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supplies with surface water. Attempts at reversing saline intrusion have met with only limited success. Subsidence may be arrested but is not realistically reversible by any artificial means.

Watershed Planning and Management

17. Water use and land use are interrelated. Water use decisions in one part of a watershed are likely to pose opportunities and constraints for users in another part. These circumstances argue for integrated planning on a watershed basis, to ensure that the basin's water is not overcommitted, that upstream water users do not deprive those downstream of opportunities, that projects meet their intended purposes, and that patterns and amounts of growth are kept in balance with the capacity of the water resources. Tools and technical knowledge exist to accomplish such planning and management. The difficulties are institutional. Water resources do not respect political boundaries, and there is thus a need for an institution with sufficient capacity and power to influence land and water use decisions in multiple jurisdictions. This frequently entails a corresponding willingness on the part of those jurisdictions to subordinate their authority to the watershed institution. In projects which depend on watershed-wide planning and management, EA teams should carefully analyze the institutional structure, the needs for strengthening it, and whether it is politically realistic to anticipate success in the effort.

Natural Hazards

1. Major areas of the world are subject to risks from natural hazards. Earthquakes, volcanic eruptions, droughts, floods and hurricanes hinder development through their direct, indirect and cumulative impacts. There is a two-way, direct relationship between environmental deterioration and natural hazards; that is, soil erosion, deforestation, desertification, and coastal degradation increase the risks of extreme events, and in turn, natural hazards exacerbate environmental degradation. Furthermore, the potential for human and economic losses in an area is directly related to its vulnerability to natural hazards.

2. The resilience and sustainability of development may be significantly improved by reducing disaster vulnerability. Reducing losses from natural hazards can be brought about through appropriate and sound planning strategies and management. Disaster-resilient planning and management must be based on a sound understanding of natural hazard risk and such understanding must be incorporated into social and economic planning. In addition, scenarios concerning climate change indicate a potential for sea level rise, increased severe droughts, shifting in agricultural zones and more frequent hurricanes which underline the need for efficient mitigation and preparedness.

Relationship to Bank Investments

3. Over the last decade, extreme events have increased in number and impact, seriously hampering the development process and requiring a substantial reallocation of resources from development to relief and recovery. Vulnerability to natural disasters is increasing due to continued environmental degradation, population growth, location of investments in high risk areas, and concentration of infrastructure and industry in disaster prone areas. Lending by the Bank as a response to major disasters has increased significantly in the last five years. In fiscal years 1988 and 1989, the total amount for emergency recovery—including both reallocations from existing operations and new emergency recovery projects—amounted to about four percent of the Bank's total lending portfolio. This significant amount indicates

a need to (a) increase the resilience of member-countries to disasters, and (b) incorporate natural hazard risk management into investment decisions.

4. Natural hazards are relevant in virtually every sector of Bank lending and in every region of Bank operations. Bank investments in different sectors—industry, energy, education, health, agriculture and urban development—are vulnerable to disruption from extreme events. In many countries the existing capacity in both the public and private sectors to address natural hazard risk and to integrate disaster prevention and mitigation into development programs is limited. In addition, understanding of the potential economic and financial impact of natural hazard risk is limited.

5. For example, in the industrial sector, the decision to locate a given investment in an area subject to extreme events implies taking a chance with such investment in general, and specifically with the physical plant and the well being of its employees. If the investment is destroyed by an extreme event, the true measure of the negative impact is not merely the value of the assets lost. The real measure is such loss, plus the revenues lost over the life of the industry, plus income and additional investments that would have accrued from the indirect and multiplier effects of an alternate, prospering, risk-resilient enterprise. Risk resilient enterprises in these cases, even if more expensive initially, ultimately would prove to be the more efficient use of resources. Similar examples can be drawn for other sectors, such as infrastructure, energy, agriculture, health, education and housing.

6. The most notable reasons for the failure to integrate natural hazard risk into development programs are (a) inadequate understanding of mitigation options to prevent/reduce catastrophic losses, (b) weak institutions, (c) inappropriate mechanisms for collecting and processing the necessary information about natural hazard risk, (d) lack of a coordinated policy for risk reduction across sectors, and (e) inadequate emphasis on implementing and monitoring mitigation.

Bank Experience

7. Since its creation in 1947 the World Bank has been requested to provide assistance in about 100 cases of disruption after natural disasters, such as floods, hurricanes, earthquakes, volcanic eruptions, and forest fires. Examples of the countries that have received emergency recovery assistance are:

- Bangladesh, Pakistan, Sudan, Brazil, Nepal, Yemen AR, India, Honduras, Nicaragua, Peru, Romania, and Western Samoa (for floods);
- Mexico, Nicaragua, Peru, Romania, Guatemala, Ecuador and Nepal (for earthquakes);
- Costa Rica, Jamaica, Mexico, Madagascar, Dominican Republic, Swaziland, Fiji, Mauritius, and Bangladesh (for hurricanes);
- Colombia and Iceland (for volcanic eruptions); and
- China (for forest fires).

8. In the past few years there has been an increased concern for disaster reduction in Bank programs. The inclusion of disaster prevention and mitigation in emergency recovery projects was encouraged in an Operational Policy Note on emergency lending (1984), and more recently in a Policy Paper on emergencies (November 1988) and in Operational Directive 8.50 (October 1989) on emergency recovery operations. This recommendation was based on the notion that disasters provide a "window of opportunity" to introduce measures to reduce losses. The concern for vulnerability reduction goes

beyond emergency recovery projects and recent efforts have been made to develop self-standing prevention and mitigation projects and to include those concerns in sectoral work and in country dialogue.

9. Disaster mitigation and prevention are now the main objectives of the International Decade for Natural Disaster Prevention, declared by the United Nations in the 1990s. Both international and national agencies are currently developing programs for the Decade, with significant participation from NGOs and from the private sector. Natural hazard risk reduction is also a main concern in the many initiatives currently under consideration concerning global climate change. Global climate change and the potential increase of extreme events is being discussed in a number of international fora, including *inter alia* the Intergovernmental Panel on Climate Change (IPCC) and the planning for the 1992 UN Conference on the Environment.

Bank Policy and Operational Directives

10. Operational Directive 4.00, Annex A: "Environmental Assessment" (October 1989), recommends that environmental assessments review whether the project may be affected by natural hazards and if so that they propose specific measures to address those concerns.

The policy for "Lending by the Bank for Emergencies" (issued as Operational Directive 8.50: "Emergency Recovery Assistance") was adopted by the Executive Board of Directors on November 1988. According to the policy, the main criteria for mounting an emergency lending operation include:

- focus on economic reconstruction and recovery, rather than on relief;
- demonstrable (even if not easily quantifiable) economic benefits;
- significant scale, but nevertheless temporary nature of impact of the emergency;
- urgency and effectiveness of short or medium-term action; and
- prospects for mitigating the impact of future emergencies.

11. The policies for reducing the impact of future emergencies are: (a) attention in country strategy work and in national planning and investment programs to the risks of large-scale natural disasters; (b) close collaboration in this area with the official international and NGO communities; (c) increased focus within the Bank on technologies to reduce natural hazards; and (d) inclusion of prevention/mitigation components where appropriate in regular loans as well as in emergency lending operations.

12. Operational Directive 8.50 "Emergency Recovery Assistance" addresses procedures for recovery assistance after disasters of slow and sudden onset. The OD defines the main objective of recovery assistance as the immediate restoration of assets and productivity. It outlines special considerations for designing Emergency Recovery Loans (ERLs), including:

- early involvement of Bank staff;
- limited objectives and realistic schedule;
- conditionalities linked only to the emergency rather than to macroeconomic policies;

- simple implementation arrangements and full use of existing institutions, including sector agencies, NGOs, and community groups, use of disaster-resilient reconstruction design standards; and
- inclusion of measures for preventing and mitigating the impact of future disasters.

The OD also outlines special procedures for processing ERLs, including compact documentation and simplified processing.

Guidance for Environmental Assessments

13. The environmental assessment process provides a framework within which to analyze natural hazard risk and to evaluate the costs and benefits of disaster prevention and mitigation. It also serves as a vehicle for analyzing development alternatives which do not have negative impacts on disaster vulnerability and for identifying disaster prevention and loss reduction measures.

14. In assessing natural hazard risk it is important to consider the specific qualities and characteristics of different types of disaster agents, as well as their potential direct and secondary effects. For instance, damage caused by hurricanes could be due to the direct effect of violent wind and excessive rainfall, and from the secondary effects of river flooding, storm surge and landslides. Earthquakes can have numerous direct and indirect effects such as tsunamis, fires and landslides. It is also important to identify those activities that may increase the potential for extreme events. For example, deforestation degrades watersheds, promotes erosion and soil degradation, and increases flooding. The compiled information concerning the two-way relationship between natural hazards and development should give a status profile for risk assessment as well as for response purposes.

15. The EA of natural hazard risk includes the following:

- (a) Identify specific natural hazards, including natural hazard characteristics, distribution, intensities, qualities, and historical records to review frequency, and probability of occurrence and regional and local characteristics.
- (b) Identify the critical sectors in the economy and natural resources that may be impacted by the identified hazards, analyze the constraints and conflicts that may be imposed by the natural hazards on each relevant sector and on natural resources and examine the possible structural and non-structural actions required to mitigate risks.
- (c) For each sector/area at risk, evaluate its degree of vulnerability including facilities, infrastructure and population exposed and specify mechanisms that would help in reducing the identified vulnerabilities.
- (d) For each sector/area at risk, examine standards, design criteria and maintenance practices that may foster vulnerability and make appropriate changes to help reduce it.
- (e) Identify the location of facilities such as hydroelectric plants, oil storage plants, gas storage plants, nuclear facilities or industries that may be exposed to natural hazard risks.

- (f) For the facilities/industries at risk, identify risk reduction strategies including alternate sites and analyze the cost and effectiveness of the different reduction alternatives.
- (g) Examine the institutional capabilities for disaster prevention and mitigation at the national/regional/local levels, highlighting inter-institutional coordination mechanisms and the areas that may require strengthening.
- (h) Analyze the role of the private sector (e.g., NGOs, insurance, banking, developers) both in promoting or in reducing vulnerability in the different sectors/regions under analysis.
- (i) Identify the specific capabilities of local NGOs in vulnerability reduction activities, particularly concerning community involvement, education and training.
- (j) Examine the existence/need for disaster prevention and mitigation policies and regulations both at the local and national levels.
- (k) Analyze development options in terms of their impact on natural hazards.

16. Most of the information in disaster-prone countries that could be used for natural hazard impact reduction or for post disaster planning and management has not been collected specifically for that purpose. Thus, adaptation will be necessary for using such information from disparate sources in risk reduction.

17. In every case analyzed, the capacity of existing institutions to develop policy on natural hazards and to implement it through regulations (ordinances), economic incentives/disincentives (taxation, credit, subsidies), land use and building codes should be evaluated. Likewise, the institutional capacity to develop and implement education and training programs should be assessed. Appropriate recommendations for institutional strengthening and for training and education programs that facilitate the participation of the concerned agencies and communities in disaster mitigation program should be included in the plan.

Appendix D



SECTOR POLICY PAPER

ENVIRONMENT

CARIBBEAN DEVELOPMENT BANK

October 1993

ABBREVIATIONS

Bellairs	-	Bellairs Research Institute (Barbados) of McGill University
BMCs	-	Borrowing Member Countries
BDD	-	British Development Division
CANARI	-	Caribbean Natural Resources Institute
CARDI	-	Caribbean Agricultural Research and Development Institute
CARICOM	-	Caribbean Community and Common Market
CARIRI	-	Caribbean Industrial Research Institute
CCA	-	Caribbean Conservation Association
CDB	-	Caribbean Development Bank
CDERA	-	Caribbean Disaster Emergency Response Agency
CEHI	-	Caribbean Environmental Health Institute
CEPNET	-	Caribbean Environment Programme Information Systems Network
CERMES	-	Centre for Resource Management and Environmental Studies (UWI)
CIDA	-	Canadian International Development Agency
CIDIE	-	Committee of International Development Institutions on the Environment
CLI	-	Caribbean Law Institute
CMI	-	Caribbean Meteorological Institute
CREP	-	CARICOM Regional Environment Programme
CTA	-	Caribbean Tourism Association
CXC	-	Caribbean Examinations Council
EC	-	European Community
ECLAC	-	Economic Commission for Latin America and the Caribbean
E/D	-	Environment/Development
EIA	-	Environmental Impact Assessment
EIACG	-	Environmental Inter-Agency Coordinating Group
FAO	-	Food and Agriculture Organisation

ABBREVIATIONS (cont'd)

GEF	-	Global Environmental Facility
IDB	-	Inter-American Development Bank
IFAD	-	International Fund for Agricultural Development
IICA	-	Inter-American Institute for Cooperation on Agriculture
IMA	-	Institute of Marine Affairs (Trinidad and Tobago)
IMO	-	International Maritime Organisation
IOC	-	Inter-governmental Oceanic Commission
IRF	-	Island Resource Foundation
IUCN	-	International Union for the Conservation of Nature
NGOs	-	Non-Governmental Organisations
OAS	-	Organisation of American States
OECD	-	Organisation for Economic Cooperation and Development
OECS	-	Organisation of Eastern Caribbean States
PAHO	-	Pan-American Health Organisation
PVO	-	Private Voluntary Organisation
RCU	-	Regional Coordinating Unit (UNEP)
TA	-	Technical Assistance
TFAP	-	Tropical Forestry Action Plan
UNICA	-	Association of Caribbean Universities
UNCED	-	United Nations Conference on Environment and Development
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
UWI	-	University of the West Indies
USAID	-	United States Agency for International Development
WB	-	World Bank
WFP	-	World Food Programme

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1. SUSTAINABLE DEVELOPMENT: THE CARIBBEAN CHALLENGE

1.01 The Caribbean Development Bank's (CDB's) Borrowing Member Countries (BMCs) are small islands and low lying coastal states where the pivotal economic sectors (i.e. tourism, agriculture, and mineral extraction) are directly dependent on the natural resource base. Current economic conditions require that these economies further develop their narrow resource base and become cost competitive in both the traditional and new exporting industries, while ensuring that they do not foreclose or hinder future development options as the global economic environment changes.

1.02 The decade of the "eighties" saw considerable pressures placed on the economic and social fabric of these states as they grappled with the problems of a rapidly changing global economic environment. Many of the BMCs are now faced with high external debts and declining standards of living for the majority of the population. Considerable attention must therefore be paid to maintaining and improving the social gains made in the past, while at the same time reducing the external debt burden.

1.03 There is now recognition and acceptance of the complex, dynamic and mutually reinforcing linkages between economic development and environmental protection and management. Past failure to recognise the linkage is now manifested at both the global and national levels. Global concerns such as ozone depletion and the possibilities of climate change will impact in varying degrees on all countries. At the national level in the BMCs, the manifestation of this problem is evident in the destruction and degradation of many of the resources on which both their current and future development options rest. Most of the BMCs are faced with increased soil erosion and land degradation alongside declining agriculture productivity, pollution of coastal and marine resources due to deficiencies in water, sewerage and solid waste services as well as the destruction of important components of their natural and cultural heritage.

1.04 The sustainability of development is of both critical and urgent importance for the Region. Current international economic environment requires that future development strategies must allow the flexibility to compete in more openly competitive markets where environmental performance and responsibility will be important determinants of success in every sphere of activity. A re-articulation of development policies and strategies to reflect the new consciousness of environment development linkages and to provide a rational framework within which to pursue development objectives is required. There will be need for policy reform in all sectors, strengthening institutional and human resource capacity, increases in the levels of financing for environmental management, and the nurturing of greater dialogue and cooperation among the various interest groups. CDB and its BMCs recognise that this is a tremendous challenge but one to which their effort and commitment are essential to achieving success.

2. PRINCIPAL ENVIRONMENTAL ISSUES IN THE CARIBBEAN

2.01 In many respects, the environmental problems which Caribbean countries face arise from similar causes. However, the degree and severity of problems vary with the peculiarities of ecology and the social and economic structure in each country. The following provides a brief overview of the principal environmental issues many of which are transectoral. No attempt has been made to prioritise them as priorities will vary between countries and over time.

Environmental Policy and Institutional Capacity

2.02 Environmental issues and concerns have only very recently moved to the policy agenda of most Caribbean countries. Consequently, few countries have explicit, comprehensive environmental policies or coordinated environmental programmes. Environmental concerns specific to natural resource management and pollution control are addressed at the sectorial level. In many ways this sectorial approach has led to the promotion of perverse incentives which encourage environmentally unsound practices in some sectors that impact negatively on others. For example, subsidies for fertiliser and pesticide use is an important factor in the overuse and misuse of these chemicals which are contributing to pollution of surface and ground water resources of some BMCs. Similarly, some countries have yet to establish appropriate pricing policies for domestic and irrigation water. This failure has resulted in inadequate cost recovery which hinders both capital expansion and the provision of maintenance requirements necessary for effective delivery of these goods and services to meet growing demand.

2.03 To ensure sustainable use of these resources, more effort will need to be concentrated on the development of coordinated and coherent policies which employ market-based incentives for environmental and natural resource management through appropriate fiscal measures, licensing and permit fees supported by effective monitoring and enforcement systems. The establishment of appropriate pricing policies which enable cost recovery and the use of fiscal measures where private benefits are high, e.g. in water and sanitation sector, can provide useful instruments to promote more rational use of natural resources. In addition, such policies offer the possibility of generating some of the required resources to support necessary environmental management activities in areas such as environmental monitoring and enforcement.

2.04 In general, most countries have legislation which address specific aspects of natural resource management and pollution control activities. However, in most cases these are dated and not supported by the necessary regulations and institutional capacity to enable enforcement. For example, in most BMCs, the Public Health Act provides the legal basis for pollution control from air and water point sources. With the exception of a few countries, the regulations related to pollution control have not been developed and hence the enforcement of the Act is not

possible. Institutional responsibilities are similarly weak and fragmented, resulting in duplication of jurisdictional authority. In addition, inadequate staff and budgetary resources further limit their ability to play an effective role. Currently, the most pressing area in which the strengthening of institutional capacities is required is the provision of trained personnel to plan, develop and implement effective environmental management programmes. An important component of this is the need for reliable research and monitoring to generate quality data for informed decision-making.

2.05 Efforts are underway to address some of these legal and institutional deficiencies. However, much remains to be done to establish a coherent policy and legislative and regulatory framework to satisfy both national needs as well as increasing international commitments. It will also be important to encourage a consistency of policy and action among BMCs, given limited resources and the existence of problems such as marine pollution and fisheries depletion which are best addressed at the regional level.

2.06 Improved environmental management will require an increase in expenditure by the BMCs even if some of the current inefficiencies in resource management are eliminated. The bulk of these new investments must be borne by the BMCs and while domestic resources can be increased, countries will need to borrow to finance the major part of the initial investments. Their ability to do so will be severely limited by their indebtedness. Experience in the Region suggests that institutions need to be strengthened at both the national and regional levels. Consequently, BMCs will have to examine innovative ways of securing new and additional financing from both domestic and external sources. In addition, CDB's experience suggest that there are many areas where cost-effective solutions can be found through intensified cooperation and collaboration among BMCs and donor agencies, utilising the functional institutional mechanisms for cooperation which already exist in the Region.

Poverty and the Environment

2.07 The links between environmental degradation and poverty are complex and intertwined. However, it is increasingly clear that in an effort to satisfy their basic needs the poor often destroy the very resources on which they depend. As populations increase without significant expansion in economic activity or changes in the structure of the economy which can absorb the labour force, large numbers are forced into activities such as charcoal burning and fishing to eke out a living. With little alternative employment opportunities and lax regulatory systems, enormous stress is placed on these resources (e.g. forestry and fisheries) through over exploitation and inappropriate harvesting techniques which ultimately result in the degradation and or destruction of these resources.

2.08 In the agriculture sector with the current moves to reduce and remove preferential trading agreements normally enjoyed by the traditional export crops (bananas and sugar), effort will have to be concentrated on increasing efficiency and diversification of production and the expansion of other economic sectors. In

the absence of well thought out strategies for absorbing displaced labour, further stress will be placed on resources which have been traditionally thought of as free, such as public lands in sensitive watershed areas, forestry and fisheries. CDB recognises that to tackle environmental issues in a meaningful way, the reduction of poverty must be integral to the macroeconomic and environmental policies and strategies to be employed.

Deforestation and Watershed Degradation

2.09 High rates of deforestation and encroachment of population on marginal hillside lands for agricultural production and settlement present an increasing problem in most of the island states, constrained as they are by limited arable land and a growing population. In some cases, the nature of land tenure arrangements combined with inappropriate tax incentives for agricultural production and an absence of land use planning lie at the root of the problem. This has resulted in degradation of important watershed resources, and the loss of biodiversity, much of which is characterised by high rates of endemism.

Surface and Ground Water Pollution and Degradation of Coastal and Marine Resources

2.10 Indiscriminate pesticide and fertiliser usage, improper disposal of urban and industrial wastewater and soil erosion due to improper agriculture and watershed management practices are increasing problems which are threatening the safety of potable water supplies and the health of the population. In addition, they also contribute to the deterioration of other sub-ecosystems such as coastal and marine resources.

2.11 The coastal zones of all CDB BMCs are areas of intense development pressures. These areas accommodate the majority of the population and economic activity. In Guyana, 90% of the population live within five kilometers of the coastline while in the island states the bulk of the population live within two kilometers of the coastline. The major problems within the coastal zone include pollution from both land and marine sources (solid and liquid wastes), degradation and destruction of natural coastal sub-ecosystems such as wetlands and coral reefs, and coastal and beach erosion. Inadequate land-use planning and regulatory systems and poorly designed infrastructure are, in general, contributory factors. The need for improved coastal management becomes even more acute when consideration is given to the potential impact of any rise of sea level on these islands and low lying coastal states.

Natural Hazards

2.12 The BMCs are to varying extent vulnerable to multiple natural hazards (volcanic eruption, seismic activity and hurricanes). The impact of these hazards is in many instances exacerbated by the degraded nature of the natural resource base. For example, deforestation exacerbates flooding events and the high silt load

carried during these events smothers coral reefs and increases the stress on these sub-ecosystems. The Caribbean, in the last five years, has been severely affected by hurricanes resulting in substantial economic losses and social dislocation which affect the sustainability of development programmes. CDB has financed substantial disaster rehabilitation programmes in its BMCs; and, with the possibility of sea level rise, there is the potential for increasing damage from tropical storms and hurricanes. The BMCs need to build on existing regional and national initiatives underway for strengthening and improving hazard management capacity and to invest in necessary mitigation measures.

Public Awareness

2.13 Over the last decade, there has been increasing environmental consciousness among the population. However, this has not yet translated into the kind of force needed to propel environmental matters to the forefront of the national political agenda. High priority must be given to increasing environmental awareness of the population since this represents the most effective way of ensuring commitment of all interest groups to achieving national environmental objectives.

Development Assistance

2.14 The development community has been placing priority on, and increasing resources for, environmental protection and management activities in the BMCs. This is reflected in the wide variety of initiatives as shown in Appendix 1. In the absence of well structured environmental policies and programmes at the national level, there is the real risk that scarce and declining resources may not be utilised cost-effectively. The need for coordination and collaboration of development agencies working in the Region must be addressed by both the development institutions and the individual countries which they assist.

3. CDB's CURRENT ENVIRONMENTAL ACTIVITIES

3.01 Since CDB was established in 1970, there has been a significant deepening of understanding and a strengthening of universal consciousness concerning the links between environment and development. In response to this, CDB has moved to adjust its approach to the financing of development programmes. In 1980, CDB together with a group of development agencies signed the "Declaration of Environmental Policies and Procedures in relation to Economic Development" which led to the subsequent establishment of the Committee of International Development Institutions on the Environment (CIDIE). In that same year, the Board of Directors approved an environmental policy statement (Paper BD 6/80).

3.02 CDB then examined and revised its operational procedures to integrate environmental concerns into all aspects of its operations. Currently, emphasis is placed on the in-house training of all project staff to improve their capability in environmental analysis. Projects are routinely screened for environmental implications. Environmental officers conduct first level assessments and, if necessary, consultants are engaged for undertaking full-scale environmental impact assessments (EIAs). Since 1990 CDB has financed several EIAs and other related studies in support of projects put forward for financing by its BMCs. In some projects it has been necessary to provide short-term technical expertise to improve national environmental management.

3.03 Concurrent with these activities, CDB has been collaborating with environmental institutions and supporting environmental activities at the regional level. In 1989, Caribbean Community (CARICOM) Ministers with responsibility for environmental matters met for the first time in Port of Spain, Trinidad and Tobago. At that meeting, the CARICOM Secretariat was mandated with the responsibility of establishing a consultative forum of agencies to identify and develop strategic approaches to the development of Caribbean environmental programmes and projects. CDB has been supporting the efforts of the CARICOM Secretariat in this regard and, more recently, it has actively participated as a member of the CARICOM Task Force on the Environment in developing a Caribbean Regional Environment Programme and in the Region's preparation for United Nations Conference on Environment and Development (UNCED) 1992. CDB has continued to assist with regional initiatives emanating from UNCED such as providing financing for activities related to the preparation for the Conference on Sustainable Development of Small Island Developing States to be held in May 1994. In addition, it has assisted and supported initiatives of the Caribbean Conservation Association (CCA), the most prominent regional environmental non-governmental organisation (NGO).

3.04 In keeping with its mandate and functions, CDB has been convening and chairing regular meetings of representatives of bilateral and multilateral funding agencies based in Barbados in an attempt to foster closer collaboration on regional environmental initiatives. The primary purpose of the Environmental Inter-Agency Coordinating Group (ELACG) is to avoid duplication of effort, and to ensure that development assistance is coherent and meets the needs of the Region.

3.05 In 1992, CDB approved its Directional Plan/Strategy to the year 2000 which underscores CDB's mission for the Nineties to, in particular, "build on its performance both as a financial institution and development agency in efficiently helping BMCs to pursue macro-economically feasible programmes for sustainable development...". A specific objective of the strategy is the promotion of "ecologically sustainable/balanced growth by providing increased levels of assistance for human resource development, environmental protection, public health services and poverty alleviation".

4. FUTURE ROLE OF CDB IN THE ENVIRONMENT

The Objectives

4.01 In keeping with its own expertise and other resource constraints, and bearing in mind existing initiatives of other regional institutions, CDB will concentrate on the following objectives:

- (a) integrating environmental, social and economic concerns in all aspects of CDB's operations to ensure that investment projects and macroeconomic policies are environmentally sound;
- (b) assisting with the development of national policies and strengthening the capacities of institutions and the skilled human resource base concerned with environmental and natural resources management in the BMCs,
- (c) mobilising financial resources and financing on concessionary terms wherever possible, cost effective projects which directly provide substantial environmental benefits; and
- (d) promoting collaboration and coordination at the Regional and sub-regional levels among BMCs and among the regional and international agencies active in the BMCs, to harmonise activities, in working towards achieving common environmental objectives.

THE STRATEGIES

Bank Operations and Procedures

4.02 CDB will continue to give priority to its existing efforts to ensure that environmental considerations are fully integrated in all aspects of its operations. In 1990, CDB adopted EIA procedures as an integral part of its operations.

4.03 These procedures require that all investment projects be screened and categorised for potential environmental impact. Based on the categorisation applied (see Appendix 2) the scope and depth of the environmental assessment is determined. It is the responsibility of the borrower to provide CDB staff with all relevant information required for the environmental review.

4.04 While it is the responsibility of the borrower to undertake the appropriate level of environmental assessment as determined by CDB staff, CDB environmental staff will work closely with staff of the BMCs in developing terms of reference for EIAs and evaluate mitigation techniques, to ensure that CDB-funded investments meet the highest possible environmental standards. CDB may incorporate environmental conditionalities agreed during the project appraisal and approval process into loan and grant agreements with borrowers.

4.05 Staff will periodically revise and update environmental procedures and guidelines to reflect CDB's field experience and new approaches to environmental management.

4.06 Staff will have responsibility for monitoring and supervising environmental components of projects to ensure compliance with loan agreements so that appropriate action can be taken. Staff will be required to prepare an environment evaluation as part of the project completion report. Finally, ex-post evaluation reports will include a review of the effectiveness of environmental mitigation measures which were undertaken.

4.07 CDB will provide in-house training of staff through seminars and, where necessary, short-term external training programmes to improve and enhance environmental analytical capability of operational staff.

4.08 With increased environmental activities, it is expected that CDB Environmental staff complement will be increased to provide the services required. At this time, two environmental officers are needed. CDB will also recruit, on a short-term contractual basis as required, an appropriate environmental specialist to complement staff resources for ensuring that the highest possible environmental standards are attained in all CDB-funded operations.

Strengthening National Institutions and Policy Development in the BMCs

4.09 CDB will continue to place emphasis on its role as a policy advisor and broker between its BMCs, bilateral donors and the Multilateral Financial Institutions with which it interacts. It will encourage appropriate and feasible macro-economic and sectoral policies which promote sound environmental and natural resource management principles and practices. CDB will continue its practice of utilising conditionalities in support of sound policy and institutional framework for development activities. It will provide technical assistance (TA) to BMCs for the development of policy instruments and strategies. Priority will be given to those activities which provide support to CDB financed projects and programmes.

4.10 Specific consideration will be given to the following:

- training programmes in environmental assessment methodology for staff in liaison institutions responsible for the design and execution of investment projects as stated in CDB's Human Resource Development Policy;
- field research and baseline studies which will provide information support for the development of improved environmental and natural resource policies and the enactment and enforcement of appropriate legislation and regulations. These include natural resource inventories and plans; and

- activities which aim at improving environmental awareness among the public and private sectors and promote greater participation/collaboration in environmental policy formulation and implementation.

Financing and the Mobilisation of Financial Resources

4.11 As stated in its Directional Plan/Strategy - "CDB to the year 2000", CDB will expand its lending operations to the public sector for the financing of projects which directly meet environmental objectives. Specifically, these will include projects in water and sanitation and coastal zone management. Natural hazard and environmental mitigation components of capital projects will continue to be financed.

4.12 In all investment projects financed by CDB, consideration will be given to the utilisation of technological options which facilitate environmental protection and use of renewable resources where these options are cost effective; for example, renewable sources of energy such as solar and hydro electric power and the employment of "best practice" pollution reduction technology in all its investment activities.

4.13 Recognising the financial constraints faced by most of its BMCs, CDB will make strong efforts to attract new and additional concessionary funds from suitable sources for financing specific types of environmental projects. It is envisaged that these special funds will provide financing in the following areas:

- TA for strengthening national environmental institutions;
- large-scale EIAs and mitigative components of major capital projects; and
- TA for regional projects which address problems and issues common to the BMCs.

Cooperation and Collaboration with the Development Community

4.14 Within the scope of its available financial and staff resources, CDB will continue to promote coordination and collaboration of the BMCs at regional and sub-regional levels among institutions such as CARICOM, the University of the West Indies (UWI), and the Organisation of Eastern Caribbean States (OECS). CDB will also encourage and facilitate greater dialogue with NGOs, the private sector and other interest groups and increase contact between its staff and these groups. CDB will continue with its coordinating of the programming and financing of environmental activities in the Region through its chairmanship of the Environment Inter-Agency Coordinating Committee.

4.15 CDB will continue to build on already established relationships for collaboration and coordination among international agencies such as the World Bank, the Inter-American Development Bank (IDB), the United Nations agencies, bilaterals and international NGOs active in its BMCs. Wherever the opportunity

exists for collaboration and complementarity in the design and financing of project activities, CDB will endeavour to participate to ensure that the most efficient and effective use is made of resources. Projects in research and training are good examples where collaboration can result in substantial savings.

Public Participation

4.16 CDB's primary dialogue is with the government authorities of its BMCs. However, the growth of environmental NGOs and Private Voluntary Organisations (PVOs) active in the BMCs represent important and valuable constituents for interaction, cooperation and support for achieving success in environmental management objectives in the BMCs.

4.17 CDB will seek to intensify its interaction with the NGO community and wherever opportunities exist, will collaborate with these organisations within the limits set by Bank policy and government policy of its BMCs. CDB may require as a condition of any financing, that the recipient of such financing make public any environmental assessment it has been required to carry out in accordance with national legislation.

4.18 A summary of the Environmental Policy is set out at Appendix 3.

DOCUMENTO ORIGINAL EN MAL ESTADO

MATRIX ON MAJOR REGIONAL AREAS, ACTIONS AND ACTORS IN THE FIELD OF ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Major Programmes	Programming Areas	Projects	Policy Formulation	Implementation
Programme 1 Broad Policy Frameworks	Regional Environment Development Policy	Regional E/D policy and programmes identification and formulation	CARICOM/OECS CDB/WB/IDB OAS/UNDP UNEP/CLAC/IDB	CARICOM/OECS CDB/WB/IDB OAS/UNDP UNEP/CLAC
	National Environment Development Policy	National E/D policy and programmes identification and formulation National Environmental Action Plans	National Government CDB/WB/IDB OAS/UNDP National Government	National Government CDB/WB/IDB OAS/UNDP World Bank, ILO/IDB
Programme 2 Provision of Management Tools and "Building Blocks"	2A Information Systems Development	Database Identification Computer-based Info System Regional Comm System Geographical Info system Quality Control Programme	CCA UNEP CDB OAS IDB/CEI/IC	UNEP/CLAC/IDB UNEP/RCU OECS/OAS/AC/UNDP UNEP/IDB
	2B Environmental Education and Training	Formal Education Informal Education Training	CARICOM/OECS UNESCO and/or IINICA CCA UWI/CDB CIDA	CXC/CAS/UNESCO/GERMIS (UWI)/Nat'l Govt/CIRM CCA/CANAR/OECS/Nat'l NGOs CANAR/UNEP/Bellairs/CEH/IMA CCA
	2C Environmental Institutional Strengthening	Harmonisation of Legislation Technical Capacity Building Environmental Law	CARICOM/OECS UWI - Barbados C Le - Jamaica UNDP	CL GERMIS (UWI) Private Consultant
Programme 3 Generic Solutions to Specific Environmental Issues, for Application at National Level	3A CEA Programme Development	Building an CEA Team Case Study Development Provision of Training Seminars	National Government CCAC/IDB Multilateral or bilateral donors	CCA CDB Private Organisations - UWI
	3B Coastal Zone Management	Coastal Zone Development Plans Habitat Protection Plan Technologies Re. Sand Mining	National Government OAS/UNEP UWI/Jamaica	National Government Bellairs Private Consultant Discovery Bay Marine Laboratory CI RMF/S/NGOs/CDB/UNDP
	3C Waste Management	Sewerage Management Solid Waste Management Trace Waste Management Municipal Infrastructure Maintenance Management System	National Government WIA/DH/CAR/IRE PAHO/CEH UWI - Trinidad	National Government L LHB/P/IDB/IDB/WB/IDB/CSC/IDB CARICOM Private Consultant

APPENDIX 1

MATRIX ON MAJOR REGIONAL AREAS, ACTIONS AND ACTORS IN THE FIELD OF ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT (Cont'd)

Major Programmes	Programming Areas	Projects	Policy Formulation	Implementation
Programme 3 (Cont'd) Generic Solutions to Specific Environmental Issues, for Application at National Level	3D Water Management	Watershed Management Water Quality Protection Soil Conservation Agricultural Management in poor countries	National Government FAO/FAD/CEH/ CARDI	National Government CEH/IMA/UWI Jamaica CARDI/FAD/ICA
	3E Resource Exploitation Controls	Marine Demersal Stock Management Forest Resources Management	National Government IMA, CIDA FAO	National Government Bellairs/IMA/CANAR/ CARDI/Donors/TFAP
	3F Land Use Management	Valuation of Natural Resources Land Tenure Programs National Development Plans Urban Development Guidelines Disaster Preparedness Land Capacity Studies Park and Natural Area Plans Tourism and the Environment Study	IFAD OAS UNDP CDFRAC/IDB IUCN CTA CDB	National Government Private Consultant FAO/FAD NGOs/CDERA Donors
Programme 4 Solutions to Deal with Transboundary Issues	4A Petroleum Pollution Control	Regional Action Program Shipping Spills Agreement Enforcement/Standards	CARICOM/CAR/IRI UNEP/RCU IOC/IIMO	IMA/UWI UNEP/RCU CEH/ICL
	4B Marine Fish Stock Management	Stock Inventory/Habitat Assessment Pelagic Stocks Cooperative Adaptive Harvesting Strategy Enforcement/Monitoring System	FAO/OECS/IMO/ Fisheries/IOC Desk	Bellairs/OECS/IMA/FAO/Donors CARICOM/IOC/IMO
	4C Waste Importation and Transportation of Hazardous Waste - Conservation of Biodiversity - Climate change	Investigative Council Protocol Development Monitoring/Reporting Program Implementation of the convention on Biodiversity Implementation of the convention on climate change	CARICOM/OECS UNEP/RCU WB/CDB/CEH CARICOM/UWI/WB WBI/CARICOM	UNEP/RCU/IMA CARICOM/OECS/CEH/ICL CDB/UNEP/UNDP/WB WB/CARICOM/CDB/CMO
Programme 5 Remedial/Preventive Actions to Deal with Immediate Crisis		Short-term Crisis Management Remedial Measures Special Research (eg Global Warming, Hurricane, earthquake, drought, accidental pollution, etc.)	Individual bilateral or Multilateral donors CDB/PAHO/CEH IMO/Radio-TV Broadcasting Organisations	National, Regional CDERA, (CARICOM/UNDP) External Agencies and Organisations

APPENDIX 1
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MATRIX ON MAJOR REGIONAL AREAS, ACTIONS AND ACTORS IN THE FIELD OF ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT (Cont'd)

Major Programmes	Programming Areas	Projects	Policy Formulation	Implementation
Programme 6 Financial Resources and Mechanism	Regional approach, procedures and promotion for fund-raising operations to cover the incremental cost of sustainable development projects	Caribbean Regional Environmental Facility (CREF) GEF Capacity 21	CDB with CARICOM Multilateral, bilateral donors, Foundations - NGOs	CDB, multilateral, bilateral and individual donors - Private Organisations - NGOs
	National approach, procedures and promotion for fund-raising operations to cover the incremental cost of sustainable development projects	National Government's projects CREF/GEF/Capacity 21 Bilateral donors projects	National Government CDB and the Regional and international donor community	CDB, multilateral, bilateral and individual donors- Private Organisations - NGOs
		CARIFORUM Regional Environmental Fund Proposed revolving Fund for Regional environmental initiatives utilising Lome funds as seed capital		

PROJECT CATEGORISATION FOR ENVIRONMENTAL ASSESSMENT

GENERAL

1. The purpose of the EIA is to ensure that the development options under consideration are environmentally sound and sustainable, and that any environmental consequences are recognised at the project identification stage and taken into account in the project design.
2. Projects/Components will be screened at the identification stage and assigned to one of the following categories, based on the nature, magnitude and sensitivity of environmental issues:
 CATEGORY "A" - EIA is required as the project may have diverse and significant environmental impacts.
 CATEGORY "B" - Limited environmental analysis is appropriate as the project may have narrow environmental impacts.
 CATEGORY "C" - Environmental analysis is not necessary.

SUMMARY OF ENVIRONMENTAL POLICY

Objective	Strategies	Current Programmes/ Projects/Activities	Proposed Programmes/ Projects/Activities	Implications for CDB
1. Integrate environmental considerations into all aspects of CDB lending decisions	<ul style="list-style-type: none"> (i) Development and refinement of EIA procedures (ii) to use seminars/workshops or equal short term training courses (iii) Maintenance of contacts and collaboration with other development agencies on economic valuation methodologies for environmental assessment through seminars/workshops 	<ul style="list-style-type: none"> (i) Development of sector checklist to assist in project screening approval and implementation (ii) Current short term training programmes (with EIA) methodology and procedures for BMC of ficers in National Liaison Institutions (iii) Screening procedures workshops for DEIs 	<ul style="list-style-type: none"> (i) Development of Seminar manuals for key sectors: Agriculture, Tourism, Water and Sanitation (ii) Collaboration with WB/IBD in preparation of National Environment Action Plans for the OECS, Belize and Guyana 	<ul style="list-style-type: none"> (i) Possible expansion in dedicated environmental staff (ii) Funding for training
2. Institutional and Policy Development	<ul style="list-style-type: none"> (i) Review of institutional capacities during economic sector work (ii) Provision of TA for LIA trainings/studies to improve information base which will inform improved environmental policy and management (iii) Strengthening CARICOM to take on more fully the role of coordinator for Regional Environmental activities 	<ul style="list-style-type: none"> (i) Institutional strengthening as TA to some BMCs (e.g. Industrial Estate Loan - Dominica, Industrial Audit - St. Lucia, Environmental Plan Ambergris Caye, Belize) (ii) Assistance to be provided to support relevant activities (iii) Closer collaboration and dialogue including environment NGOs 	<ul style="list-style-type: none"> (i) Support to national environmental institutions and OECS CARICOM to assist in the development of projects and programmes in assist BMCs to better incorporate environmental dimensions in overall policy (ii) Assistance to fund global conference on Small Island States (Barbados, May 1994) 	<ul style="list-style-type: none"> (a) Provision of policy advice (b) Provision of TA financing
3. Financing and Mobilisation of Financial Resources	<ul style="list-style-type: none"> (i) Expansion of lending programme to provide for investment projects where the primary objectives are for improved environment and resource management (stand-alone projects) (ii) Mobilisation of additional concessional resources to finance environmental management activities 	<ul style="list-style-type: none"> (i) Negotiations with donor agencies for channelling resources specific to projects in water and sanitation sector (e.g. Japan) 	<ul style="list-style-type: none"> (i) OECS Waste Management project (ii) Dominica Sewerage Project (94) (iii) Belize Water and Sewerage (95) (iv) Target non-traditional sources, e.g. NGOs, PVOs and bilaterals not currently in CDB's membership 	<ul style="list-style-type: none"> (a) Priority to be given to identifying low-cost fundygrants
4. Cooperation and Collaboration with the Development Community	<ul style="list-style-type: none"> (i) Collaboration and coordination with other MFIs and Bilaterals active in the BMCs to ensure most effective use of resources 	<ul style="list-style-type: none"> (i) Continuation of Environment Inter Agency Coordinating Committee Meetings (ii) Development of Caribbean Regional Environment Facility to provide TA grants and carry out LIAs, policy development studies, environmental mitigation works associated with investment projects 		