane. Methane is produced by livestock through enteric fermentation and the decomposition of animal manure. One-fifth of the global methane production comes from rice cultivation in paddies due to the decomposition of organic matter in the soil. Many fertilisers contain nitrogen that enhances the natural processes of nitrification and denitrification in the oil and increases nitrous oxide emissions. Technological options are available for limiting methane emissions from agriculture and other major sources.

3.3.3. Agriculture and Desertification

35. There is a direct link between the measures to combat desertification and the sectoral actions, in agriculture that are needed to enhance production and food security. Indeed, the measures that are key to the former are imperative also for the latter.

36. Agriculture is key if countries are to respond to desertification in a way that achieves sustainable development. The most important challenge is to turn the ecological disadvantages of the drylands to an economic advantage. In agriculture these include: development of closed irrigation systems; integration of flood-dependent production systems that build on rather than try to suppress floodpulse; the cultivation of desert crops (genetic improvement of cultivated species, introduction and selection of new species for semiarid zones), implementing closed systems agriculture (such as the development of greenhouse technologies appropriate to arid zone conditions, including water and nutrient recycling and adaptation of technologies and nutrient regimes to specific crops); and adaptation measures related to animal husbandry.

3.4. Energy

37. The energy demand of developing countries will continue to increase in the coming years. Oil, natural gas, and coal supply most of the energy used to produce electricity and for direct combustion in transport and industry. This makes energy use in developing countries on average highly greenhouse gas emissions-intensive.

38. However, developing countries' main concerns with respect to energy questions lie elsewhere. One such major concern is the security of commercial energy supply due to their vulnerability to the fluctuations of the international petroleum market.

39. But also the supply of energy to the poor in both rural and urban areas is still a major issue for many countries. Here a distinction should be made between electricity and cooking/heating and between urban and rural areas. For cooking and heating, the rural poor often use fuel wood. (In urban areas fuel wood competes with other fuels, e.g. oil, and therefore might not be the dominant source of energy.) Thus, overuse of fuel wood sources in rural areas may lead to degradation of land, deforestation and loss of biodiversity. Moreover, because of the dependency of local people on fuel wood, the energy sector plays an important role in the alleviation of poverty. In short, the management of forests and other fuel wood resources and demand should be considered a major issue in energy planning processes and forest management decisions, as well as in poverty alleviation.

3.4.1. Restructuring National Energy Systems

40. The crucial aspect of any workable climate change strategy as well as an element of a sustainable energy path is a plan to improve energy efficiency, introduce energy conservation and rational use of energy and initiate the decarbonisation by using more renewables. In fact, energy efficiency should be the principal criterion of national energy policies to realise sustainable development and to respond to climate change. The policy changes that need to be made to this end include eliminating or at least reducing price distortions and subsidies so as to increase energy efficiency and rational use. Moreover, where possible, external effects should be internalised in prices. Other measures include market-based incentives for the use of energy efficient and cost-effective technologies and the use of renewable energy sources. Beside their beneficial effect to stabilise climate change there, are also direct benefits with regard to prevention of local and regional environmental pollution, e.g. in the urban environment there is a direct benefit through the reduction of urban smog.

41. The energy sector, for its part, could become more involved in forest management for energy purposes, and support the promotion and development of more sustainable and affordable energy services for the non-served or the poorly served. This should comprise e.g. the development of focused electrification plans for urban and rural areas serving both local people and the private sector by using market rules, tackling market distortions and considering off-grid renewable energy systems for rural populations.

42. Illustrative examples of synergies between the energy sector and global environmental concerns are presented in Annex 2B. Various articles from the Rio Conventions FCCC, CBD and CCD relating to these examples are also indicated.

Box 8. Long-Range Energy Alternative Planning Model (LEAP)

Many developing countries respond to the rise in oil prices on the world market by looking at opportunities in energy conservation and energy efficiency in the short term, and on exploring and developing new indigenous resources like natural gas and crude oil, and energy sources like biomass. In order to be effective, it is necessary to assess the current and future demand for and supply of energy. The Long-Range Energy Alternatives Planning Model is often used to provide such strategic information. An advantage of the model is that it takes into account biomass as an energy source and contains a land use model and therefore is appropriate for fuel wood planning.

In addition to LEAP, the International Energy Agency has evaluated another 11 models. All these models have the capability of assessing socio-economic aspects of bioenergy systems and can be used for energy planning and as a framework for data collection, planning, assessment and evaluation.

Source: FAO Wood Energy News (July 2001).

3.4.2. Opportunities from the Kyoto Protocol

43. Developing countries may use the opportunities arising from the Kyoto Protocol and its Clean Development Mechanism. This mechanism is intended to help developing countries achieve sustainable development and contribute to the Convention's goals. The essence is the generation and possible sale of certified emissions reductions ("credits") achieved in a developing country that can be used by a developed country to meet its own binding emission targets. This mechanism, which in practice may only apply for commercial energy-supply projects, should involve private or public entities and must lead to real and measurable long-term emission-limitation benefits.

3.5. Forestry

44. The forestry sector in developing countries still creates major revenues to the national economy. They provide timber, firewood, wildlife, and secondary forest products to local people, and they regulate local climatic conditions as well as conserve the soil and water resources.

45. The challenge is to secure the use of the forest for the daily needs of local people, provide timber to generate export revenues and to conserve biodiversity on the long-term.

Box 9. Area-based planning for Wood Energy in Northern Thailand

The use of rural energy sources is often site specific and therefore requires an area-based approach to planning, i.e. demand and supply assessment, forecasting and plan formulation and implementation for a distinct area, defined by either administrative boundaries or by factors such as agroecology, economy, social or cultural characteristics. A case study was conducted in Phrao District in Northern Thailand to gain insight in data collection and analysis for energy planning at area based level.

The general approach consisted of a demand analysis (energy consumption and the development of demand scenarios), a supply analysis (availability of woodfuel, various scenarios for energy resources and supply technology based on forecasts on land use), production of energy balances (balancing supply and demand scenarios), identification of options for intervention, impact analysis.

The case study proved that although data might be incomplete or lacking, assessment of the current energy situation, scenario development and forecasting for decentralised energy planning is possible.

Source: FAO Wood Energy News, Article by J. Siteur (July 2001).

46. The main threats to forests are still the conversion of forests for agriculture, large-scale clearings, infrastructure development, open-pit mining and degradation resulting from intensive fuel wood collection. Root causes to this problem include the misapplication of subsidies and other market distortions, as well as the consumption patterns stimulating over-harvesting of wood together with corruption and weak enforcement of forestry regulations. Various opportunities for integrating sustainable use principles in the forestry sector and forest management plans have been identified in general, and a distinction is made between uses that are forest-based strategies (logging, non-timber forest product harvesting, bioprospecting and ecotourism) and conversion strategies (clearance for conversion, agroforestry, plantations).

47. An emerging important issue is compensatory payments to local communities for proper forest management and conservation in order to protect ecosystem services (e.g. drinking water from aquifers). Implementing community based natural resource management (CBNRM) in forestry has also become a priority in some countries and has been supported by many donors. Decentralisation of forest control and management is also another trend that needs to be explored as providing opportunities for sustainable forest management.

3.5.1. Forestry and the Global Environmental Issues

48. The forest strategies and measures that are discussed above are relevant to climate change, loss of biodiversity and desertification. All these global environmental issues require sustainable forest management, the essential development goal of the forest sector. Illustrative examples of synergies between global environmental concerns and forestry are presented in Annex 3c. The various articles from the Rio Conventions FCCC, CBD and CCD relating to these examples are also indicated.

49. From the perspective of biodiversity and desertification, the general issues are conservation, sustainable use and equitable sharing of benefits. These are the same as current developments in the forestry sector (in this case in-situ conservation of the variety of forest types and diversity of trees). Forest ecosystems not only provide many biological resources to local people but are also considered to be very rich in terrestrial biodiversity. At present an estimated 3,9 billion hectares remains but is rapidly decreasing due to deforestation, fragmentation and degradation. Not only the quantity but also the quality of forests decreases due to pollution, loss of diversity and climate change. In many forests an ecosystem based approach to the forest management system and zoning of various uses (both spatial and temporal) proves to be a powerful tool for achieving multiple objectives and satisfy multiple stakeholder needs. The CBD

includes provisions for community-based management, capacity building, user rights and capacity building.

3.5.2. Climate Change and Forestry

50. Land use, land use change and forestry (LULUCF) has been a major focus of debate in the climate change negotiations. The nature of the debate has been both scientific and political. LULUCF activities are recognised to result in greenhouse gas emissions. They can also enhance and promote the conservation of carbon sinks. The scientific debate is related to methodologies of measuring and verifying changes in carbon stocks through time. Lack of precision in the existing methodologies have made it difficult to ascertain the extent to which countries can report such changes in carbon stocks and thus making it difficult to report with accuracy the extent LULUCF is a source of emissions. Even more difficult to determine, and this is where the debate becomes political, is the measuring and verifying the extent that LULUCF activities enhance and protect carbon sinks.

51. Whatever the COP of the UNFCCC ultimately decide with regards to land use change and forestry, they will have enormous impacts on biological diversity. These impacts could come in two ways: On one hand, these decisions could provide substantial incentives for countries and the private sector to invest in biodiversity friendly LULUCF activities like forest conservation and protection. Conversely, if the decisions ignore biodiversity concerns, LULUCF decisions by climate negotiators could potentially undermine efforts to protect and conserve biodiversity. The Bonn and Marrakech decisions affirm that the implementation of LULUCF activities should contribute to the conservation of biodiversity and sustainable use of natural resources. If implemented rigorously, the impact of these climate decisions on biodiversity should be positive.

IV. THE RIO CONVENTIONS AND DEVELOPMENT: CHALLENGES AND OPPORTUNITIES

52. The Rio Conventions provide an important opportunity for all countries to incorporate the principle of sustainable development and environmental concerns into their respective national development agendas. Negotiated by governments to provide the legal basis for an international response to the global environmental concerns of climate change, loss of biodiversity and desertification, the Conventions offer the best opportunity for developing countries to participate and join in the global efforts to deal with these issues. But more importantly, they provide developing countries the opportunity to respond to these global threats in a manner consistent with their development needs and priorities.

53. This section also looks at how an integrated approach in implementing the Conventions can be an effective vehicle for meeting both environment and development goals.

4.1. The Rio Conventions: An Overview

54. The United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) were negotiated to respond to environmental threats that governments considered global in nature. Thus the UNFCCC acknowledges that change in the Earth's climate and its adverse effects are a common concern of humankind. The CBD affirms that, while States have sovereign rights over their own biological resources, the conservation of biological diversity is a common concern of humankind. The UNCCD acknowledges that desertification and drought are problems of global dimension in that they affect all regions of the world and that joint action of the international community is needed.

4.2. The Rio Conventions and Sustainable development

55. While the Rio Conventions were negotiated as a response to what were perceived as global environmental issues – the threat of climate change, the acceleration of global biodiversity loss, and the urgency to combat desertification and drought – it would be a mistake to consider these Conventions as solely or principally international environmental agreements. From the outset, i.e., from the start of the negotiations that culminated in the adoption of these Conventions, it was clear that the Rio Conventions would receive universal acceptance only if they were designed to become instruments of national development.

56. While there was recognition that responding to global environmental threats was urgently needed, it was also clear to governments negotiating these Conventions that the global responses, through new multilateral environment agreements, would be effective only to the extent that they incorporated the need of developing countries to meet their development priorities, particularly the eradication of poverty, ensuring food security and achieving sustainable economic growth and development. Industrialised countries are, however, also strongly interested in meeting economic objectives while pursuing the goals of the Rio Conventions. Meeting development needs while responding to global environmental concerns is thus a theme that runs through all three Rio Conventions.

4.2.1. The Rio Conventions as Instruments of Sustainable Development

57. How can developing countries use the Rio Conventions to promote their development objectives? In many ways, this is the essential task if responses to global environmental issues are to be integrated into development co-operation, and ultimately into national development.

58. The Rio Conventions have received universal acceptance and have been ratified by most countries. Ministries and agencies all over the world that have environmental mandates support the Rio Conventions and have taken the lead in implementing them in their respective countries. Constituencies, such as affected communities and environmental organisations, that consider environmental protection and the conservation of natural resources as their primary concern or mission have likewise been mobilised to support the Conventions. The challenge remains in bringing on board and engaging other development sectors, and in particular those government ministries and agencies that are responsible for national development. So long as the Rio Conventions are seen and interpreted as solely or principally environmental agreements promoting mainly environmental objectives, many development sectors in most countries, including the most important (for development) government ministries and agencies, will not appreciate the importance and value of the Conventions.

59. At the national level, successful engagement of other development sectors in the response to global environmental threats and in the implementation of the Rio Conventions can be attained through a three-pronged strategy that incorporates development concerns into: (1) national impact studies and adaptation programmes; (2) the appropriate Convention response strategies at the national level; and (3) the implementation of mechanisms related to financial resources, technology transfer, and capacity building that have been or are being developed and adopted under the various processes of the Conventions.

4.2.2. Incorporating Development into Adaptation Strategies

60. Adaptation to climate change, loss of biodiversity, and desertification is the process through which societies reduce the adverse effect of these environmental threats on their health and well-being. A first order priority for a developing country is to promote country specific comprehensive, consultative co-ordinating mechanism to address the development impacts of the global environmental threats identified in the Rio conventions. While the global and regional impacts of these threats have generally been well studied, a lot of work remains to be done to understand their specific impacts on particular development sectors of countries.

61. The adaptation strategies that are being developed under the Conventions are inevitably going to have an impact on how countries pursue their respective sectoral development objectives. As countries develop adaptation strategies , particularly to climate change and desertification, they should bear in mind their development goals and make sure that such programs address their development needs and priorities. Among others, they would need to mainstream adaptation planning, create an enabling policy and legal framework for adaptation, strengthen institutions, support collaborative programs and traditional systems and mobilise public action.

4.2.3. Incorporating Response Strategies into Sectoral Development

62. Assessments of development impacts of climate change, biodiversity loss, and desertification are not sufficient to get the engagement of a wider constituency for implementing the Rio Conventions. Impact studies by themselves tend to be scientific and academic in nature. Support needs to be provided to

countries, and specifically to the development sectors that have to deal with these impacts, so that they can develop and adopt appropriate response strategies.

63. Engaging the relevant actors and stakeholders of development sectors in designing and implementing response strategies to climate change, biodiversity loss, and desertification is an imperative for effective sectoral development strategies. This would mean that the relevant sector would have to be engaged in the participation of the implementation of the Rio Conventions. This is the essence of the mainstreaming effort.

4.2.4. Incentives for Development through the Rio Conventions

64. It would not be enough to take into account the development impacts of the various response strategies under the Conventions. There must be a rigorous effort to ensure that implementing these response strategies not only remove an obstacle to meeting identified development goals but that they in fact promote such goals and become instruments to attaining them.

65. Incentives are necessary to implement response strategies under the Conventions in a way that is consistent with development goals. Country-specific and sector-specific incentives would have to be identified. The Rio Conventions themselves provide for mechanisms which could assist in making this possible. All the Conventions contain provisions related to financial resources, technology transfer, and capacity building. Although still at an early stage, the Conferences of the Parties of the UNFCC, CBD and the CCD have adopted decisions that are intended to implement these provisions.

4.2.5. Incorporating Development into the Convention Mechanisms on Financial Resources, Technology Transfer and Capacity Building

66. All of the Rio Conventions include a provision on new and additional financial resources for the implementation of the Conventions. While there is a continuing political debate on the legal nature of this obligation by developed countries, the Conferences of the Parties to the Conventions have negotiated and adopted decisions establishing mechanisms, e.g. the role of the GEF as the financial mechanism to the Conventions, to begin implementing the provisions on financial resources. Likewise, all the Rio Conventions have identified technology transfer and capacity building as priorities in implementing the Conventions.

4.2.6. Technology Transfer

67. For climate change, priority areas for technology transfer include those technologies related to energy development and consumption. Energy efficiency and renewable energy technologies are critical if countries are to avoid or reduce increases in carbon emissions without compromising their ability to meet their energy needs. Methods for preserving carbon sinks, such as low impact logging and more effective reforestation methodologies, would also be necessary in many countries. Adaptation technologies are likewise a priority area in climate change.

68. For loss of biodiversity, technologies related to the environmentally sound uses of genetic resources (from their collection to commercial development), including biotechnology, are a priority area. While there is a lot of political debate on how to make this happen, given the role of the private sector and the limitations imposed by existing intellectual property rights regimes, many developing countries have indicated the importance of such technology transfer if the benefits of using genetic resources are to be equitably shared.

69. The transfer of technologies related to agriculture, land use management, sustainable forest management and soil protection and management, are priorities both for dealing with loss of biodiversity and for combating desertification. Many of these technologies are low cost and should be easily shared with the right incentives and mechanisms.

4.2.7. Capacity Building

70. Capacity building is equally important for the implementation of the Rio Conventions. Unfortunately, many countries do not have the requisite scientific, technical and institutional capacities to respond effectively to climate change, loss of biodiversity and desertification. For this reason, capacity building have consistently been pushed by developing countries at the top of the agenda of the Rio Conventions.

71. Development co-operation agencies, including multilateral financial institutions, have invested in many initiatives related to capacity building (See Box 10 on the GEF Capacity Building Initiative). Scientific and technical expertise has been enhanced in many countries. In climate change, for example, support from the GEF and other bilateral and multilateral institutions make it possible for many countries to develop credible national inventories and national climate change action plans. This is also true for biodiversity and desertification where a critical mass of in-country and/or regional scientific and technical experts have made it possible for many countries to prepare their scientific assessments and their respective national strategies and action plans.

Box 10. The Capacity Building Initiative of the GEF

The Capacity Development Initiative (CDI) is a partnership between the GEF Secretariat and UNDP to produce a comprehensive approach for developing the capacities needed at the country level to meet the challenges of global environmental action. In a global context, "capacity" refers to the ability of individuals and institutions to make and implement decisions and perform functions in an effective, efficient and sustainable manner.

Consultations were launched in January 2000 among countries, GEF Implementing Agencies, STAP, the Secretariats of the CBD, CCD, UNFCC, multilateral development organisations including regional development banks, bilateral organisations, and NGOs. The aim of the consultation process was to identify countries' capacity development needs, to distil lessons learned from activities funded by GEF and other multilateral and bilateral agencies, and to begin developing a strategy and action plan. Countries identified priority issues in the context of their national commitments under the CBD, UNFCC, and CCD. They then identified the capacity needed to enable them to address those priority issues.

The common or crosscutting needs identified are:

- Awareness and knowledge.
- National policy.
- Legal and regulatory frameworks.
- Institutional mandates and co-ordination.
- Processes for interaction and co-operation between stakeholders.
- Information management, monitoring and observation.
- Mobilisation of science in support of decision making.
- Financial resources and technology transfer.
- Incentive systems and market instruments.
- Negotiation capacity.
- Co-operation and networking within regions.
- Institutional management performance.
- Individual skills and motivation.

The next phase of the Initiative is to develop strategies to meet the identified needs and action plans for the GEF.

72. Most capacity building efforts have been directed to the scientific and technical aspects of implementing the Rio Conventions. Not as much attention has been placed on institutional and governance capacities. In particular, most capacity building efforts have been limited to either environmental institutions or to academic/scientific institutions in developing countries. As pointed out earlier, other constituencies and stakeholders, especially those whose primary concern are pursuing and implementing a country's development needs and priorities, must be engaged too.

4.3. An Integrated Approach to Implementing the Rio Conventions

73. Recognising that each Convention has its own merit and specific action are needed, the most effective way of mainstreaming the Rio Conventions into development agendas of countries is an integrated approach to implementation. While acknowledging their individual priorities and strengths, synergistic approaches to the implementation of the Rio Conventions can become strategies for improving developing-country capacity for responding to global issues, eliminating redundancies among the instruments, co-ordinate policy agendas, and more effectively addressing multiple environmental problems that share common root causes.

4.3.1. Synergies among the Rio Conventions

74. While each of the Rio agreements contains individual requirements, issue-specific recommendations, and unique criteria for compliance, the three conventions also exhibit crosscutting issues and areas of overlap.

Box 11. What are the Synergies among the Rio Conventions?

- These sustainable development instruments share a concern for many environmental issues and contain numerous overlaps in terms of the obligations required of their parties (such as requirements for research, reporting, training, and public education and awareness). Each instrument focuses on a particular set of problems, yet each also recognises that activities to address effectively its own issues must also take into account those of the other instruments. There is a growing recognition that while each instrument stands on its own, with its own defined objectives and commitments, there is also an inherent relationship and mutual dependency between all of them.

- Operationally, there is a great deal of overlap among the instruments. All need common, shared or co-ordinated institutions to turn their somewhat general requirements into action on the ground. These include co-ordination mechanisms to ensure that implementation of one Convention enhances (or does not conflict with) implementation of the others. All would benefit from sharing training methods and materials, and increasing the capacity of grassroots groups to support the conventions at the local level. All require an information system. Which would be developed more cost-effectively as if it were shared by the other instruments as well as other users.

- These sustainable development instruments can be more effectively implemented through a greater understanding of the commonalties and the overlaps between them and a co-ordinated and harmonised approach to their implementation at the local, national, and international levels. In other words, creating synergy among the instruments and their requirements.

Source: UNDP, 1997. *Synergies in National Implementation. The Three Rio Agreements.*

75. In many cases, the same response policy or measure simultaneously addresses the different objectives of the three Conventions. The most obvious example is the imperative for the sustainable management of natural resources. Meeting the objectives of the UNFCCC, the CBD and the UNCCCD requires governments to put policies and measures consistent with this imperative. Thus, the UNFCCC

requires sustainable land use, forestry and agriculture practices so that carbon sinks are protected and enhanced. The conservation and sustainable use of biological diversity, two of the objectives of the CBD, also demands similar practices. Likewise, sustainable practices in land use and agriculture are key response strategies to desertification under the UNCCCD.

4.3.2. Cost Effective Implementation of the Rio Conventions

76. An integrated approach to implementation is also desirable from a cost point of view. There are numerous overlaps in the different tasks that the Rio Conventions mandate. The scientific work needed to further understand the global environmental issues and their respective impacts is certainly inter-related.

77. Strategies for cost-effective implementation and to deal with recognised constraints include:

- Establishing and operating integrated information systems is essential to maximise synergies. Unless countries are able to have a holistic view of the linkages between environmental issues (both global and domestic) and their impacts on development, response strategies would always tend to be fragmented and uncoordinated. Included in such systems should be the process of gathering and analysing information that eventually is included in the national reports required by the Rio Conventions. Such an integrated information and reporting system, by pooling scientific and technical expertise among others, is definitely more cost-effective and will probably produce more accurate and relevant information.

- Effective co-ordination by all concerned ministries and agencies is critical. Such co-ordination should be from the planning stage to implementation of policies and measures as well as activities and projects. The sectoral division of responsibilities among the relevant government entities make this difficult. But options exist to minimise this obstacle, including creating multi-sectoral and multi-agency committees, establishing co-ordination mechanisms or pinpointing national focal points with a responsibility for co-ordination. Regardless of the option that is eventually taken, which is probably country-specific, the important element is the inclusion and commitment of the actors and stakeholders (including those from civil society and the private sector) in the process.

- Developing, adopting and applying information, analytical and management tools that would integrate an appreciation of the Rio Conventions and the issues they address into national development planning and decision making is a key step to ensure that the synergies among the Conventions are maximised in such a way that they become instruments that promote sustainable development (See Sections III, V).

- An important catalyst for maximising synergies among the Rio Conventions is decisions that are made in the Conventions themselves. The COPs are critical in sending the right message to countries on why the Conventions must be implemented in an integrated manner. While there is a growing body of convention-specific decisions that deal with the relationships among the Conventions, much work needs to be done to translate recognition of synergies into implementation at the country level.

V. MAINSTREAMING GLOBAL ENVIRONMENT ISSUES IN THE DEVELOPMENT AGENDA: STARTING POINTS, APPROACHES, AND INSTRUMENTS

78. Tackling the issues addressed by the Rio Conventions effectively, and in a manner consistent with priority national development objectives, implies mainstreaming global environment objectives into general social and economic development policies and plans at the international, national, sectoral, and local/project levels. This is a major challenge, calling for special attention to analytical, governance and management approaches and tools. This section outlines some of the main opportunities for mainstreaming global environmental concerns. These strategies and tools are already in use to varying degrees, making them opportunities and viable entry points.

5.1. A Key Starting Point: Sustainable Development Strategies (SDS)[9]

79. At the 1992 UN Conference on Environment and Development (UNCED), Governments made a commitment to adopt national sustainable development strategies. In 1997, the Special Session of the UN General Assembly set a target date of 2001 for the formulation of such strategies. These were envisaged as highly participatory instruments intended to *"implement Agenda 21 and the Principles contained in the Rio Declaration on Environment and Development at national and sub-national levels - enhancing and linking national capacities so as to bring together social, environmental and economic objectives and priorities"*[10]. This commitment was reaffirmed in the UN Millennium Declaration and the Millennium Development Goals.[11]

5.1.1. SDSs: Dynamic processes focussing on integration

80. Sustainable development strategies (SDS) are dynamic processes which help steer development policies and plans towards a sustainable path. As stated in Agenda 21, they should "*build upon and harmonise the various sectoral, economic, social and environmental policies and plans that are operating in [a] country*". The term "SDS" does not therefore refer to a special kind of plan, but rather to a set of principles, mechanisms and ways of working which, taken together, can help a country progress towards sustainable development in a coherent manner. In line with this understanding of SDSs, the UN Millennium Development Goals relating to environment and sustainable development calls upon countries to "integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources". Accordingly, SDSs can take a variety of forms depending on national circumstances and can come under a variety of "labels". Notwithstanding country-specific differences, SDS all have as a central objective the reconciliation of short and long term goals, and the integration of national priorities and international commitments and obligations. This implies that they all have certain building blocks (see Sub-Section 5.1.2. below).

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9 For a more general analysis of SDSs, see OECD (2001): Strategies for Sustainable Development: Guidance for Development Co-operation, Paris.

10 Report from a International forum on national sustainable development strategies, organised by the UN Department of Social Affairs (DESA), Accra Ghana , November 2001.

11 Among the Millennium Development Goals is to "integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources".

81. The requirements of integration cover several dimensions:

- Integrating multiple stakeholder perceptions, needs and aspirations.
- Integrating economic, social and environmental objectives (or making informed trade-offs between them where full integration is not possible).
- Integrating technical planning concerns in political decision making processes.
- Linking policy making processes with budget allocation mechanisms.
- Linking different sectoral strategies.[12]
- Linking global and local levels (see Box 12).

Box 12. Global – local linkages: local participation

Effective local participation is indispensable if global environmental problems are to be tackled effectively. After all, it is at the local level that people are experiencing the impact of global environmental problems, e.g. in the form of diminished agricultural output due to more frequent natural disasters resulting from Climate Change. Conversely, action to counter global environmental problems needs to be taken at the local level, given that most environmentally harmful activities occur in particular communities and within specific political boundaries. For instance, several of the main causes for desertification and biodiversity loss, such as land degradation and drought, are always localised phenomena and need a response at that level. Unless local governments have a stake, by sharing in the benefits and by having the authority for regulating sustainable use, or receive revenues for conserving ecosystems and watersheds, efforts to attain the objectives of these conventions will remain difficult. Global local linkages gain additional importance if one considers that local communities usually do not interact with the central government but with local governments. When unsustainable activities result in damage which affects hundreds, if not thousands, of citizens, their first recourse for relief as well as contact point for complaints are the local authorities. However, at the same time it has to be borne in mind that some issues cannot be resolved at the local level: e.g. because, at the local level, land ownership and the distribution of political leverage may be too intertwined to allow for fair solutions to land ownership disputes; or because they result from policy decisions made at 'higher' – regional, national - levels.

5.1.2. Key "Building blocks" of SDS

82. The key elements needed to achieve integration at these various levels include:

A broad vision of long term socio-economic development objectives

83. This vision must reflect the country's history and core values and be widely shared among the public as well as economic and other actors across the political spectrum. It provides an articulation of a country's aspirations, for current and future generations, as well as its role and ambition with regard to regional or global issues. This includes a reflection of responsibilities, obligations and commitments in relation to global agreements such as global environmental conventions. In some countries the "national vision" is enshrined in a document formally endorsed by parliament.

[12] Report from a International forum on national sustainable development strategies, organised by the UN Department of Social Affairs (DESA), Accra, Ghana, November 2001.

Mechanisms for cross-sectoral policy formulation

84. These mechanisms are essential to examine the interaction between policy decisions taken at different levels and in different sectors and find ways to integrate different objectives - or make informed trade-offs between them when integration is not possible. They must be linked to resource allocation processes and provide for public participation.

Multi-stakeholder forums

85. Multi-stakeholder forums (involving government, business, labour and civil society) are essential to translate the broad goals embodied in a national "vision" into concrete objectives, not least in order to gather adequate support for the resulting policies. The participation of affected stakeholders in planning, implementation, monitoring and evaluation is also essential in the formulation of development policies and plans, as is the assessment of the latters' implications for different socio-economic groups.

86. So-called Councils for Sustainable Development have in some countries played an important role in this respect. Indeed, in many cases, the monitoring of national implementation of the Rio Conventions has already been delegated to these councils or similar entities. It should be noted that national councils for sustainable development and similar entities are not a substitute for getting the right institutional framework in place for implementing the Conventions as instruments of sustainable development.

A capacity to monitor socio-economic and environmental conditions and likely future trends.

87. A sound knowledge base is essential to assess policy options and constraints, define realistic objectives, monitor progress towards agreed goals, and identify necessary changes of course. The Rio Conventions all highlight the importance of a sound analytical basis in order to understand the complex economic, social and ecological factors driving environmental degradation, forecast long term trends and risks and formulate appropriate response measures.

88. Taken together, these elements form the basis of a sustainable development strategy. In other words, a SDS is not a comprehensive "master plan" enshrined in official documents or set of plans, but rather a set of instruments and ways of working which enable development objectives to be tackled in a coherent and dynamic way. Box 13 summarises the key principles underlying SDS. In some cases, such as when two or more countries are closely linked through economic, ethnic or other ties, or share critical natural resources and eco-systems (e.g. a river basin or watershed), the formulation of sustainable development strategies must take explicit account of the regional dimension.[13]

[13] For example, the Andean Biodiversity Strategy developed by several South American countries provides a shared regional vision and identifies common interests.

Box 13. Key principles underlying sustainable development strategies

Sustainable Development Strategies should be:

Country-led and nationally-owned. Countries must take the lead and initiative in developing their own strategies.

Rooted in a vision of long-term development. The vision should reflect a consensus among social, economic and political stakeholders across the political spectrum. High-level government commitment to the vision is also essential.

Defined through a participatory process, involving civil society, the private sector and political stake-holders to open up debate, expose issues to be addressed, and build consensus and political support on action.

Based on a solid analytical basis, including a comprehensive review of the present situation and forecasts of trends and risks, including those beyond the country's control.

Focused on ensuring sustained beneficial impacts on disadvantaged and marginalised groups, notably the poor.

Comprehensive and integrated. Strategies should seek to integrate economic, social and environmental objectives through mutually supportive policies.

Source: OECD, September 2001. *Policy Brief: Sustainable development strategies: What are they and how can development co-operation agencies support them*? P.4.

In developing a strategy it is essential to:

Build on existing strategies and processes, rather than adding additional ones, and focus on improving the convergence, complementarity and coherence between different planning frameworks and policies.

Link national and local levels. The main strategic principles and directions should be set at the central level but detailed planning, implementation and monitoring would be undertaken at a decentralised level.

Set realistic and monitorable targets linked to clear budgetary priorities. The strategy needs to be fully integrated into the budget process to ensure that financial resources are available to translate it into action. Conversely, the formulation of budgets must take account of the priorities highlighted in the strategy.

Define the roles, responsibilities and relationships of key participants in strategy processes early on. Governmental, civil society, and private sector stakeholders should agree on the "rules of the game" and be bound to a clearly defined stand.

Identify priority capacity development needs. This includes taking stock of the institutional, human, scientific and financial capacity of state, market and civil society stakeholders and finding ways to fill gaps.

"Build in" continuous monitoring and improvement from the outset. This requires developing mechanisms and indicators to track progress, capture lessons from experience, identify necessary changes of course. Local capacities for analysis and existing information should be fully utilised.

5.1.3. Poverty Reduction Strategies

89. A variety of established strategic planning processes, such as "National Visions"; national or local "Agenda 21 Plans"; National Conservation Strategies or Poverty Reduction Strategies (PRS) provide useful entry points to develop Sustainable Development Strategies. Because of their high profile in developing countries, PRSs deserve special attention here. (Box 14 provide a brief history of PRSs).

90. PRSs incorporate the key principles of the sustainable development strategies. They provide a major opportunity to address linkages between poverty and environment and to mainstream environmental concerns in social and economic interventions to reduce poverty. A number of challenges remain to be addressed to fully translate this potential into reality and ensure the success of this approach. As stated in the DAC Guidelines on Sustainable Development Strategies: *"As PRSPs increasingly become the basis for agency support, there is a need to improve the analysis, process and content, ensuring the integration of key development issues, such as gender and environment. There is also growing recognition of the need to consider poverty-environment linkages and long term sustainability issues in Poverty Reduction Strategies, in line with the principles of the CDF. In particular, agencies and countries need to consider consistency of the PRSPs with other international agreements for sustainable development (e.g the UN Convention to*

Combat Desertification).” A comprehensive environmental analysis concerning local and global environmental issues and the linkages with poverty, in line with the synergies identified in this policy guidance should be part of the PRS.

Box 14. The Comprehensive Development Framework and Poverty Reduction Strategies

The Comprehensive Development Framework (CDF) was introduced by the World Bank in 1998 as a concept for a holistic approach to development. It is intended to take a comprehensive approach to development. A key element of CDF is to encourage a **long-term strategic horizon** of, say, 15-20 years. It seeks a better balance in policy-making by highlighting the interdependence of all elements of development - social, structural, human, governance, environmental, economic, and financial. It emphasises partnerships among governments, development co-operation agencies, civil society, the private sector and others involved in development.

Within this framework, the World Bank and the IMF subsequently launched in September 1999, a process of **Poverty Reduction Strategies** for low income countries. Poverty reduction strategies “...should be country-driven, be developed transparently with broad participation of elected institutions, stakeholders including civil society, key development co-operation agencies and regional development banks, and have **a clear link with the agreed international development goals**”[14]. Countries were invited to design their own strategy, and operationalise it through a Poverty Reduction Strategy Paper (PRSP). The PRSP process should build on existing national strategies and policies. Some countries already had what were, in effect, PRSs.

5.1.4. “Action Plans” developed in response to the Rio Conventions

91. All three Rio Conventions call for the formulation of “National Action Plans” for the implementation of their respective national conventions (e.g. a Biodiversity strategy under the CBD, the National Action Plan of the CCD, and the National Climate Change programme under the FCCC). Although developed with reference to a specific convention, these policy documents are by nature cross-sectoral, since desertification, climate change and biodiversity issues cut across a wide variety of economic sectors, as concern their impact and root causes.

92. These Action Plans also call for a variety of policy and other measures in a wide range of relevant sectors.

93. **The Desertification Convention**, highlights the need for cross-sectoral approaches to land-use planning, integrated water resources management, and emphasises the socio-economic dimensions of desertification processes. It calls upon affected countries to prepare and implement national actions programmes (NAP) to combat desertification and the effects of drought, building on existing relevant successful plans, at the national or regional level and in the context of other efforts to formulate national policies for sustainable development. (Article 9). The purpose of NAPs is to identify the factors contributing to desertification and practical measures which can be taken, at the local, national and subregional and regional levels, to combat it. The linkages with poverty reduction and sustainable development are evident.

94. The Convention specifies that National Action Plans should identify priority policy measures in a variety of areas.[15] The objective is to improve *“national economic environments with a view to*

14 . Development Committee Communiqué, September 1999.

15 . Examples of such measures specifically listed by the convention include the establishment or strengthening of early warning systems and mechanism for assisting environmentally displaced persons; drought

strengthening programmes aimed at the eradication of poverty and at ensuring food security; demographic dynamics; sustainable management of natural resources; sustainable agricultural practices; development and efficient use of various energy sources; institutional and legal frameworks[…]"(Article 10: National Action Plans) .

95. **The Climate Change Convention** calls upon parties "to formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change". (Article 4).

96. **The Biodiversity Convention** call upon parties to "develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes […] and to integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies." (Article 6).

5.1.5. Key Constraints to Mainstreaming

97. Because of their cross-sectoral nature, the "Rio" Action Plans cannot be isolated from mainstream planning processes. The formulation and implementation of these plans, and associated policy and other measures require institutional mechanisms capable of approaching the problem from a cross-sectoral perspective and mobilising stakeholders, within the framework of national sustainable development efforts.

98. Unless they are fully integrated in existing national planning processes, the plans formulated in response to the Rio conventions run the risk of remaining largely "paper plans", with little impact on decision-making processes in relevant sectors. Conversely, some of the national action plans prepared in response to convention obligations could provide the basis for significant components of strategies to combat poverty. In countries characterised by dryland ecosystems, for example, the National Action Plan to Combat desertification can form the basis for national efforts to combat poverty in marginal rural areas and promote sustainable rural socio-economic development- both critical building blocks of a Poverty Reduction Strategy.

99. In many countries, however, the responsibility for global environmental issues has been given to environmental ministries and departments - often amongst the weakest and least influential in government, and which do not have the mandate to implement policy changes in relevant areas such as energy, agriculture etc. This has hindered the necessary process of cross-sectoral policy integration. Furthermore, in many cases the plans have been designed independently of budget allocation mechanisms at the national, subnational or sectoral level. Thus, there has been no systematic way to ensure consistency between the investment measures provided for by the plans and likely budget availability. Clearly, in the absence of accompanying policy and institutional reforms, to provide a conducive policy framework, even well-designed efforts to, for example, protect biodiversity at the local level, will fail or have limited impacts.[16]

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preparedness and management systems; drought contingency plans; food security systems, including storage and marketing facilities in rural areas; the promotion of alternative livelihood projects to provide incomes in drought-prone areas and the development of sustainable irrigation programmes for crops and livestock (Article 10).

16 . This is illustrated by a recent evaluation of WWF projects towards biodiversity protection, which highlights the need to "(…) *improve policy integration in the countries, and to encourage governments to*

This points to the need for further efforts to integrate the action plans formulated in response to the Rio Conventions in broader development frameworks. For instance, in Bolivia there have been efforts to integrate the Biodiversity Strategy in a broader Poverty Reduction Strategy (Box 15).

Box 15. Integrating the Biodiversity Conservation Strategy within the PRSP: The Case of Bolivia

Bolivia is a country where 94% of the rural population is under the poverty level. Under these conditions a biodiversity strategy must start from the recognition of the priority of satisfying basic needs. The Bolivian Biodiversity Sustainable Use and Conservation Strategy focuses on giving value to wild ecosystems and thereby alleviating poverty. Due to the large size of the country (1.098.581 square kilometers), and its small population (approximately 7.5 million), low intensity use options are still feasible in a large proportion of its surface area, most of which are poverty stricken. At present 10% of employment in the country depends on biodiversity use. Wildlife management of key species will increase income in these areas.Wildlife-based products with commercial potential include Vicuna wool, medicinal plants, and forest products such as rubber and brazil nut.The definition of the biodiversity strategy and action plan through a highly participatory process ensured strong emphasis on the link between poverty alleviation and biodiversity use and conservation. The economic focus of the strategy, together with intensive collaboration of the Sustainable Development Ministry with the Economic Policy Council, has enabled the biodiversity strategy to be incorporated as a part of the Bolivian Poverty Reduction Strategy, which is one of the main governmental statements of policy.

Source: Material collected in the course of the DAC work to formulate NSSD Guidelines.)

5.2. Approaches and Instruments for Mainstreaming

100. Governments as well as development co-operation agencies tend to follow sectoral approaches to development decision making as well as with regard to environmental regulation. This traditional approach is both convenient and effective in delivering the objectives of a given sector. By being focused on very specific objectives and mandates, the goals of a development sector are easily identified and strategies are put into place to attain such goals. As noted above, however, the challenge of sustainable development, and the mainstreaming of global concerns into local, national or regional policies and plans call for a cross-sectoral understanding of the issues, their backward and forward interlinkages and their collective impact on development. Cross-sectoral mainstreaming is therefore a critical challenge.

101. Section 4 above outlined some of the sectors where the linkages between local development and environmental issues and global environmental issue are particularly relevant. These include:

- For issues related to Desertification: linkages with agriculture/livestock, energy, forestry, and water sectors.
- For issues related to Climate Change: linkages with energy production, industry, transport, forestry, agriculture/livestock, waste management and coastal zone management.
- For issues related to Biodiversity, agriculture/lifestock, forestry, fishery, tourism, energy, coastal zone management and water.

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align sectoral policies with the Convention on Biodiversity. Likewise, efforts should be directed towards the provision of assistance in the development of cross-sectoral strategies." [16]

102. This section outlines some of the approaches and instruments available to ensure that appropriate linkages are made across different sectors. These include ecosystem based approaches, Land Use Planning and Management, and Strategic Environmental Assessment (SEA) as critical entry points for mainstreaming of global environmental conventions, and Project-level Environmental Assessment. These approaches have particular value in identifying the linkages between national or local development issues and global environmental issues and the policy implications.

5.2.1. Ecosystem-Based Approaches: Matching Development Strategies with Countries' Physical and Ecological Conditions

103. As noted in earlier sections, most developing countries depend on their natural resources. Ecosystems - agro-ecosystems, forests, freshwater watersheds, grasslands and coastal zones - are therefore critical to social and economic development and to meeting socio-economic development goals. Basic ecological factors, such as topography, endowments in water resources or climatic conditions (current or anticipated in the future) play a significant role in determining the development options available to a country and its development sectors. An important aspect of sustainable development strategies is therefore to ensure that the formulation of the sectoral development plans is based on a clear understanding of physical, ecological and other opportunities and constraints. The general approach, however, is to assess the impact of their development plans on natural resources and key ecological functions, not on identifying development options particularly well-suited to a the country's specific ecosystems (i.e. supply). Furthermore, the assessment of development policy options focuses mostly on the socio-economic dimensions.

104. Ecosystem-based approaches[17] provide a way to address this challenge (see Box 16 for their key features). By capturing both the environment and social-economic development aspects of sector-specific decisions, an ecosystem-based analytical approach can provide a way for policy makers to identify the most promising development options and make decisions based on a sound understanding of their long term consequences[18]. It also provides a way to assess the impacts of global environmental threats on national or local development strategies and vice-versa. For example, in regions where crops are grown at or close to their heat tolerance, the agriculture sector could be highly vulnerable to even small changes in temperatures due to global climate change.

Box 16. Key Features of an Ecosystem-Based Approach

The key features presented are based on current understanding and principles regarding the ecosystem approach (e.g. adopted by the CBD). In general, the approach is a strategy for the integrated management of land, water and living resources to improve human well-being and that promotes sustainable use in a equitable way:

Institutional concerns

- The framework reorients management. It emphasises a systemic approach, recognising that ecosystems function as whole entities and need to be managed as such, not in pieces. Thus it looks beyond traditional administrative and jurisdictional boundaries.

17 . Examples are the ecosystem approach of the CBD, Integrated Coastal Zones Management, Integrated Water Management.

18 As ultimate causes to unsustainable use of resources are identified: inappropriate land tenure, population change, cost-benefit imbalances, cultural factors, misdirected economic factors, and policy failure (Sustainable Use Initiative by the IUCN, February 2000).

- Management objectives are a matter of societal choice depending on their own economic, cultural and social needs.
- Management should be decentralised to the lowest appropriate level. Rights of access to resources and responsibilities for their management are important factors affecting sustainability. Use is most likely to be sustainable where the prime beneficiaries are those living with and using the resource are involved and/or responsible.
- Managers should consider the effects (actual and potential) of their development decisions on adjacent and other ecosystems insofar relevant.
- Sustainability of management options should be assessed in socio-economic terms and in terms of ecological effects at the ecosystem level and trade-offs should be made transparent.

Social-economic concerns

- The framework should not be focused on production alone although it explicitly links human needs to the production capacity of ecosystems to fulfill those needs. It views production of goods and services as the natural product of a healthy ecosystem, not as an end in itself. Within this approach, management is not successful unless it preserves or increases the capacity of an ecosystem to produce the desired benefits in the future.
- Recognising the potential gains from management, the ecosystem should be understood in an economic context considering: the reduction of those market distortions that adversely affect or overexploit the ecosystem; align incentives to promote sustainable use; and internalise costs and benefits in the given ecosystem to the extent possible.
- Sustainability is more likely when: economic activities are closely linked to resource tenure systems; incentives are aligned to favour reinvestment of returns from use in ecosystem conservation; and market interventions arising from externally imposed conservation concerns take full account and mitigate the socio-economic implications of their application.
- The framework should involve all relevant sectors of society and scientific disciplines (stakeholder participation).
- The framework should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.

Ecological concerns

A key feature of the framework is to include the conservation of the ecosystem structure and functioning. Ecosystems should be managed within the limits to their functioning. Recognising the varying temporal scales and lag effects which characterise ecosystem processes, objectives for management should be set for the long term. Due to the inherent dynamics of change of ecosystems, an adaptive management is necessary to anticipate and cater changes. This should also be reflected in an appropriate balance between conservation and use.

105. In brief, the Ecosystem-based approaches provide a way to shape development strategies in line with countries' physical and ecological conditions, and can be useful in mainstreaming the global and other environmental concerns into sector-specific development decisions. As a management approach, it provides a way for integrated land, water and living resources utilisation to improve human well-being. As an analytical approach, it complements standard socio-economic and financial analysis. It is applicable and complementary to instruments such as Strategic Environmental Assessment or Land Use Planning, discussed below and has been recommended by the Rio Conventions. Box 17 below provides examples of how ecosytem-based approaches are being applied in relation to PRSPs.

Box 17. Ecological considerations in Poverty Reduction Strategies

Some PRSPs apply ecological approaches in order to specifically identify the linkages between ecological, social and economic conditions. For instance, the PRSPs of Honduras, Burkina Faso, Mauritania and Guinea present maps showing regional distribution of poverty, population and natural resource attributes. The poverty and resource maps help in the assessment of spatial and temporal relationships between poverty and the resource base. They can also be used to track the impacts of policy and management interventions relating to poverty reduction. The Burkina Faso PRSP, in particular, notes that climatic conditions and low agricultural productivity, related to degradation of soil and water resources, are major constraints to economic growth and contribute to massive poverty and severe food insecurity among rural inhabitants.

Source: World Bank PRSP Source Book

5.2.2. Land Use Planning and Management

106. Land use planning and management is one of the critical entry points for the effective integration of global environmental issues into social and economic development plans. There is an intimate link between land resources and key ecological functions of ecosystems. The ecosystem-based framework for development sectors (described above) constitutes the policy framework. In addition, a system for integrated planning and management of resources is critical in translating synergies into practice. Without good and sustainable land use plans, or by not adhering to such plans, development decisions will tend to be ad hoc, short term and create conflict among stakeholders and the integration of social, economic and environmental objectives will not occur.

107. One important point to bear in mind is that land use planning and management, to be effective, need to be integrated and take into account traditional, administrative as well as ecosystem boundaries – so far, for instance, in many countries there has been mainly been a focus on administrative boundaries when tackling land-use planning and management. What is more, the manner in which land is utilised should not only take into account land as a physical entity in terms of its topography and spatial nature, but should also recognise the fact that land contains vital natural resources such as minerals, water and biota.

108. Addressing desertification, loss of biodiversity and climate change all requires tackling complex land use planning and management questions. At its core, combating desertification is a question of good and sustainable land use planning and management. The same holds for in-situ conservation, the primary strategy of the CBD. Similarly, the management and enhancement of carbon sinks is crucial for effective climate policy in the context of the UNFCC. Agenda 21 also identifies how land use planning and management systems can be strengthened (Chapter 10).

5.2.3. Strategic Environmental Assessment/Analysis (SEA): Assessing the impact of development policies and plans

109. **Strategic Environmental Assessment,** or Strategic Environmental Analysis (SEA) has emerged in response to growing awareness of the limitations of project-level environmental and social impact assessments. This is because project-level assessment methods cannot capture cumulative, nor sector-wide, economy-wide and transboundary effects. SEA involves analysing the likely environmental (and social) consequences of development policies at the strategic level in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making. It is a dynamic and systemic process whereby the impacts of policy choices are identified and evaluated, and corrective measures

identified and implemented in an iterative fashion. SEA methodologies, which can draw on economic, social and ecosystem-based methodologies, can be applied to development strategies at national, sub-national or the local levels.

110. For example, the impact of macroeconomic reform measures can only be assessed at the economy-wide level. Similarly, the aggregate impacts of policy changes in the transport or closely related sectors (e.g. changes in road pricing scheme or change in fuel pricing) or those of a large-scale transport development plan (involving a large number of discrete projects) in terms of noise, pollution and impacts on climate change or biodiversity can only be assessed and mitigated at the sectoral level. Strategic environmental assessment can also be used in relation to the design of large scale or long term industrial development plans. This would include ensuring that the geographical areas designated for development are appropriate in view of the likely impact of industrial development in the form of air pollution, increased transport, increased demand for water and that necessary investments in, for example, waste treatment facilities are undertaken in an appropriate scale and sequence.

111. SEA should not be thought of as a single methodology but as a set of methodologies which can be used to assess the likely impact of policies, programmes and plans. The appropriate methods will vary widely across-sectors and across countries, in line with their unique institutional and other features. SEA should not be thought of as a single methodology but as a set of methodologies, which can be used to assess the likely impact of policies, programmes and plans. The Matrices presented in the Annexes (e.g. the matrix *Agriculture, Ecosystem Goods and Services, and Global Environment Linkages*) illustrates how an ecosystem-based approach can be applied in the context of SEA in the agriculture and energy sectors respectively. They highlight the impacts of these sectors on key ecosystem processes and their ability to produce the goods and services needed for development, as well as potential global impacts. While they have traditionally focussed on local or national-level environmental impacts, the methodology can readily be extended to global-scale impacts. An SEA is very helpful in addressing strategic policy questions like how an agricultural strategy increase or decrease vulnerability to climate changes or how the strategy adversely affect key ecological processes necessary for sustaining certain other essential social-economic functions.

112. **SEA methodologies** could play an important role in addressing the challenges posed by the global environmental problems and assess the consequences of various development responses to global developments. However, actual in-country experience with this instrument is still limited and most countries do not yet have legal procedures. As in the case of project-level (see below), the effectiveness of SEA processes depends strongly on the transparency of the process, and on the transparency of the process, and on the degree to which relevant stakeholders can effectively be involved.

5.2.4. Project-level Environmental Impact Assessment (EIA)

113. Environmental Impact Assessment (EIA) is concerned with predicting, estimating and evaluating, the environmental, and social consequences of a proposed (usually large-scale) development project from the formulation to the implementation and, where applicable, decommissioning stages. The EIA process may result in the provision of necessary mitigation measures as part of the project, the identification of better ways to achieve the project's objectives or even, in some cases, the cancellation of the proposal. Key requirements of EIA processes include transparency, and public participation. EIA thus provides a procedure whereby the public can raise environmental and other concerns regarding the impact of development activities. In most countries EIA provides the only legally binding mechanism for stakeholder involvement.

114. At the same time, EIA is a decision-making tool. In this respect it is concerned with project procedures and processes providing planners with environmental information on projects and programmes and providing decision-makers with insight in the environmental consequences of their decisions.

115. Many governments, including from developing countries, have accepted that EIA processes are essential and that they need to be integrated into planning processes. This has been recognised by the international community as manifested by Principle 17 of the Rio Declaration on Environment and Development.[19] Laws requiring EIAs lay down the imperative to plan development in a manner that would optimise resource use but at the same time minimise the adverse impacts of human actions on the environment. Projects and programmes supported by DAC donors are generally assessed through EIA procedures.

116. EIA procedures, which focus on local-level issues, can readily be extended to assess potential impacts on global environmental issues and related legal commitments. These procedures do not, however provide for the assessment of the impacts of environmental changes[20] on projects (e.g. due to global climate change). This could have significant implications for very long-lived infrastructure projects (such as dams, irrigation facilities and the like), which are likely to be impacted by climate change. Projects which are not expected to have significant local environmental impacts (such as the rehabilitation of existing infrastructure) may not be submitted to EIA, even though they may be significantly vulnerable to climatic change.

117. Other issues which need to be addressed to optimise the linkages between EIA and the Rio Conventions include:

- Scientific issues: Local or programme level environmental problems of concern in an EIA may also be related to global environmental issues mentioned in the Rio Conventions. Recently, for example, a document was published proposing a conceptual framework for Biodiversity concerns (CBD) in national environmental impact assessments (IAIA 2001).
- Stakeholder Involvement: All of the Rio Conventions state the Parties should promote public participation in decision making and community based management. Environmental Assessment is in many countries one of the few, if not the only, legally defined mechanism for stakeholder and public participation, and may thus serve as a vehicle to promote the objectives of the conventions.
- Public Information Campaigns: The Rio Conventions emphasise the importance of public information campaigns, either through general mass-media attention or through targeted campaigns at specifically defined groups. One of the opportunities to raise the awareness on global environmental concerns may lie in EIA capacity development programmes.
- Enabling environment: This includes institutional and legal action, such as updating legislation and procedures that may hinder implementation of the Conventions. Environmental assessment is an important legal instrument that can be used to enhance the issues raised by the Conventions. For example, the screening criteria for large development strategies should include global environmental concerns.
- Indicators and Benchmarks: The Rio Conventions promote the development and application of indicators and benchmarks. Preferably, these indicators describe the present situation with respect to a

19 . Environmental Impact Assessment (EIA) in the Rio Declaration, Principle 17: Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority."

20 Environmental change must be distinguished from "normal" climatic variability, which includes periodic and thus partially predictable extreme events (e.g. bridges are designed to resist to the "30 year flood") which are generally taken into account in infrastructure projects.

specific global environmental theme (state), the rate of change (pressure), or the effectiveness of measures (response). Although it is realised that the creation and regular updating of such a set of indicators is difficult, it is important to observe that these indicators could in this case go beyond the standard reporting requirements of a country. Apart from being important measuring rods, providing insight and data for reporting to the conventions, these indicators may also serve as a reference for EIA study and monitoring and report on the State of Sustainable Development.

VI. MAINSTREAMING GLOBAL ISSUES IN DEVELOPMENT POLICIES AND DEVELOPMENT CO-OPERATION: PRIORITY AREAS FOR ACTION[21]

6.1. At the International Level

6.1.1. Help raise awareness of global environmental issues in relevant international fora

118. **Donors** could play an important role in fostering awareness of the convention and by disseminating the results of relevant scientific research, such as, for example, the findings of the Inter-Governmental Panel on Climate Change (IPCC).

6.1.2. Harmonise the reporting of DAC Members' efforts

119. Donors could contribute considerably to monitoring progress towards the implementation of all three conventions by harmonising the reporting of the measures they have taken in support of the convention. Efforts underway in the DAC to allow the statistical recording of DAC Members' development co-operation in support of the Desertification, Climate Change and Biodiversity Conventions are an important step in this direction.

6.1.3. Enhance global environmental governance

120. Many environmental and social processes transcend national boundaries and have to be dealt with on a global scale. Global collective action requires an effective international governance structure. In the process leading up to the World Summit in Johannesburg 2002, the discussion has started on the existing global governance structure. At the moment, global environmental governance is based on numerous treaties, agreements, financial mechanisms and organisations. Awareness of the effective use of the available resources, constraints to implementation, and common responsibilities led to the acknowledgement that a coherent vision is needed to strengthen the international community's ability to monitor the global environment, respond effectively to global environmental problems, promote appropriate strategies for collective action, and ensure compliance with agreed commitments.

121. Collaboration amongst government, civil society and the private sector has to be an integral part of the international governance structure, covering environmental, social and economic concerns. The threat of current developments concerning climate change, biodiversity loss and desertification to national development concerns has been described. Because the debate on the international governance structure includes protective and regulatory institutions, the relevance for mainstream development sectors is evident. Consequently, these sectors should also be more engaged in the process leading up to international contributions by developing countries.

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[21] This section draws heavily on the brainstorming sessions held at the Workshop of the Task Force on Global Environmental Conventions, 15 – 16 November 2001, The Hague.

6.2. At the National Level and in Development Agencies Headquarters

6.2.1. Make a clear commitment to mainstreaming global environmental issues

122. The commitment of agency leaders and senior management to these objectives is essential in promoting the mainstreaming of global environmental issues within agencies. A commitment to integrating global environmental issues in relevant policies, programs and projects must therefore be reflected in Agencies' general mission statements, "business plans" and other documents setting out priority goals.

123. Since all agencies have multiple objectives, (e.g. poverty reduction, gender equality, conflict prevention etc.) strategies to mainstream global environmental issues should focus on highlighting the linkages between global as well as local environmental issues and other central objectives, and resulting opportunities for complementary "win-win" approaches. The inherent cross-sectoral nature of local and global environmental issues implies that commitment to mainstreaming must be shared - and stated explicitly by senior-level staff - widely across the agency, and not confined to environmental departments of units.

124. Commitment to mainstreaming global environmental issues should also be reflected in regular dialogue and partnerships with multilateral agencies or NGOs, in order to encourage similar efforts in these agencies.

125. Other means to signal and re-affirm this commitment include, for example, the participation of senior representatives of the agency to relevant international events focussing on global environmental issues, such as the Conference of the Parties held in connection with the Desertification, Climate Change and Biodiversity Conventions; as well as regular monitoring of progress towards the goal of mainstreaming and the establishment of effective instruments to this end.

6.2.2. Intensify links with other ministries and agencies involved in global environmental issues

126. International negotiations relating to global environmental issues and associated UN Conventions are frequently led by Environmental Ministries. Active participation of development co-operation agencies in these negotiations and the formulation of national positions are important ways to ensure that the agreement made reflect relevant experience in the field. This is particularly crucial when developed countries make commitments, which ultimately have to be operationalised through development co-operation agencies.

127. Other ways to foster common approaches with other ministries and agencies involved in global environmental issues include regular exchanges of view among senior policy makers, staff exchanges and others.

6.2.3. Mainstreaming in the context of sector policies and strategies

a) Awareness raising

128. The problems addressed by the conventions are often seen as low-priority by agency staff. Raising awareness of their direct relevance and importance is a necessary first step. A good starting point for this is to highlight the vulnerability of developing countries to the impact of global environmental issues, notably climate change and development.

129. Key issues to be emphasised include:

- The high vulnerability of poor countries, and notably the poorest among them, to extreme events expected to be associated with climate change (storms, floods) and desertification (droughts);
- The risks that desertification and climate change will increase competition over already strained land and water resources, leading to violent conflicts;
- The strong linkages between natural disasters and global issues such as climate change and the impact on critical infrastructure such as irrigation or flood control facilities, including those established with donor support;
- The distributional effects of these impacts, which fall disproportionately on the poorest;
- The wide scope for combining sound development (e.g. combating land degradation and improving rural livelihoods) with the reduction of vulnerability and the complementarities between sound policy reforms (e.g. reducing energy subsidies to improve energy efficiency) with global objectives (e.g. reducing greenhouse gas emissions).

b) Integration in country/regional policies

130. The need to integrate global environmental issues in all relevant sectors is a key message of this document. Global environmental issues should be given proper recognition in documents outlining sectoral policies and priorities. They should also be identified systematically in the context of sector-wide programmes, and associated policy dialogue, with a view to availing of any win-win opportunities and minimising conflicts between local and global objectives where they exist.

131. This should focus on the sectors where these issues are most directly relevant

- For climate change issues: energy, transport, industry, urban development, agriculture and forestry;
- For desertification issues: agriculture and livestock, water management, energy;
- For biodiversity issues: forestry, agriculture, coastal zone management, and fishery.

132. Efforts to identify the impact of global environmental issues development co-operation programs should focus first on the countries and regions which are most vulnerable to the impact of global environmental degradation.

133. Another important way to foster mainstreaming is to assign responsibility for global environmental issues to relevant sectoral units. Too often, global environmental issues and associated international negotiations are the exclusive responsibility of environmental units, which hinders their integration in operations. This may imply, for example assigning responsibility for the UN Convention to Combat Desertification to the section(s) of the agency dealing with agriculture and rural development.

c) Stocktaking of current relevant activities across institutions

134. There is currently no systematic record of which institutions are involved to which degree in convention work. This would be called for particularly in light of the possibility of overlapping work

between different agencies. Such a systematic record should show, firstly, which institutions have which budgetary provisions for action taken to promote to goals of the convention, and secondly which institutions are involved in specific kinds of programmatic work towards the goals of the convention.

d) Strengthening agencies' analytical and policy formulation capacities

135. Agencies need to strengthen their capacity for cross-sectoral policy analysis and integration. This requires applying analytical tools and methodologies which help to identify relevant linkages between local development issues and global environmental issues, and quantify associate benefits and costs and formulate appropriate policy and programming responses. Relevant tools include, for instance, Strategic Environmental Assessment (see Section V above) or the extension of standard economic analysis to include environmental economics. Existing mechanisms such as state of environment reporting, poverty-environment studies, participatory poverty assessment, as well as established "environmental safeguard procedures" such as EIA can be build upon for this purposes.

e) Mainstreaming in country programming

136. Donors can highlight the importance of global environmental issues and their links with development objectives, by systematically putting these issues on the agenda of their regular dialogues with senior policy-makers from partner countries, in relation to aid programming.

137. At the same time, it may be useful to require that the annual reports prepared by Embassies or other country level representatives provide a systematic review of global environmental issues in the country in question.

f) Establishing special funds or "pilot projects"

138. Global environmental issues raise unfamiliar questions for development co-operation agencies. Similarly, the mechanisms emerging from the associated global agreement, e.g. the Clean Development Mechanism established under the Climate Change Convention are new and untested**.** This may call for specific funds or pilot-scale projects to experiment with new approaches, demonstrate their feasibility, helping create a critical mass of concrete experience. Special pilot projects focussing on vulnerability and adaptation may also be justified for particularly vulnerable countries such as Bangladesh, countries in the Caribbean, and the Pacific Island states.

139. In addition to fostering mainstreaming of global issues in standard operations, such special mechanisms may also be instrumental in bringing best practices in the field to the negotiations of the conventions.

140. France's Fond Français pour l'Environnement Mondial (FFEM) provides an example of such a mechanism established at the bilateral level. While this mechanism is targeted at global environmental issues, with eligibility criteria modelled after those of the Global Environmental Facility (GEF), it targets *"exemplary projects that form part of broader sustainable development programmes integrating environment into development policy*."[22] As such, the mechanism is an instrument for mainstreaming global environmental issues in France's bilateral co-operation programmes.

[22] DAC Aid Review of France, 1997.

141. The Canada Climate Change Development Fund provides another example of a special mechanism targeted at global environmental issues. Its goal is to *"promote activities in developing countries that seek to address the causes and effects of climate change, while at the same time contributing to sustainable development and poverty reduction."*[23]. The governance structures of both the FFEM and the CCDF involve co-operation across several ministries and/or departments, which fosters cross-sectoral integration and ensure inputs from expertise at various levels and from various disciplines.

6.3. Mainstreaming at the Partner Country Level

6.3.1. Integration in Country-level Planning Frameworks

142. As noted in Section V above, the integration of global environmental issues in country -level strategic planning frameworks, such as "National Visions", "National Agenda 21" and Poverty Reduction Strategies (PRS) is a priority. This requires, among others, integrating the national action plans formulated under the global environmental conventions in relevant national or sub-national or even regional-level planning processes.

143. A priority in this connection is to develop close links between the Ministries and agencies responsible for global environmental issues (usually environmental ministries), the line ministries responsible for the relevant sectors and the ministries responsible for planning and finance. For example, the Ministry of Agriculture should play a key role with regard to implementation of the National Action Plan to combat desertification. At the same time the NAP must be linked with national level budget allocation mechanisms, in order to ensure consistency between its objectives and available financial resources. Effective cross-sectoral mechanisms will be required at all relevant levels (regional, national, regional and local).

144. A key challenge will be to foster greater coherence and complementarity between previously unrelated processes, without undermining their integrity. For examples, many of the National Action Plans to combat desertification have been developed through participative mechanisms and have thus acquired a legitimacy of their own.

145. Factors of success in integrating these various processes include:

- Country ownership of activities addressing global environmental issues.
- The participation of all relevant actors in policy and planning processes. For example, convention focal points have seat on the PRSP table.
- Multi-agency training activities. For example, local staff from key development agencies should be trained in environment-poverty linkages
- Supportive donor co-ordination mechanisms

[23] Source: Canadian International Development Agency.

Box 18. Mainstreaming global environmental issues in PRSPs: Examples of good practice

A review of 38 PRSPs, conducted by the World Bank, noted slow progress in mainstreaming global environmental issues. However, examples of good practice were identified.

The **Kenya IPRSP** presents a description of the environmental issues relating to land use and water and suggests strategies, monitoring indicators and cost of implementation of the strategies relating to land use, water and energy. It is also sensitive to loss of biodiversity. It highlights the links between property rights and natural resources management and proposes *"to implement land law system to create an efficient and equitable system of land ownershi*p". In the context of water, the PRSP notes that*"the incidence of violation of water rights, conflicts, and pollution have dramatically increased."*

The **Mauritania PRSPs** acknowledge the critical importance of draught and desertification issues. *"With the exception of mining and fisheries, the country is under-endowed in directly exploitable natural resources. Vegetation and forest resources are sparse and water resources, both surface and underground, are either limited or difficult to reach. Due tolimited water resources, the arable land potential of Mauritania is less than 0.5 million ha(< 1% of country's geographical area). In addition, 60% of the farms are less than 1 ha and lack secured tenur*e."

The **Burkina Faso PRSP** notes that climatic conditions, low agricultural productivity, related to degradation of soil and water resources, are major constraints to economic growth and contribute to massive poverty and severe food insecurity among rural inhabitants. Income from farming and livestock raising is highly dependent on rainfall, which varies considerably from year to year.

The **Honduras IPRSP** presents a detailed assessment and quantification of vulnerability due to hurricane Mitch. The PRSP notes that *"Hurricane Mitch had a severe impact on living conditions in Honduras and this in turn affected poverty levels nationwide."*

Some of the PRSPs reviewed **(Honduras, Burkina Faso, Mauritania and Guinea)** present maps showing regional distribution of poverty, population and natural resource attributes. Poverty and resource maps help in the assessment of spatial and temporal relationships between poverty and the resource base. They can also be used to track the impacts of policy and management interventions relating to poverty reduction.

Source: The World Bank PRSP Sourcebook.

6.3.2. Sector-wide approach

146. A sector-wide approach is a development co-operation strategy to enhance the effectiveness of aid, through the support to a sector[24] as a whole, jointly by the government and multiple donors. Policy and programmes are to be based on a thorough consultation process involving all stakeholders, and common approaches should be adopted across the sector. When the planning in a sectoral context starts from the micro level, the likelihood is increased that the aims and possibilities of the target group are incorporated. The ultimate aim of the approach is that donor interventions are in the form of macro level support only, under appropriate country circumstances. The approach promotes donor co-ordination and policy coherence.

147. The sector wide approach provides an major opportunity to mainstream global environmental concerns and poverty reduction efforts into the supported sector because of its comprehensive and

[24] A sector is defined as a coherent set of activities at the micro, meso, and macro level, within an institutional and budget framework, for which the government has a defined policy.

participatory characteristics. This co-operation approach can not only promote the participation of the sector in Conventions preparations and the cross-sectoral implementation of Rio Convention Action but also promote the adaptation of the approaches and instruments identified in Section V.

6.3.3. Integration through existing projects and programs

148. Donors are already supporting efforts in a number of areas of direct relevance to one or several global environmental issues. A systematic review of these efforts could help identify important linkages and, in some cases, suggest necessary changes to ensure consistency with global environmental objectives. The development of common databases at the country level to keep track of projects and activities that have a direct impact on global environmental issues would play an important role in facilitating donor co-ordination and more efficient use of resources.

Box 19. Integrated area development programmes: promising entry points to tackle desertification

Bilateral and multilateral co-operation agencies as well as NGOs are already involved in supporting programmes and projects of direct relevance to combating desertification at the local level. These initiatives, which can be found in the fields of, for example, agriculture and water management, provide ready entry **points for field-testing** new approaches to implementing the convention. Integrated area development programmes, in particular, provide special opportunities to experiment with cross-sectoral participatory approaches on a relatively limited scale. They could provide a means to i) identify synergies between priority socio-economic development needs and the longer term objectives of the convention; ii) test new approaches in the area of multi-sectoral needs assessment; planning, programming and co-ordination; iii) develop measurable objectives and indicators of implementation progress and iv) identify relevant macro-level policy reform needs. In general, donors should also consider supporting integrated programmes rather than distinct project activities and draw form the long-term perspectives.

6.3.4. Donor Co-ordination

149. At the country level, the focus should be on developing, or refining, donor co-ordination mechanisms, with a view to harmonising interventions and maximising the effectiveness of external resources. Developing common training materials and programs for use by Embassy and other country-based staff could also help co-ordination.

150. It may also be useful in some cases to establish donor co-ordination mechanisms centring on global environmental themes, rather than just around sectoral themes as is currently practised, notably in relation to sector-wide approaches. The “Tandem Chef de File”, whereby a bilateral donor teams up with a multilateral agency, to assume leadership for a given sector or theme, is a valid mechanism which should be considered. Putting issues relating to global environmental issues on the agenda of donor co-ordination mechanisms such as Consultative Groups and Round Tables would also foster integration.

6.3.5. Capacity building

151. All three Rio Conventions identify a wide variety of fields - e.g. capacity to comply with reporting obligations, capacity for scientific monitoring and technology assessment; capacity for policy formulation - where capacity building will be needed. Although the GEF has primary responsibility for providing assistance these areas, its efforts could be complemented by bilateral donors.

a) Needs related to specific global environmental issues

- Needs directly relevant to **Climate Change issues** include: capacity for the formulation of measures for adaptation to the impact of climate change (particularly for countries identified to be vulnerable to climate- related natural disasters); capacity to identify and monitor main sources of GHG emissions; develop greenhouse gas inventories, assess mitigation and adaptation options in the context of environmental management strategies, formulation of national programmes to address climate change as part of national development plans; and many other disciplines.

152. Technology co-operation will also have an important role to play in assisting developing countries address climate change. We know from long experience that the main constraint to the rapid diffusion of cleaner production is the lack of human, institutional, technical, managerial and financial capacities needed to manage technological change. Areas where support could be provided include technology needs assessment; the identification of sources and suppliers, the determination of optimal modalities for the acquisition and absorption of relevant technologies and the assessment of policy options for reducing barriers to technology transfer (including in the financial and fiscal policy spheres).

153. Many countries will also require assistance to develop the policy and institutional framework necessary to attract private investment in support of climate-friendly projects. This will be important to enable them to avail of opportunities arising from emerging mechanisms such as the Clean Development Mechanism.

- In the case of desertification, assistance will be required for the establishment or strengthening of early warning systems; mechanisms for assisting environmentally displaced persons; drought preparedness and management systems; drought contingency plans; food security systems, including storage and marketing facilities in rural areas; the promotion of alternative livelihood projects to provide incomes in drought-prone areas and the development of sustainable irrigation programmes for crops and livestock.
- Capacity needs specifically relevant to Biodiversity include assessment of the impact of climate change on biodiversity, especially in relation to forests, research on indigenous knowledge of conservation of forest resources, the establishment of long-term reliable access to relevant scientific information networks and data bases, including notably through internet, and human resource development in a wide a range of scientific disciplines including information technology.

b) Capacity to participate in global negotiations

154. Development co-operation agencies could also assist developing countries improve their capacity to participate effectively in international debates and negotiations on Global Environmental Conventions.

c) Generic Capacity development needs

155. Many of capacity development in areas such as such as forecasting, monitoring of ecological and socio-economic conditions, disaster mitigation, are relevant to all three Rio conventions, particularly for countries identified to be vulnerable to climate- related natural disasters. Capacity development programs will have to take account of these many overlaps and synergies.

156. Moreover, many other capacity development needs identified in the Rio Conventions are in fact relevant to broader national planning processes. These include capacity for cross-sectoral policy-making,

planning and programming; dialogue, negotiation, mediation, conflict resolution, education and awareness raising. These relate directly to development planning and policy-making processes in sectors such as agricultural development, energy, transport and many other key economic sectors. In line with the focus on cross-sectoral integration outlined in this document, it will be essential to formulate capacity development programmes addressing global environmental issues within the context of broad capacity development needs, thereby helping integrate global environmental issues within the context of broader strategies for sustainable development. It will be essential, in particular to avoid creating "islands of capacity" tailored to each of the Conventions but isolated from other processes and therefore with limited impact.

6.3.6. Mainstreaming at the Project level: Building on existing 'safeguard' procedures

a) Modify existing 'safeguard' procedures to cover global environmental issues

157. Project-level assessment procedures for safeguarding purposes are well-established in development co-operation agencies. In many cases, issues relating to global environmental conventions can readily be "built in" existing procedures. Assessing potential vulnerability to long term climate change, and making necessary design changes, is particularly important, in the case of large-scale capital infrastructure projects with high initial costs and a long physical life.

b) Expand the coverage of safeguard procedures to ensure that all relevant projects are covered

158. 'Safeguard' assessments, as carried out today, aim to identify and address risks *by* the project *to* the natural environment, rather than the other way round. Consequently, assessments are not required for projects that do not impact on the environment substantially, even if they may face risks from the natural environment themselves (such as hospitals or school buildings in a flood-prone area).

159. 'Safeguard'assessments are also often waved for emergency reconstruction projects, although these projects deal with areas that are almost certainly very vulnerable to environmental influence or natural hazards. Disaster recovery and rehabilitation generally focus on the restoration of conditions to the pre-disaster state. Thus, important risks, relating, for example to long term climate change are "missed" out and opportunities to reduce vulnerability for future events are forgone.

160. Addressing this limitation would imply reviewing the criteria used to screen projects and determine whether an assessment is required, to ensure specific assessment of vulnerability to, for example, floods, storms, drought.

ANNEX 1. IMPACT OF GLOBAL ENVIRONMENT ON SECTORS[25]

	AGRICULTURE SECTOR	ENERGY SECTOR	FORESTRY SECTOR	WATER SECTOR
IMPACT OF BIODIVERSITY LOSS ➔	• Loss of genetic variety Increases vulnerability to catastrophic plague • Loss of wild relatives to drawn on for improving genetic pool		• Reduced genetic and species diversity reduces resiliency and productivity • Loss of valuable tree species	• Loss of aqua-biodiversity can reduce fresh water productivity • Some species perform water filtration and quality functions • Invasive species and negatively impact water quality
IMPACT OF CLIMATE CHANGE ➔	• Pole-ward shifts of agricultural productivity in mid-latitudes • Increased stress on crops • Increased crop and livestock loss to disease • Decreased yields due to changes in rainfall and more severe floods/droughts • Changes in CO2 level in atmosphere affect physiological functioning of plants	• Changes in climate could alter the amount, frequency, and distribution of precipitation and impact the production of hydropower. • Changes in climate could change energy demands for heating/cooling	• Climate change affects boundaries, composition, and functioning of forests • Climate change affects production of wood and fiber • Changes in species composition • Forests are not able to migrate quickly enough to adapt to changing climatic conditions resulting in die backs • Changes in CO2 level in atmosphere affect physiological functioning of plants	• Alteration of global hydrological cycle can result in floods and droughts
IMPACT OF DESERTIFI-CATION ➔	• Climate change and desertification can exacerbate each other through positive feedback loops • Lower yields due to decreased soil productivity	• Less availability of fuel wood	• Loss of forest cover	• Climate change could result in warming and drying of climate, decreasing water availability and increasing desertification rates. • Desertification can alter mico climatic conditions and reduce water availbility

[25] UNEP, NASA, World Bank, November 1998. *Protecting Our Planet, Securing Our Future; Linkages Among Global Environmental Issues and Human Needs.*

BIODIVERSITY LOSS ➔	• Expanding land cultivation converts diverse ecosystems to fields growing only a few species • Fragmentation of remaining intact habitats • Proliferation of invasive, weedy species	• Changes in the climate system (see below) will in turn affect biodiversity and ecological systems	• Harvesting forests results in habitat loss and fragmentation of remaining habitat, resulting in declines in biodiversty	• Water withdrawals from rivers and streams can lead to reduced flow and periodic drying, with potentially negative effects on aquatic biodiversity
CLIMATE CHANGE ➔	• Forest conversion for agriculture leads to net loss of carbon to atmosphere that accompanies the deforestation • Release from chemical fertilizer of nitrogen gases (some of which are strong greenhouse gases) into atomsphere	• Burning fossil fuels for energy increases emissions of carbon dioxide into the atmosphere which contribute to human-caused climate change • Fossil fuel burning also results in release of nitrogenous gases, some of which contribute to global warming	• Timber harvesting results in a net release of carbon dioxide into the atmosphere (the smaller, younger trees or other vegetation planted to replace mature trees contain much less carbon)	•
DESERTIFICATION ➔	• Soil degradation when agriculture strategy does not include nutrient and structural enhancements of the soil • Extensive irrigation on thin soils in semi-arid or arid climates can lead to land degradation and salinization of soils	• Sulfur compounds resulting from fossil fuel burning are major contributors to acidification of waters and soils	• Removing physically stabilizing root systems can accelerate erosion and topsoil loss by reducing capacity of the soils to absorb rainwater and hence control runoff • Soil erosion decreases fertility of originally forested landscape and makes forest regeneration more difficult	• Reduction of available surface or groundwater can lead to land degradation and desertification

ANNEX 2. GLOBAL ISSUES AND DEVELOPMENT SECTORS: SECTORAL STRATEGIES TO MITIGATE GLOBAL ENVIRONMENTAL THREATS

Annex 2A. AGRICULTURE

	Synergies		
Sector	On national level	On sectoral and local level	Rio Conventions
General	Stimulate the involvement of the agriculture sector in: - Poverty-Reduction Strategies (PRS) - Cross-sectoral Environmental Policy and Action Plan - National Sustainable Development Strategies (NSSD) - National Land-Use Planning System. Promote participation in cross-sectoral councils, e.g. national council for sustainable development.	Integrate focused action into agriculture strategies, policies, action plans and area management plans; Promote ecosystem-based land-use planning; Monitoring of effects of agricultural practices Create an enabling environment: - Mainstream Rio Convention Commitments in Legislation - Awareness-raising - Capacity building - Institutional Development - EIA/SEA	*Included in FCCC:* *- Art. 4.1e: Elaboration of plans for the management of agriculture.* *Included in CBD:* *- Art. 8c: Regulation and management of biological resources.* *- Art. 8i: Compatibility between use and conservation.* *- Art. 8j: Knowledge of indigenous and local communities.* *- Art. 8l: Regulation or management of threats to biodiversit.y* *- Art. 10b: Measures for sustainable use.* *- Art. 10c: Customary use.* *- Art 16: Intellectual property rights.* *- Dec.III/11: Conservation and sustainable use of agricultural biodiversity* *Included in CCD:* *- Art. 10.3e: Sustainable irrigation programs* *- Art. 10.4: Ecological sustainable agricultural practices*

Agriculture	Raise awareness on global concerns: - Sinks and reservoirs - Greenhouse gas emissions (methane) - Land degradation and desertification - Agriculture biodiversity - Conversion of land for agriculture, biodiversity loss and sustainable use - Pollution - Genetically modified organisms - Intellectual property rights	*Related to traditional agriculture:* Develop security of tenure Conserve agriculture biodiversity Stimulate soil fertility programmes Sustainable agricultural practices and increased production Research, Training and Education Community based biodiversity conservation Promote certification from environmental friendly products Develop financial services to traditional producers in buffer zones *Related to industrial agriculture:* Stimulate Integrated Pest Management Stimulate sustainable practices, fertiliser use and soil fertility programmes Integrate biodiversity corridors with the provision of environmental services to intensive agriculture farms Decrease environmental pollution and waste Decrease the use of Chemical Organic Pollutants Internalise environmental costs Regulate the introduction of GMOs Introduce efficient and environmental friendly production techniques (e.g. zero-tillage) Promote the use of new feed mixtures and additives Promote shifts in wet rice cultivation practices	

Annex 2B. ENERGY

	Synergies		
Sector	On national level	On sectoral and local level	Rio Conventions
General	Stimulate the involvement of the energy sector in: - National Sustainable Development Strategies (NSSD) - Poverty-reduction strategies (PRS) - National Land-Use Planning System - Cross-sectoral Environmental Policy and Action Plan	Integrate focused action into energy strategies, policies, and electrification plans; Promote ecosystem-based land-use planning; Create an enabling environment: - Mainstream Rio Convention Commitments in Legislation - Awareness-raising - Capacity Building - Institutional Development - EIA/SEA	*Included in FCCC:* *- Art. 4(3): Financial resources for mitigation* *- Art. 4(5): Development and transfer of technologies* *- Art. 4(9): Least Developed Countries* *- Dec. 10: Capacity Building* *Included in CBD:* *- Art. 8l: Regulation or management of threats to biodiversity.* *Included in CCD:* *- Art. 10.4: Development and efficient use of various energy sources.*
Energy sector	Raise awareness on global concerns: - Greenhouse gas emissions and resulting climate change - Linkage between emissions of GHG and hazardous substances - Positive influence of undistorted prices on efficient use of natural resources - Possible environmental risks on local and global environment also from renewables (e.g. hydropower) - Firewood vis-à-vis land degradation/desertification	- Reduce price distortions and subsidies to promote prudent use; - Expand financial co-operation to provide energy services to small scale end users; - Promote the use of renewable energy sources; - Stimulate involvement in off-grid energy schemes; - Stimulate technology to reduce emissions; - Promote public urban transport; - Develop and promote efficient use of various energy sources in dry land areas; - Develop an ecosystem-based Energy Plan for the Rural and Urban Poor.	

Annex 2C. FORESTRY

	Synergies		
Sector	On national level	On sectoral and local level	Rio Conventions
General	Stimulate the involvement of the forestry sector in: - Poverty Reduction Process (PRS) - Cross-sectoral Environmental Policy and Action Plan - National Sustainable Development Strategies (NSSD) - National Land-Use Planning System. Promote participation in cross-sectoral councils, e.g. national council for sustainable development.	Integrate focused action into forestry strategies, policies, action plans and area management plans; Promote participation in ecosystem-based planning; Create an enabling environment: - Mainstream Rio Convention Commitments in Legislation - Awareness-raising - Capacity Building - Institutional Development - EIA/SEA	*Included in FCCC:* *- Art.4.1d: Sustainable management of sinks and reservoirs.* *Included in CBD* *- Art. 8c: Regulation and management of biological resources.* *- Art. 8i: Compatibility between use and conservation.* *- Art. 8j: Knowledge of indigenous and local communities.* *- Art. 8l: Regulation or management of threats to biodiversit.y* *- Art. 10b: Measures for sustainable use.* *- Art. 10c: Customary use.* *- Art 16: Intellectual property rights.* *Included in CCD:* *- Art. 10.4: Sustainable management of natural resources.*
Forestry	Raise awareness on global concerns: - Sinks and reservoirs - Land degradation (soil erosion) - Role of forests in watersheds and reservoirs - Bioprospecting in forests and Intellectual Property Rights - Clearance, biodiversity loss and sustainable use - Degradation of biodiversity in forests - Role of forests in mitigating environmental disasters	Ecosystem-based zoning of uses and management. *Related to forest use by rural population:* - Production of fire-wood and charcoal - Harvesting of non-timber forest products - Hunting of wildlife - Indigenous knowledge and skills - Community-based conservation *Related to timber production:* - Sustainable Forest Management and Certification - Conservation of biodiversity - Management of FCCC sink	

ANNEX 3A. AGRICULTURE, ECOSYSTEM GOODS AND SERVICES, AND GLOBAL ENVIRONMENT LINKAGES

IMPACT ON ECOSYSTEMS THEIR GOODS AND SERVICES : AGRICULTURE

Ecosystem	Ecosystem Goods	Ecosystem Services
Agro-ecosystems	Food crops Fiber crops Crop genetic resources	Watershed functions Habitat Soil organic mater Carbon sequestration Employment

(1) What is the impact of the agriculture strategy/project on quality of soil, genetic diversity for crops, and capacity for carbon sequestration?

(2) To what extent does the agriculture strategy/project substitute traditional/native crops/farming systems with new crops/technologies (e.g. Cash crops, biotechnology, etc.)? What is the impact of such substitution on the land and on the people (livelihoods, food security, cultural integrity) that have been traditionally dependent this such land?

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal, without the tradeoffs that have been identified?

Ecosystem	Ecosystem Goods	Ecosystem Services
Coastal Ecosystem	Fish and shellfish Fishmeal Seaweed Salt Genetic resources	Moderate storm impacts Wildlife Biodiversity Dilute and treat wastes Harbors and transportation Human habitat Employment Aesthetic, recreation

(1) Where applicable, what is the impact of the agriculture strategy/project on the coastal resources as mangroves, coral reefs and seagrasses? What is its impact on water quality (agricultural runoffs, pollution, etc.)? What is its impact on coastal fisheries?

(2) What is the impact of the agriculture strategy/project on the food and livelihood security and cultural integrity of affected coastal communities (e.g. fisher folk, tourism, transportation, etc.)?

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?

Ecosystem	Ecosystem Goods	Ecosystem Services
Forest Ecosystem	Timber Fuel wood Drinking and irrigation water Non-timber products Food Genetic resources	Remove air pollutants Cycle nutrients Watershed functions Biodiversity Carbon sequestration Moderate weather extremes Generate soil Provide employment Human and wildlife habitat Aesthetic, recreation

(1) Will the strategy/project lead to extensive deforestation, including the conversion of natural forests into agricultural lands? What is the impact of such conversion on overall forest cover, timber and fuel wood supply, biodiversity (ecosystem, species, genetic), extent and quality of watersheds, capacity for carbon sequestration?

(2) What is the impact of the agriculture strategy/project on forest dependent communities in terms of livelihood (e.g. non-timber products, agro-forestry, tourism), cultural integrity (e.g. indigenous peoples) and in terms of physical security (e.g. protection from weather events, soil erosion, etc.)

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?

Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Freshwater Ecosystem	Drinking and irrigation water Fish Hydroelectricity Genetic resources	Buffer water flow Dilute and carry away wastes Cycle nutrients Maintain biodiversity Aquatic habitat Transportation corridor Employment Aesthetic, recreation

(1) Will the agriculture strategy/project have an impact on the water quality of lakes, rivers, etc? Will it enhance or diminish the capacity of freshwater ecosystems to become sources for drinking water, irrigation and energy? What is its impact on biodiversity (ecosystem, species, genetic diversity) in these systems? What is its impact on aquatic fisheries?

(2) What is the impact of the agriculture strategy/project on the livelihood of surrounding communities (fisheries, tourism, transportation, etc)? Will there be significant health impacts to such communities as a result of the strategy/project (e.g. water pollution)

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that have been identified?

Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Grassland Ecosystem	Livestock Drinking and irrigation water Genetic resources	Maintain watershed functions Cycle nutrients Remove air pollutants Maintain biodiversity Generate soil Sequester carbon Human and wildlife habitat Employment Aesthetic, recreation

(1) Will the strategy/project lead to the conversion of grasslands into agricultural lands? What is the impact of such conversion on biodiversity (ecosystem, species, genetic diversity), and on the watershed and carbon sequestration functions of grasslands?

(2) What is the impact of the agriculture strategy/project on the livelihood and cultural integrity of grassland based communities?

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?

ANNEX 3B. ENERGY, ECOSYSTEM GOODS AND SERVICES, AND GLOBAL ENVIRONMENT LINKAGES

IMPACT ON ECOSYSTEMS THEIR GOODS AND SERVICES : ENERGY		
Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Agro-ecosystems	Food crops Fiber crops Crop genetic resources	Watershed functions Habitat Soil organic mater Carbon sequestration employment
(1) What is the impact of the energy strategy/project on agricultural lands? In particular, will prime agricultural land be converted into industrial or other use (plant development, pipeline construction, roads, etc.) and to what extent? What is the impact of such conversion on food and fiber production? Will this conversion result in diminution of genetic diversity for crops? What is its impact on capacity for carbon sequestration? (2) Who will be affected by the energy strategy/project? Is there an impact on existing livelihoods, the food security and human health of affected communities, and on their cultural integrity? (3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?		
Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Coastal Ecosystem	Fish and shellfish Fishmeal Seaweed Salt Genetic resources	Moderate storm impacts Wildlife Biodiversity Dilute and treat wastes Harbors and transportation Human habitat Employment Aesthetic, recreation
(1) Where applicable, what is the impact of the energy strategy/project on such coastal resources such as mangroves, coral reefs and seagrasses (e.g. impacts of port, pipeline construction and other infrastructure development)? Will the energy strategy/project result in diminution of water quality (e.g. pollution)? What is its impact on coastal fisheries? (2) What is the impact of the energy strategy/project on the food and livelihood security and cultural integrity of affected coastal communities (e.g. fisher folk, tourism, transportation, etc.) (3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?		
Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Forest Ecosystem	Timber Fuel wood Drinking and irrigation water Non-timber products Food Genetic resources	Remove air pollutants Cycle nutrients Watershed functions Biodiversity Carbon sequestration Moderate weather extremes Generate soil Provide employment Human and wildlife habitat Aesthetic, recreation

(1) Will the energy strategy/project lead to deforestation, including the conversion of natural forests into other uses (industrial – dam construction, plant development, pipeline construction, roads, etc.)? What is the impact of such conversion on overall forest cover, timber and fuel wood supply, biodiversity (ecosystem, species, genetic), extent and quality of watersheds, capacity for carbon sequestration?

(2) What is the impact of the energy strategy/project on forest dependent communities in terms of livelihood (e.g. non-timber products, agro-forestry, tourism), cultural integrity (e.g. indigenous peoples), and in terms of physical security (e.g. protection from weather events, soil erosion, etc.)

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?

Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Freshwater Ecosystem	Drinking and irrigation water Fish Hydroelectricity Genetic resources	Buffer water flow Dilute and carry away wastes Cycle nutrients Maintain biodiversity Aquatic habitat Transportation corridor Employment Aesthetic /recreation

(1) Will the energy strategy/project have an impact on the water quality of lakes, rivers, etc? Will it enhance or diminish the capacity of freshwater ecosystems to become sources for drinking water, irrigation and energy (e.g. dam construction)? What is its impact on biodiversity (ecosystem, species, genetic) in these systems? What is its impact on aquatic fisheries?

(2) What is the impact of the energy strategy/project on the livelihood of surrounding communities (fisheries, tourism, transportation, etc)? Will there be significant health impacts to such communities as a result of the strategy/project (e.g. water pollution)?

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that has been identified?

Ecosystem	**Ecosystem Goods**	**Ecosystem Services**
Grassland Ecosystem	Livestock Drinking and irrigation water Genetic resources	Maintain watershed functions Cycle nutrients Remove air pollutants Maintain biodiversity Generate soil Sequester carbon Human and wildlife habitat Employment Aesthetic, recreation

(1) Will the strategy/project lead to the conversion of grasslands into other uses (industrial – plant development, pipeline construction, roads, etc.)? What is the impact of such conversion on biodiversity (ecosystem, species, genetic), and on the watershed and carbon sequestration functions of grasslands?

(2) What is the impact of the energy strategy/project on the livelihood and cultural integrity of grassland based communities?

(3) What can be done to mitigate the negative impacts? Are there alternatives to the proposed strategy/project that would meet the development goal without the tradeoffs that have been identified?