SDF 7/3 NM-4

CARIBBEAN DEVELOPMENT BANK

SPECIAL DEVELOPMENT FUND (UNIFIED)

ENVIRONMENTAL SUSTAINABILITY AND THE CLIMATE CHANGE AGENDA

July 2008

ABBREVIATIONS

BMCs	Borrowing Member Countries
BPoA	Barbados Programme of Action
CARICOM	Caribbean Community
CBOs	Community Based Organisations
CCCCC	Caribbean Community Climate Change Centre
CDB	Caribbean Development Bank
CDERA	Caribbean Disaster Emergency Response Agency
CUBIC	Caribbean Uniform Building Code
CDM	Comprehensive Disaster Management
CIDA	Canadian International Development Agency
CPA	Country Poverty Assessments
CPACC	Caribbean Planning for Adaptation to Climate Change
DMFC	Disaster Mitigation Facility for the Caribbean
DRM	Disaster Risk Management
EP	Environmental Policy
ESRP	Environment and Social Review Procedures
GDP	Gross Domestic Product
GEF	Global Environment Facility
IDB	Inter-American Development Bank
KMA	Kingston Metropolitan Area
MACC	Mainstreaming Adaptation to Climate Change
MDGs	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
mn	million
NEAPs	National Environmental Management Action Plans
NEMS	National Environmental Management Strategies
NGOs	Non Governmental Organisations
ODA	Official Development Assistance
OECS	Organisation of Eastern Caribbean States
OECS-EMS	OECS Environmental Management Strategy
RE	renewable energy
SGD	St. George's Declaration of Principles of Environmental Sustainability in the OECS
SIDS	Small Island Developing States
SDF	Special Development Fund
TA	Technical Assistance
WB	World Bank
UNDP	United Nations Development Programme

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EXECUTIVE SUMMARY

At the initial meetings in the Special Development Fund (SDF) 7 Replenishment process, SDF Contributors agreed that one of the core themes for SDF 7 would be supporting environmental sustainability and advancing the climate change agenda, including addressing the vulnerability of the Bank's Borrowing Member Countries (BMCs) to environmental risks and climate change impacts. Contributors requested a paper setting out the Bank's strategy for addressing this theme during SDF 7, together with a results framework. Similar papers are being prepared for other core themes.

The paper reviews the context and responses to date on environmental issues in the Region, including the Bank's past operations, and then sets out a proposed operational strategy on environmental sustainability, natural hazard risk reduction and climate change for the SDF 7 period. It also provides an initial overall results framework, based on the targets in the Caribbean Millennium Development Goals (MDGs) framework for MDG Goal 7, which address environmental sustainability, together with some additional targets dealing with environmental protection, renewable energy (RE), disaster risk management and climate change. It is proposed to develop the results monitoring framework in more detail in the context of country-specific programming.

BMCs have made progress with respect to the basic targets and indicators of Goal 7 "Environmental Sustainability" of the MDGs in areas such as coverage of the population with access to improved water and sanitation and the coverage of areas given protected status. However, these indicators mask deeper concerns related to quality and effective and sustainable management of these resources. In addition, the fundamental inter-linkages between poverty and environmental degradation, which result in the loss of these resources to the poor or the exploitation and unsustainable use by those better off, appears not to be well understood. High rates of soil erosion, degradation of watersheds, loss of habitats of both precious terrestrial and marine resources are significant environment and natural resource management issues. Large segments of the rural population still remain dependent for their livelihoods on natural resources and ecosystems, even in the face of their rapidly degrading and diminishing productivity.

Country poverty assessments of nearly all BMCs of the Caribbean Development Bank (CDB) consistently show that rural areas usually have the highest incidence of poverty. In many BMCs, issues of land rights, security of tenure still remain obstacles and prevent many of the poor from responding to economic programmes which might offer the possibility of improving their livelihood options. The urban poor live just as precariously as the rural population and are as vulnerable to natural hazards, and external economic shocks. They are also just as likely to contribute significantly to pollution and environmental degradation and stress ecosystems because of limited or no access to basic infrastructure, service utilities (water, sanitation, electricity, fuel) and are often unemployed or underemployed.

BMCs have been slow to respond effectively to the many environmental challenges facing them. This has been due to a seeming disconnect between environment and natural resource management concerns and wider development policies and programmes. They have been unable to adapt administrative and legislative frameworks to reflect changing needs and priorities. Fiscal constraints and overall limited financial resources have severely impacted capacity of environmental institutions. They remain understaffed and limited in terms of the depth of technical expertise and experience. Very few countries have even rudimentary technical support systems such as databases with natural resource inventories, environmental monitoring reporting systems and laboratories.

BMCs cannot easily achieve environmental sustainability without addressing fundamental issues of poverty, and the adoption of an approach to environment and natural resources management, which

encourages the participation and inclusion of all stakeholder groups. This is an approach that is in-keeping with the CDB's mandate of poverty reduction.

The paper proposes that the focus on the Bank's operational strategy on environmental sustainability and climate change during SDF 7, should be to assist BMCs to design and implement interventions that promote environmental sustainability in areas that:

(i) widen the options for sustaining the livelihoods of the poor and vulnerable through improved protection and sustainable management of natural resources;

(ii) improve coverage of the population with access to improved water and sanitation services to reduce pollution and improve the health and productivity of the poor;

(iii) reduce BMCs' vulnerability to natural hazards and improve resilience and adaptation to climate change; and

(iv) strengthen the capacities of regional and national institutions capacity for improved environmental and natural resource management.

Given resource limitations, however, the areas for CDB interventions will need to be carefully selected using the following criteria:

(i) they provide opportunities for significant beneficial impacts for the poor and vulnerable,

(ii) they contribute to BMCs stated BMC environment priorities;

(iii) they offer opportunity to significantly improve environmental benefits and natural resource management in areas where CDB has experience, credibility and comparative advantage; and

(iv) they offer potential for synergies with other CDB areas of the Bank's operations and those of other development partners.

The paper proposes that CDB interventions should target protected areas management; improved water, sanitation and solid waste management systems; disaster risk reduction; and the climate change agenda. In relation to the latter area, particular attention should be focused on climate change mitigation and adaptation measures. Mitigation will require additional support for policy, regulatory and governance mechanisms so that RE sources and energy efficiency measures can be fully exploited. Assistance will be provided to BMCs to integrate climate change adaptation measures into their agendas for sustainable development and poverty reduction as well as sectoral policies. The most vulnerable group likely to be impacted by climate change are the poor, thus targeted measures that help to build community resilience to climate change will be implemented, together with the BNTF and other programmes. Support will be provided to regional institutions to strengthen and advance the Caribbean knowledge base about climate change and to monitor adaptation measures. BMCs will also be assisted in accessing innovative climate change funding mechanisms. These proposed areas of intervention are discussed in Section 4 of the paper.

1. INTRODUCTION

1.01 The Caribbean Sea is a partially enclosed arm of the Atlantic Ocean bounded on the north and east by islands, on the south by South America and to the west by Central America. It is within this area that CDB's 18 BMCs are situated; 16 islands and two low-lying mainland states Belize in Central America and Guyana in South America. The Region is renowned for its exceptionally diverse ecosystems which include montane cloud forests, cactus scrublands, moist tropical forest types, marsh forest, seasonal forest, freshwater swamps, extensive mangrove forests and coral reefs. The Caribbean Sea has the greatest concentration of marine species in the western hemisphere and its many islands provide isolated sites for a range of terrestrial species. The biological resources of the islands and the two mainland BMCs (Guyana and Belize) exhibit extremely high levels of diversity and endemism and the region has now been identified as one of the three most important global "hotspots"[1]. In the case of Guyana, work is still ongoing to identify and catalogue its biological resources.

1.02 These natural resources and environmental attributes are the primary capital assets, which underpin both the formal and subsistence sectors (fisheries, tourism and agriculture) of national economies. The Region's natural resources and the assimilative capacities of its natural ecosystems are being rapidly degraded as a result of development pressures, induced by unsustainable levels of exploitation and harvesting and increasing pollution levels associated with rapid urbanization and industrialization. Nevertheless, these are the resources which national economies will need to continue to rely on to reduce poverty and improve the overall quality of life of their population**.** As primarily small states, the BMCs have helped to articulate and receive acceptance in United Nations fora for their unique characteristic as "vulnerable" Small Island Developing States (SIDS). Vulnerable not only because of the fragile and threatened state of their natural resources, but also to a wide range of natural hazards (tsunamis, earthquakes, tropical storms, volcanicity) due to their location directly in the track of Atlantic storms and hurricanes and close to areas of high tectonic activity. The relative openness of their economies to external shocks associated with both natural hazards and global economic changes and the relative poverty of large segments of the population add further dimensions to their vulnerability. At least three BMCs are among the world's ten developing countries likely to be most severely impacted by a one metre sea level rise associated with climate change and climate variability.

1.03 In 1994, as part of their commitment to address environmental sustainability issues, the BMCs adopted the Barbados Programme of Action (BPoA), identifying 14 priority environment and natural resources management issues to be tackled with the assistance of the development community. In the intervening years there have been reviews and assessments of progress and achievements, by both the countries and regional institutions[2]. This paper relies on the national and regional reports presented at the International Meeting in Mauritius[3] in 2005 for the 10-year Review of the BPoA. The reports show that BMCs consider all 14 areas as relevant now as they were more than a decade ago. There have been changes in emphasis by different countries over the period, however, the areas highlighted as being of greatest priority include; climate change, natural hazard risk reduction, degradation of coastal and marine

[1]The Caribbean islands have been identified as a 'hotspot" - an area characterized both by exceptional high levels of plant and animal endemism and by serious levels of habitat loss and that must contain at least 1,500 species of vascular plants (> 0.5 percent of the world's total) as endemics, and to have lost at least 70% of its original habitat. It is estimated that the Caribbean islands alone have some 6,500 single island endemic plant species, 48 endemic threatened birds, and 18 endemic threatened amphibians.

[2] BPoA, CARICOM Secretariat, November, 2004, The Ten Year Review of the Barbados Programme of Action: The Caribbean Process, 2005.

resources, waste management, loss of biodiversity, weak institutional and legislative frameworks and limited financial and technical capacities.

2. RESPONSES TO PRIORITY ENVIRONMENTAL CONCERNS

Institutional and Legislative Frameworks

2.01 In the lead-up to the 1992 United Nations Conference on Environment and Development, there was extensive international dialogue on development and environment issues, resulting in the negotiations of major global conventions (the Convention on Biological Diversity), United Nations Framework Convention on Climate Change and United Nations Convention to Combat Desertification. Caribbean countries have been active participants in these negotiations and their achievements have been impressive, despite their small size, insignificant economic strength, and relatively weak institutional base. They successfully articulated their unique characteristics as being very "vulnerable" small island developing states (SIDS) and have had these characteristics recognized in the key Multilateral Environmental Agreements (MEAs) to which they are Contracting Parties.

2.02 This international success has not been matched at the national level. The national obligations of the MEAs have proved burdensome for many countries because of their limited financial and technical resources. Countries developed a range of national plans, strategies, capacity assessments and baseline resource measurements specific to these Conventions. However, these instruments have not significantly influenced national environmental policy nor attracted significant funding for the implementation of local programmes. The activities undertaken to comply with MEA commitments have largely diverted attention from national efforts to develop policies and programmes to address priority domestic issues.

2.03 There has been some progress by the BMCs in the development of institutional and technical capacity. However, many countries are still grappling with shaping appropriate environment and natural resource management development policies, regulatory, and institutional frameworks appropriate to their circumstances. Indicators of environmental quality and natural resources management in most countries show a deteriorating trend with high rates of soil erosion, degradation of important watersheds, loss of terrestrial and marine habitats, and increasing levels of pollution associated with rapid rates of urbanization and industrialization. Prime agricultural lands are being lost to housing and golf courses while subsistence farms become increasingly vulnerable to floods and soil erosion. Despite this loss of productive lands, large segments of the rural population remain dependent on natural resources and ecosystems for their livelihoods.

2.04 BMCs have tried a range of approaches to integrate environmental considerations into their national development agendas. In the early 1990s, most countries developed National Environmental Management Action Plans (NEAPs) with the support of multilateral development institutions. These represented the first attempt at the national level to examine the relationships between environmental management and economic development. According to a World Bank (WB) evaluation, the NEAPs exercise in many countries became primarily a "numerical exercise", as its focus was based on completion of the instruments and not on the desired outcomes. Many of the NEAPs prepared by the BMCs contained deficiencies in the analysis of the linkages and inter-connections between environment and development. They were therefore not considered directly relevant by the economic planning, finance, or other key sector ministries and were never integrated into national development agenda.

2.05 The NEAPs identified many of the weaknesses associated with the vertical management approach to natural resource based sectors such as, agriculture water and tourism, and the weak legislative framework underpinning their management. There were few recommendations for targeted institutional and legislative changes necessary to effect improvements for mainstreaming environmental issues. In the

late 1990s, the development community promoted a more integrated approach as the framework for organizing policy responses to the environmental challenges. This resulted in the adoption of new multi-sectoral mechanisms such as sustainable development councils or commissions to bridge the divide between plans and actions. Some countries such as Grenada and Jamaica have maintained these structures, which have proved useful to maintain dialogue between stakeholders. In larger BMCs such as Jamaica, Guyana, Trinidad and Belize, agencies with specific responsibilities for environmental management and regulatory control were established. However, the most consistent approach has been to assign primary responsibility for environmental management (including specific environmental agencies) to an existing sector ministry such as health or agriculture. Although some countries enacted new comprehensive environmental legislation to underpin the work of the newly established agencies, in some cases their old legislation has never been repealed leading to institutional and legal disparities.

2.06 Institution building for environmental management started in the BMCs, at a time of relatively low or extremely variable economic performance, when many countries came under the burden of high levels of external debt. The period since 1992 was one of declining Official Development Assistance (ODA) resources to the Region. During this period, fiscal constraints severely curtailed public expenditure on many environmental and social issues. BMCs are mainly reliant on national budget allocations, to finance the recurrent and capital budget of the many agencies with environment and natural resource functions. A few countries have attempted to improve resource provision for environmental management through economic instruments such as levies and taxes to support specific management purposes. For example, six countries of the Organisation of Eastern Caribbean States (OECS), Barbados, Belize and Jamaica have introduced environmental levies to support solid waste management systems and other environmental goals. Trinidad and Tobago introduced a Green Fund in 2000 based on a 0.1 % levy on the gross sales or receipts of companies carrying on business in Trinidad and Tobago. The Fund was established to finance special and environmental projects; although it has only recently become operational. For the most part, these environmental taxes accrue to the governments' consolidated funds and it is usually difficult to determine the effective increase in contributions for national environmental management, however, there are exceptions, such as Trinidad Green Fund. The Region has been more successful in accessing finance through the Global Environment Facility (GEF), using a sub-regional or regional project approach, as their small individual sizes often worked against them in seeking national level project interventions.

2.07 The fiscal difficulties faced by BMCs continue to severely affect their abilities to develop and implement an effective public sector investment programme. Social and environment related capital expenditures have been the areas, which suffered the highest reduction in expenditure over the last two decades. While Countries have since attempted to improve their targeted social spending in poverty reduction programmes and other social safety interventions, the same has not taken place for the environment. Few BMCs have adequately staffed institutions or the necessary technical support systems such as databases with natural resource inventories, environmental monitoring and reporting systems, and laboratories. This has had a significant impact on their ability to design credible policies and programmes and sometimes even to carry out basic monitoring and enforcement functions. The influence of environmental institutions on national development policies and decision-making has generally been weak. Many of the macro-economic and social policies and programmes pursued by BMCs in key natural resource dependent sectors (tourism, agriculture, credit, land, water and property markets), reflect lack of awareness of the real value of natural resources and ecosystems and the importance and scale of the ecological services they provide.

2.08 In 2001, the OECS sub-region initiated a sub-regional policy framework, to address issues of environmental sustainability and vulnerability in the OECS. The initiative is known as the Environmental Management Strategy and the St. George's Declaration of Principles of Environmental Sustainability in the OECS (SGD). Within the OECS, the SGD has served as a useful policy mechanism for promoting the

environmental sustainability agenda in wider development policies and programmes. All the countries developed National Environmental Management Strategies (NEMS) and Action Plans with the technical support of the OECS Secretariat and development partners, particularly the Canadian International Development Agency (CIDA). One of the main aims of the NEMS is to facilitate an integrated, coordinated and inter-sectoral approach to environmental policy planning and management. Appendix 1 provides more details on the OECS sub-regional approach to environmental management.

Public Education and Awareness

2.09 At the beginning of the 1990s, the level of public education and awareness of environmental problems and their impact on development was relatively low. International dialogue on environmental issues in the global economic and multilateral arena heightened awareness of the implication for the Region. There has been increased ventilation and public discussion of the issues by a small and vocal movement of Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs) supported by the media and in some cases by international NGOs. Relationships between governments and NGOs have generally been good, and while there have not been large scale civil protests, NGOs have started to take legal action in the courts to challenge government decisions regarding development initiatives perceived to be harmful to the environment. The more participatory approaches to governance promoted by the development community, have resulted in some BMCs establishing mechanisms that facilitate public access to information and there is evidence that BMC governments are now using more inclusive and participatory approaches in policy and programme design. Currently, most BMCs have functioning national networks of environmental NGOs and CBOs that participate in national environmental fora and development programmes.

2.10 NGO and CBO direct participation in environment and natural resources management is growing slowly. Jamaica and Belize have established policies for the management of protected areas, which allow delegation of these responsibilities to NGOs and CBOs, and have enjoyed some success with this approach. There is also a growing number of project interventions in the Region that promote community management of natural resources. In St. Lucia and Belize there have been successful initiatives led by CBOs to manage marine and coastal resources in the face of increasing conflict between the poor and tourism interests over the use of resources. Despite their increased involvement in environmental management, many NGOs and CBOs face severe technical and financial constraints. For example, in Jamaica, a recent evaluation of NGOs working in protected areas management showed that substantial assistance will be required to improve their technical and managerial capabilities as many organizations lack the required core competencies to function effectively as managers of protected areas.

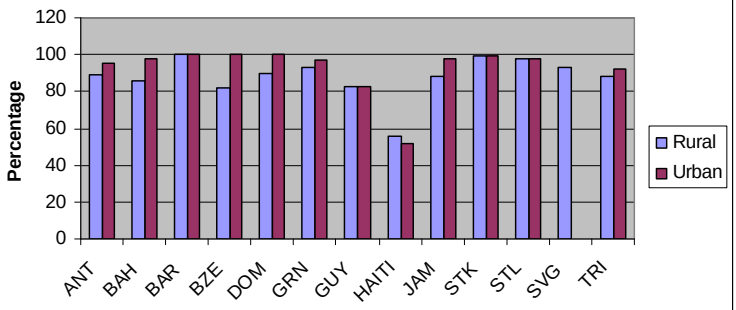
Degradation of Natural Resources and Loss of Biological Resources

2.11 Research has shown that there is a strong correlation between ecologically degraded areas and the geographical distribution of poverty. Poverty can create and increase the rate at which many environmental problems emerge. At the same time, environmental problems can broaden and deepen the impacts of poverty. In general, measurements of poverty incidence in BMCs show that poverty is highest in rural areas, with the exception of Antigua and Barbuda where urban poverty incidence is now higher than rural poverty. The limited investment in natural resource and environmental management is evident in both the rural and urban sectors of BMCs and is manifest through the degradation, stress and reduced resilience of important resources such as watersheds, wetlands and coastal ecosystems. Inappropriate land use policies, farming practices and the conversion of forestry lands to other uses have contributed to the degradation of critical watersheds in many BMCs. St. Lucia has identified high soil erosion rates as the largest contributor to degradation of its watersheds and the single most important environmental problem the island faces. In Jamaica, it is estimated that 10 of the islands 26 watersheds are seriously

degraded. In many countries, the availability and quality of freshwater is becoming a critical issue, and it will take on even greater importance as global climate change results in higher variability of rainfall and sea level rise affects coastal aquifers and freshwater sources.

2.12 The percentage of the population with access to improved water sources shows that with the exception of Haiti, all countries have rates exceeding 80% (See Figure 1). This high coverage appears, at face value, to be outstanding., CDB poverty assessments, however, show that many rural residents would dispute these figures and point to serious deficiencies with respect to water quality and reliability. Water utilities are often forced to operate with less than full cost recovery with insufficient technical capacity for management of water infrastructure. In many countries there is little formal water resource management and the supporting legislation is often inadequate, with responsibilities being shared among government departments. In the more water scarce countries significant investments are required to meet demand not only for the local population but to support a growing water intensive tourism industry.

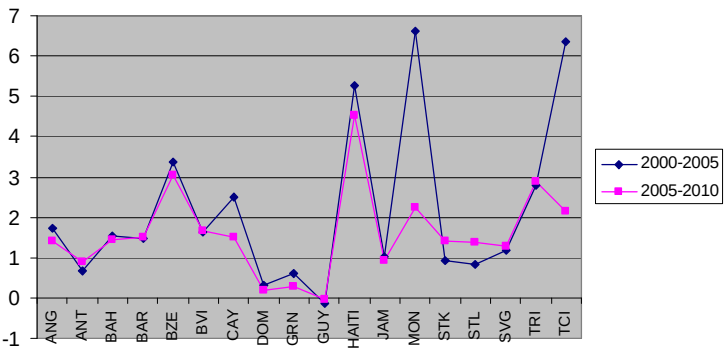
Figure 1: Improved Water Source For Selected Borrowing Member Countries (% of Rural and Urban Populations with Improved Water)



Source: Little Green Bank, World Bank, 2006

2.13 BMCs have over the last two decades experienced the gradual loss of trade preferences for their export agriculture crops, which has reduced global competitiveness for sugar and banana export crops. This has encouraged the drift of rural population to urban settlements and to the rapidly developing tourism resort areas. Today more than half of BMCs' population live in urban centres, usually the capital city. Growth rates are projected on average at around 2% for the period 2005-2010 with the exception of Haiti at 4.5%, Trinidad at 2.9% and Montserrat, the latter largely due to exceptional changes associated with its volcanic eruption (see Figure 2). The large cities of Haiti and Jamaica vividly reflect the blend of social and physical attributes of poverty and vulnerability in the BMCs. Their rapid and largely unplanned growth has led to the development of large settlements in areas at high risk to multiple hazards. In addition, limitations of finance and technical urban management capacity has meant that investment in infrastructure has not kept pace with demand, resulting in poor public transportation systems, air and water pollution, inadequate waste disposal, and land degradation.

Figure 2: Urban Annual Growth Rate (%) for the Period 2000-2010

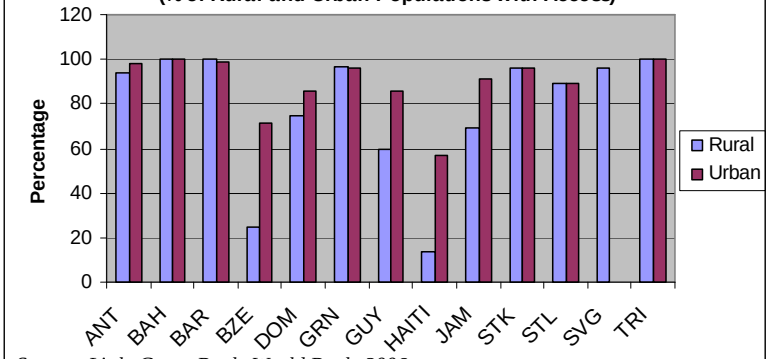


UN World Urbanization Prospects: The 2007 Revision

2.14 Large segments of this urban population are poor and vulnerable, live in precarious physical and social circumstances and place a tremendous burden on the health of natural ecosystems and ecological services. A review of country poverty assessments (CPAs) for BMCs shows that the poor in many cities are rarely served by formal municipal services such as water, solid and liquid waste collection and often have limited access to social services such as health, housing and schools or perceive these services to be

of low quality. A review of people with access to improved sanitation in urban areas shows that significant investment is required in many BMCs (see Figure 3). In St. John's, Antigua, the recent CPA shows some 32% of the city and 27% of the surrounding parish to be poor and vulnerable with some 19% and 16% of the population in these two areas still using pit latrines. In the case of Jamaica, 92% of households in the Kingston Metropolitan Area (KMA) have flush toilets, while in other towns, an average of 60% have this facility. In the KMA, 60% of households are linked to sewer systems, while in other towns the figure is 11%, the majority of urban households without flush toilets using pit latrines. The 2003 CPA for Dominica shows the incidence of indigence and overall poverty in the capital city and other urban areas as 16% and 19% respectively, which is much lower than the rural areas 33%. However, the urban areas still contain a quarter of all poor households and population. An estimated 54% of the poor in its urban areas did not have access flush toilets and some 7% did not have access to a safe water supply. The shift of St. Lucia's population to the north west of the country around the capital city, Castries has resulted in significant problems of drainage, flooding, sanitation and housing.

Figure 3: Improved Sanitation Facilities For Selected Borrowing Member Countires (% of Rural and Urban Populations with Access)



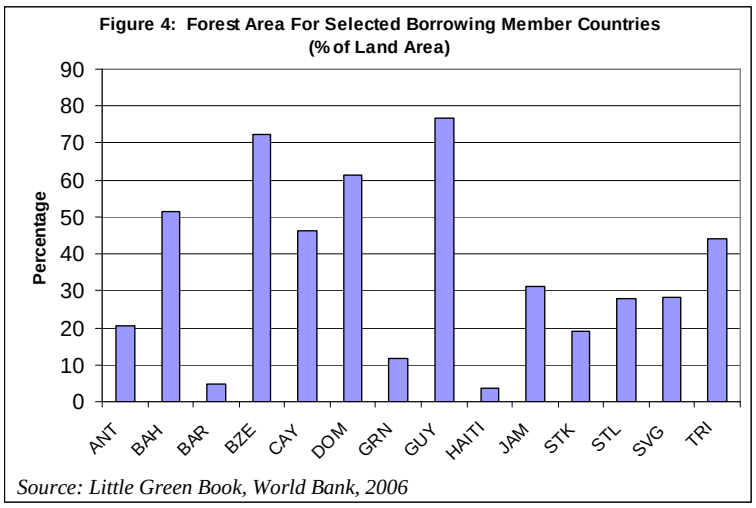
Source: Little Green Book, World Bank, 2006

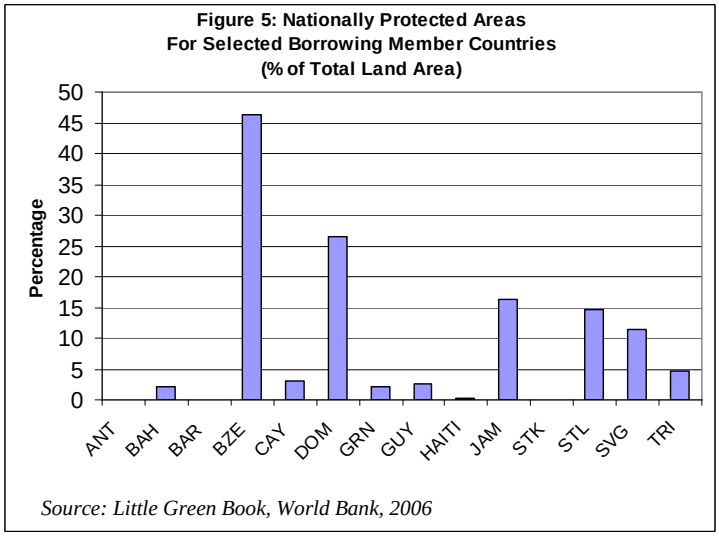
Natural Habitats and Biodiversity Management

2.15 Natural habitats in the BMCs sustain some of the most species-rich environments in the world with extremely high levels of endemism. Many of these areas are now under serious developmental pressure (urbanization, tourism, pollution) resulting in increasing numbers of threatened and endangered species. There are more than 600 bird species in the Caribbean islands, of which roughly 160 are endemic, some restricted to small areas on single islands. Forty-eight species endemic to the islands are threatened with extinction, including the Grenada dove. Among the most important bird symbols for conservation in the BMCs are the St. Vincent and St. Lucia parrots which have been designated as the national birds of these countries. The Eastern Caribbean's famous "mountain chicken", the second largest frog in the western hemisphere, currently found only in Dominica and Montserrat, has been rapidly declining due to human consumption, habitat loss and disease.

2.16 Caribbean marine and coastal ecosystems provide a range of goods and ecological services, e.g. coastal protection, fish stocks and nurseries. A significant percentage of the rural population are directly dependent on fishing for their livelihoods. Some two-thirds of the Region's coral reefs are badly degraded, as a result of pollution, damage from rising sea surface temperatures, and the impacts of hurricanes and tropical storms. Over-harvesting of nearshore reefs has significantly depleted fish stocks and increasing resource use conflicts with the tourism industry present serious threats to the livelihoods of many communities. Other threats to terrestrial and marine biodiversity include invasive species and the effects of climate change. The BMCs have given strong support for the designation of the Caribbean Sea as a special area in the context of sustainable development and have taken this concern to the United Nations General Assembly. BMCs are signatories to the Specially Protected Areas and Wildlife Protocol, which is the most comprehensive treaty of its kind, utilizing an ecosystem approach to protect rare and fragile ecosystems and habitats and endangered and threatened species.

2.17 Many BMCs have been taking steps to increase the coverage of areas designated for the protection of forestry and biological resources (Figure 4 shows the extent of the forested areas). Figure 5 shows the extent of nationally protected areas. Currently, Dominica has 26% of its territory designated for protection. In other countries, protected areas are effectively non-existent, as in Antigua and Barbuda, Barbados, Haiti and St. Kitts and Nevis. Despite the increase in coverage of designated protected areas in some BMCs, many of these lack formal management plans, and some are too small to effectively conserve biodiversity. However, there are encouraging signs, e.g. an ongoing livelihoods and protected areas project in the six independent OECS countries will see an increase in the number of effectively managed protected areas. Guyana and Belize, both larger countries, have taken on the challenge of protecting biological resources of great importance to the global commons. In 1996 Guyana designated nearly 371,000 hectares of its forest resources - Iwokorama - to be used as a living laboratory for tropical forest management. Similarly, the Belize Barrier Reef - the longest in the Western Hemisphere, (220 km) - was declared a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization in 1996. The challenge for the BMCs will be to maintain this momentum and to design innovative means for financing the management and protection of these areas. Some BMCs have adopted more participatory approaches, with local communities and the private sector sharing management of protected areas as tourism sites. This is an encouraging approach as it offers opportunities to widen options available to the poor to improve their livelihoods.





Energy and the Environment

2.18 BMCs have traditionally identified their dependence on oil as a major impediment to sustainable development. All BMCs, with the exception of Trinidad, are dependent on fossil fuel imports. A significant percentage of foreign exchange earnings is spent on oil and oil products. Cost has been a key factor influencing the nature of responses to calls for the development of RE. Although RE initiatives were actively pursued by BMCs during the oil crisis of the late 1970s, they were largely abandoned when oil prices fell. Fossil fuel prices are likely to continue spiralling upwards and the need to respond to issues of climate change by reducing carbon emissions, energy efficiency and the further development of RE has assumed global urgency. Under the Johannesburg Programme of Implementation, BMCs

committed to increase the contribution of alternative sources of energy to at least 10% of their energy mix by 2010. Some countries have started to seriously explore RE options. Montserrat, St. Lucia, Dominica, and Nevis are studying the potential of their geothermal resources. Some countries are already utilizing hydro power. Jamaica has committed itself to a goal of meeting 15% of its energy needs from alternative domestic sources by 2012 and has been pursuing initiatives in wind energy. Barbados has supported the development of solar energy with some success and has indicated its intentions to support further development of the sector. The Caribbean Renewable Energy Development Project (CREDP) financed by the GEF commenced initial work on the creation of an enabling environment for RE development and building capacity to identify and encourage investment in RE. The Inter-American Development Bank (IDB) and other development partners are exploring a follow-on regional activity to provide support for the financing of investments in RE, promote training and innovation in the sector, and support adaptation to climate change.

Disaster Risk Reduction

2.19 The BMCs' location in a geographic area of extremely high risk to multiple natural hazards and the impact these have had on the countries' social and economic development has been well documented (see Table 1). Less well-articulated has been the impact of human activities on natural resources and ecosystems, which has increased their vulnerability to natural hazards and thereby led to increased numbers of disasters. The poor are often forced to eke out livelihoods through environmentally destructive actions such as destroying forests and wetlands for fire wood or farming steep erosion-prone slopes. Practices such as the destruction of wetlands and the mining of sand from beaches and rivers have resulted in the loss of protective ecosystem services thereby exacerbating flooding, landslides and erosion. In many cities, large segments of the poor live in squatter settlements on marginal lands (gully embankments, steep slopes, wetlands, river beds) and in over-crowded, and unsafe self-built housing which heightens the vulnerability of the population and worsens the potential impact of natural hazards in BMCs. Effective poverty reduction strategies must therefore take into account the management of natural resources and disaster risk reduction if the cycle of vulnerability is to be broken.

2.20 The Caribbean Disaster Emergency Response Agency (CDERA), as the Caribbean Community's (CARICOM) focal point for disaster management in the BMCs, has contributed to improvements in the preparedness and emergency response capability of most BMCs. However, significant work remains for BMC's to internalise disaster risk in their development programmes. CDERA, together with other donor agencies, has developed a results-oriented Enhanced Comprehensive Disaster Management (CDM) Framework, 2007-2011. The CDM has as its objective: Regional sustainable development enhanced through comprehensive disaster management. The four intended outcomes identified within the CDM framework are:

(a) enhanced institutional support for CDM programme implementation at national and regional levels;

(b) an effective mechanism and programme for management of CDM knowledge is established;

(c) disaster risk management (DRM) mainstreamed at national levels and incorporated into key sectors of national economies; and

(d) enhanced community resilience to mitigate and respond to the adverse effects of climate change and disasters.

2.21 Addressing disaster risk reduction issues is ultimately an issue of designing and implementing a more sustainable development path. Caribbean countries have yet to effectively integrate environmental considerations, including disaster risk reduction, in their development policies, and programmes and the financial and technical capacity constraints that have hindered their adoption remain. BMC's through CARICOM have often relied on a regional approach to address common needs either through regional project initiatives or building and strengthening capacities of regional institutions to provide direction and coordination. Examples include CDERA, and the 2007 launch of the Caribbean Catastrophe Risk Insurance Facility, a parametric insurance scheme designed to provide BMCs with immediate liquidity after a severe earthquake or hurricane.

Climate Change Adaptation

2.22 The Fourth Assessment Report of the Inter-governmental Panel on Climate Change predicts that by 2099 the Caribbean will experience the following changes:

(a) rising temperatures (+1.4° to 3.2°C);

(b) rising sea levels (+0.18 to 0.59 m);

(c) increased ocean acidity (+0.14 to 0.35 pH units);

(d) likely (>66% certainty) increase in hurricane intensity;

(e) decrease in summer rainfall in the Greater Antilles; and

(f) increase in flood events.

There is growing evidence in the Caribbean that the impacts of a changing climate are already being experienced through a heightened frequency of intense and/or un-seasonal hurricanes, floods, droughts, and coral bleaching events. The Caribbean needs to not only address the short-term challenges of managing for disaster risk reduction, but also the longer-term, less well defined impacts of climate change and climate variability.

2.23 The impacts of climate change will be widespread and will vary from country to country. Almost every sector is likely to be adversely impacted by climate change including, agriculture, forestry, fisheries, tourism, construction (particularly in coastal areas), energy and insurance. Estimates of quantitative impact are difficult to make partly because of limited climate model projections available at suitable spatial scales for the Caribbean. Limited quantitative baseline inventories of the Region's environmental resources and assets are another constraint. Recent work by the World Bank shows that with a 1 metre[4] rise in sea level approximately 11% of the land area of the Bahamas would likely be affected, making it one of the top ten developing countries most likely to be seriously affected. This would be equivalent to about 5% of its Gross Domestic Product (GDP). Belize, Jamaica, and Guyana are also likely to experience significant impacts, with an estimated 30% of wetlands in Jamaica and Belize to be severely affected. Researchers are also pointing to a link between climate change and the resurgence of malaria, as well as an increase in the frequency of dengue cases.

[4] (Dasgupta, and others, Feb, 2007) compared and assessed the potential impact of Sea Level Rise (SLR) using multiple scenarios o 1-5m and homogenous indicators[4] for all developing countries. A 1-3m rise in sea levels is considered realistic even with the stabilization of green house gas emissions in the near future.

2.24 The Caribbean therefore needs to move forward at the local, national and regional levels to begin the process of adapting to climate change within all the key sectors, including education, human health, freshwater supply, food security, sustainable urban development, biodiversity conservation, tourism, manufacturing, mining, banking and insurance. This will require quantifying the effects of climate change on natural and socio-economic systems; assessing and identifying realistic adaptation options for different economic sectors; designing tools to aid decision-makers in mainstreaming these adaptation measures in their development policies and programmes; and assisting all stakeholders in the implementation of adaptation measures.

2.25 The BMCs have benefited from early support of the WB and the GEF with the formulation of regional project initiatives beginning with the Caribbean Planning for Adaptation to Climate Change (CPACC) Project in 1997. CPACC helped to focus attention on the vulnerability of the island nations of the Caribbean to the impacts of climate change. These efforts continued with CIDA supported Adaptation to Climate Change Project and the subsequent follow-on project, Mainstreaming Adaptation to Climate Change (MACC) financed by the WB/GEF. MACC was designed to build an adequate knowledge base on climate change vulnerability and risk and to build capacity at the regional and country level to assess impacts. It was also expected that the concomitant risks for key economic sectors be assessed and adaptation strategies developed and mainstreamed at the national level.

2.26 In 2006, the WB approved a four-country pilot project in three OECS Countries[5] - the Implementation of Adaptation Measures in Coastal Zones Project (SPACC). The focus of this initiative is the testing of adaptation measures while explicitly recognizing that climate change, land degradation, desertification and the conservation of biodiversity are inter-related environmental issues, and that measures to reduce the expected impacts from climate change on marine and terrestrial resources provide room and synergy for addressing other environmental degradation issues.

2.27 Since its inception in 2005, the Caribbean Community Climate Change Centre (CCCCC) has made major efforts to develop formal agreements for joint research and information sharing with the regional and international scientific research community. With the support of the Institute of Meteorology, Cuba, and the Hadley Centre, United Kingdom, CCCCC recently completed general circulation modelling of climate change for the Region for the period 1950-2100. This work will provide the technical information necessary to assist with the development of economic models in sectors, such as agriculture, as well as for key ecosystems and natural resources such as watersheds and water resources. Individual BMCs, do not have the capability to undertake this critical work and it is far more effective to strengthen the capacity of the CCCCC to carry out the required research, develop analytical tools and disseminate the information to BMCs.

2.28 The establishment of CCCCC was approved by BMCs with the understanding that it would not receive mandatory contributions from member states to carry out its functions. It has been designed with a small Technical Secretariat and is expected to function as an articulation and coordination mechanism to facilitate the development and implementation of the Region's climate change agenda within the network of existing regional institutions. The Centre is in the process of establishing a Trust Fund, the interest from which will provide start up and ancillary funding for climate change activities in the beneficiary countries. CARICOM, through the Trinidad and Tobago Petroleum Fund, has agreed to provide USD1.0 mn to seed the Trust Fund. CDB has provided a grant to the CCCCC to finance consultancy services necessary for designing the legal and administrative framework of the Trust Fund and is currently considering another grant to assist with the establishment of an Information Clearinghouse which will streamline data storage, manipulation and retrieval at CCCCC.

[5] Dominica, St. Lucia, Grenada and St. Vincent and the Grenadines

3. ENVIRONMENTAL SUSTAINABILITY - CDB's OPERATIONS

3.01 In 1994, CDB, building on the momentum of the Rio Conference on Sustainable Development and Agenda 21, articulated its first Environmental Policy (EP), which reflected the priority issues identified by the BMCs in the BPoA. The EP was supported by Environment Review Guidelines, which provided the framework to operationalise the EP in the Bank's work programme. Experience in the implementation of CDB's EP, can be divided into three areas:

(a) financing discrete environment projects for the BMCs;

(b) institutional and capacity building efforts for improved environmental management; and

(c) mainstreaming environmental sustainability in CDB's operations.

It is perhaps in this latter area that the Bank has had the most success.

3.02 Environmental sustainability and disaster risk reduction were identified as cross cutting themes in CDB's strategic plans over the period 1998 to 2009. There was, however, no specific financial resource allocation for environmental and the focus was on ensuring the environmental sustainability of the Bank's investment operations.

3.03 Between 2002 and 2006 the Disaster Mitigation Facility for the Caribbean (DMFC) project, a joint initiative of CDB and the United States Agency for International Development – Office of Foreign Disaster Assistance, sought to mainstream DRM within CDB's operations and within the development planning processes in the BMCs. This had some success in helping to focus attention on hazard mitigation in CDB's investment operations, as well as in the physical planning and environment processes in four BMCs: Belize, Grenada, Jamaica and St. Lucia. Following the completion of this project, a permanent disaster risk management function was established at the Bank.

3.04 In 2006, an independent evaluation of the application of the Bank's Environmental Review Guidelines concluded that CDB had made significant progress in incorporating environmental considerations into its investment operations and that there was substantive compliance with its requirements by its Borrowers. However, the Report recommended several areas in which improvements could be to made to ensure that management of these issues reflected the best practices for a multilateral development institution. These included greater specificity of environmental performance standards, more explicit inclusion of natural hazard and climate change considerations in both its investment lending and macro-economic policy work with BMCs and the need to increase its capacity building initiatives to support more robust environmental regulatory and governance frameworks in the BMCs.

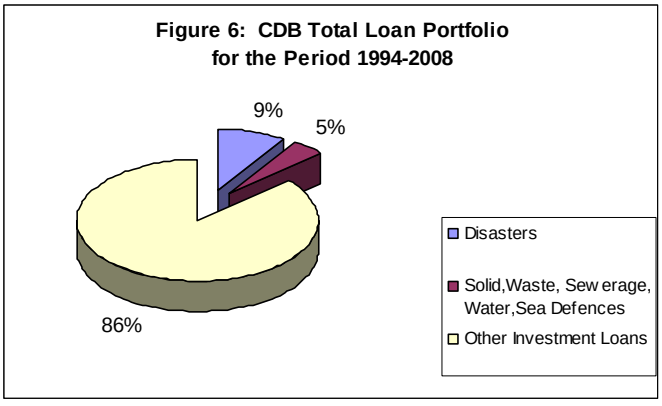
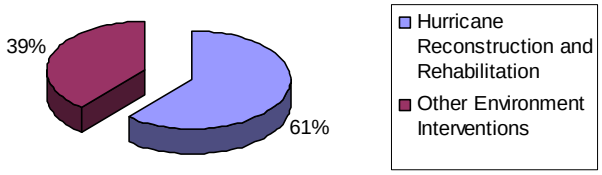


Figure 6: CDB Total Loan Portfolio for the Period 1994-2008

3.05 A review of CDB's investment portfolio between 1994 and the present shows that projects in the environment portfolio (disaster rehabilitation, disaster mitigation, solid waste, water and sanitation, sea defences) accounted for 14% of total lending of USD1,717 mn (see Figure 6). Within the environment portfolio some 61% of the interventions were associated with reconstruction and rehabilitation efforts following hurricanes (see Figure 7).

3.06 There was significant variation from country to country. Nearly half of the lending to Dominica (46.5%) was in the environment area, covering investments in water, sewerage, solid waste management and sea defences. Grenada's entire environmental loan portfolio of USD 123.4 mn supported disaster related interventions associated with Hurricane Lenny in 1999, Tropical Storm Lili in 2002 and Hurricane Ivan in 2004. Direct mitigation interventions, however, only accounted for 0.3% of the portfolio. In Jamaica, financing of rehabilitation and reconstruction activities associated with hurricanes and tropical storms accounted for 18% of total lending. The Bank has had some success in directly addressing or mainstreaming environmental issues in many sectoral investment interventions, either as a discrete project component or through changes in project design.

Figure 7: CDB Environment Loan Portfolio for the Period 1994-2008



3.07 The Bank's total technical assistance (TA) portfolio for the environment over the period was USD96 mn, of which USD6.9 mn was for DRM national and regional interventions. There were few interventions in the area of institutional and capacity building for environmental management except for the DMFC, a sub-regional project examining possible approaches for environmental management in four OECS member states. In 2006, a significant investment was made in the revision of the Caribbean Uniform Building Code (CUBIC), which is important for building better and safer physical infrastructure. The Bank has over the period supported regional knowledge-building and training on a wide range of environment issues. Traditionally, countries have relied on grant resources from bilateral sources for capacity building and institutional strengthening initiatives. Regional and sub-regional project interventions financed by external development partners continue to account for much of current environmental work in the BMCs (see Table 2).

3.08 There are fiscal constraints that prevent many BMCs from increasing their overall capital expenditure. As a result, natural resources and environmental management interventions must compete with other priorities such as education, health, and physical infrastructure. It is also true that the very high concentration of disaster interventions in the Bank's environment portfolio partly reflects the limited attention many BMCs have paid to maintenance and disaster mitigation measures, as well as the many poor development decisions taken which have resulted in increased risk to natural hazards. Many environment professionals in the Region also perceive a lack of interest and indifference by some BMCs to enforce existing legislative requirements.

4. A STRATEGY FOR SDF 7

4.01 For BMCs to achieve successes in addressing the issues of environmental sustainability it is clear that:

(a) environmental degradation cannot be tackled without addressing the issue of poverty;

(b) mainstreaming environmental considerations in economic development policies and programmes must be addressed urgently;

(c) more effort must be placed on environmental capacity building at the regional and national level to provide the knowledge base required to underpin decision-making of

national economic policies;

(d) there is an urgent need to improve the regulatory and governance frameworks and foster more inclusive and participatory approaches;

(e) building partnerships and alliances with other development regional and international development partners is critical for more effective use of declining ODA resources; and

(f) innovative approaches are required to finance environment and sustainability initiatives.

4.02 CDB's 2004 Poverty Reduction Strategy, re-affirms the Bank's commitment to the centrality of poverty reduction in its mandate. During SDF 7 the Bank intends take a more strategic and proactive approach to directly address poverty reduction and environmental degradation issues in the BMCs. Table 3 outlines the proposed areas for CDB environmental intervention in SDF 7 within the framework of the Caribbean-specific Millennium Development Goals (MDGs) and identifies how these interventions contribute to the achievement of the targets. In line with its Poverty Reduction Strategy, CDB will assist BMCs to design and implement interventions that promote environmental sustainability in areas that:

(a) widen the options for sustainable livelihoods for the poor and vulnerable through sustainable management of natural resources;

(b) improve coverage of the population with access to improved waste water and sanitation services to reduce pollution and improve the health and productivity of the poor;

(c) reduce BMCs' vulnerability to natural hazards and strengthen climate change adaptation and mitigation measures; and

(d) strengthen the capacity of regional and national institutions capacity for improved environmental management.

4.03 Given resource limitations, the possible areas for CDB's interventions will be selected based on the following criteria:

(a) they provide opportunities for significant beneficial impacts for the poor and vulnerable;

(b) they contribute to stated BMC environment priorities;

(c) they offer opportunities to significantly improve environmental benefits and natural resource management in areas where CDB has experience, credibility and comparative advantage; and

(d) they offer potential for synergies with other CDB operation and those of other development partners.

Investments in Water, Sanitation and Energy

4.04 Coverage of water and sanitation in all BMCs shows an upward trend. The numbers do not, however, reflect the serious issues of poor reliability, low quality and weak management in the sector. The low coverage of central collection systems in many tourist and urban centres presents a serious pollution threat to natural resources and ecosystems. The Bank has had considerable experience in lending for water and sanitation and intends to increase its assistance in this area. The tremendous

pressure on watersheds and water resources, points to the need to link future investment interventions with support for improved water resource management. These may include exploiting opportunities, to improve livelihood options for the poor through co-management approaches.

4.05 The Bank will support BMCs' efforts to exploit their RE sources. In addition, the Bank should seek to work with other development partners to leverage and maximize resources for these efforts, including the use of innovative financing schemes under the global environmental conventions. The Bank will also support BMCs in paying closer attention to improving energy efficiency. Assistance through the strategic use of TA is also required to strengthen the policy, regulatory and governance frameworks for these essential utilities.

Sustainable Livelihoods

4.06 The poor can substantially improve their livelihood options, while contributing to the protection and management of natural resources and there are examples of successful initiatives in BMCs. Community management approaches for management of forestry, national parks and other protected areas offer opportunities for improved management, while diversifying and increasing incomes of the poor. In the BMCs these are also useful approaches to manage resource conflicts between the poor and other interest groups. They also present good opportunities for diversification of the tourism product while encouraging private sector investments in environmental protection. Some BMCs offer opportunities for revitalization of urban areas that have significant historical and cultural importance. These revitalized areas may also be used for tourism purposes. Properly managed, these initiatives can be designed to catalyse private sector investments as well as improve the living conditions of the urban poor. The Bank will provide support in these areas as appropriate.

Disaster Risk Reduction

4.07 CDB has had a long history of working with development partners, regional institutions and BMCs to build knowledge, and strengthen capacities in the disaster risk reduction. Table 2 shows many on-going initiatives being financed by the development community in this area. The CDM Framework, however, provides a structure within which to best frame the Bank's interventions. It is proposed that the Bank focus particular assistance on OECS BMCs and Haiti in the following four main areas:

(a) institutional strengthening for DRM;

(b) supporting DRM knowledge management;

(c) mainstreaming DRM into key sectors of national economies; and

(d) building community resilience in DRM.

Such assistance will provide support for national and regional DRM organisations to integrate DRM into national policies and strategies, building knowledge resources such as databases and analytical tools, mainstream disaster risk reduction considerations into key sectors, building community resilience and collaborate with the Basic Needs Trust Fund (BNTF). Further details are presented in Table 3.

4.08 There is scope to finance investments in infrastructure for mitigation as well as disaster reconstruction and rehabilitation. Substantial investments are required to replace sub–standard critical social infrastructure such as schools and health facilities, as well as to provide sea and river defences, slope stabilization and improved drainage works for the physical protection of areas at high risk to natural hazards.

Climate Change Adaptation

4.09 There are two main immediate challenges to addressing climate change: firstly to stop and reverse greenhouse gas concentrations in the atmosphere, also referred to as mitigation; and secondly to address ways in which society can live with the degree of global warming that cannot be stopped, also referred to as adaptation. Carbon emissions from the BMCs, whilst small in volume in the global context, nevertheless need to be reduced particularly in view of rising fuel prices. As described above, efforts need to be concentrated on energy efficiency measures and the increased use of RE.

4.10 Adaptation to climate change is viewed as a priority by the international community for ensuring the long-term effectiveness of investment in poverty reduction and sustainable development. A position paper on responding to climate change was presented to the Bank's Board of Governors in May 2008 and outlined several response mechanisms. These included the incorporation of climate risk management into all of the Bank's operations and the provision of assistance to the BMCs for climate change mitigation and adaptation measures.

4.11 In light of the above, proposed interventions focus on integrating climate change adaptation measures into sustainable development and poverty reduction strategies, specifically support for:

(a) preparation and formal adoption by BMCs of national climate change adaptation policies;

(b) mainstreaming climate change adaptation measures into sectoral policies, strategies and plans in BMCs;

(c) building community resilience to adapt to climate change;

(d) support regional institutions to monitor climate change adaptation and to conduct further research into climate change modelling and predictions; and

(e) support BMCs in accessing innovative climate change funding mechanisms.

Further details of proposed interventions are presented in Table 3.

4.12 Climate change adaptation is still at a very preliminary stage in all the BMCs. These interventions will assist the BMCs in integrating climate change adaptation in the national and sector-based policies aid plans, which are supported by an enhanced knowledge base, whilst also helping the most affected group, the poor implement measures to adapt to climate change.

Capacity Building - Complementary National and Regional Interventions

4.13 Effective natural resource management requires the support of good technical systems, trained personnel, resource databases, laboratories, monitoring and reporting systems all of which require improvement in the BMCs. There are many areas and a range of entry points to build and strengthen national institutions and improve technical capacities for resource management, through investment lending and TA initiatives. Land management, physical planning and building permit systems have the potential to allow countries to deal with a wide range of natural resource management issues (including disaster risk reduction and climate change), as well as tax revenue generation as shown in Table 3. For successful outcomes from these interventions, the Bank will need to be highly selective, secure the demonstrated commitment of governments and be prepared to sustain technical capacity building efforts which require long term commitment.

4.14 The Bank has had a long history of fostering regional and sub-regional initiatives that promote knowledge sharing, dissemination and training in best practices. Disaster risk reduction and climate change require substantial technical resources and expertise to devise analytical tools and provide the information necessary to plan and implement risk reduction and adaptation strategies and programmes. During SDF 7, The Bank will pay particular attention to the development and maintenance of technical capacity of the network of regional institutions responsible for development and maintenance of technical systems such as hydro-meteorological databases, ecological and hazard early warning systems and seek to increase their Regional coverage. Given limited resources, effort will be made to use, as far as possible, regional and sub-regional mechanisms to support national level development interventions.

4.15 Particular attention will be given to further consolidation of work on the revision of CUBIC and ensuring its adoption and use by BMCs. Further research is required to support the development of more formal risk instruments such as the expansion of the types of hazard coverage under the CCRIF. Given the geography of the Region and limitation of resources, special emphasis needs to be given to interventions that facilitate information flows using enhanced information technologies.

4.16 The Bank will also seek to mainstream these issues in country strategy papers and national poverty reduction strategies and the range of preparatory activities associated with their development, such as public consultations, donor coordination and information dissemination. These activities will require additional training for CDB staff as well as analytical research to explore the linkages and improve the understanding of resource management, poverty and economic growth to determine the most appropriate development policies and programmes.

5. CONCLUSION

5.01 The BMCs have a formidable challenge to stem degradation of their natural resources, develop and implement appropriate adaptation strategies for climate change and disaster risk reduction and at the same time reduce the poverty of large segments of the population. CDB, as a regional development financing institution, has a responsibility to support BMCs in their efforts, through policy advice and increased levels of financing of appropriate and environmentally sustainable investments and TA programmes. This requires that the Bank places more emphasis on interventions that both address poverty reduction and allow for a more comprehensive approach to natural resources management, disaster risk reduction and climate change. It also requires the engagement of a wider range of stakeholders; governments, NGOs, CBOs and the private sector.

5.02 The Bank has started this process with the recent preparation of its Environment and Social Review Procedures (ESRP) to make them more effective in mainstreaming environmental considerations in CDB's operations. The ESRP reflects international best practice approaches that have been adopted by the development community. They have also been revised to place greater emphasis on BMCs principal cross–cutting priorities of disaster risk management and climate change adaptation by requiring their explicit inclusion at the earliest stage of both policy work and investment operations with BMCs. The Bank has also increased its level of staffing to assist with the implementation of the environment sustainability objective during SDF 7.

5.03 The Bank will need additional resources to diversify its investment interventions and improve the incentive structure to facilitate the implementation of a more focused approach to poverty reduction and environmental sustainability. The Bank must also develop realistic targets for its work programmes in this area given the considerable requirements for cross-sectoral integration between poverty reduction and environment and natural resource management work. Low absorptive capacities and limited technical resources in BMCs are also likely to constrain the range and numbers of interventions. It will therefore be important for the Bank, to strengthen relationships and collaboration with other development partners

as part of its implementation strategy for this core theme for both SDF 7 and the Bank as a whole, as well as to support the work of other regional institutions with environment core mandates.

TABLES

TABLE 1: SELECTED NATURAL HAZARDS IMPACTING BMCS, 1988-2008

Hazard	Year	Magnitude (Maximum Strength during Life of System)	Estimated Cost	BMCs Affected
Hurricane Gilbert	1988	5	USD1.1 bn, 65% of GDP	Jamaica
Hurricane Hugo	1989	5	n.a.	Antigua and Barbuda, St. Kitts and Nevis, Montserrat
Tropical Storm Debby	1994	n.a.	USD79 mn, 18% of GDP	St. Lucia
Hurricanes Iris/ Marilyn/Luis	1995	Iris (cat. 1) Marilyn (cat. 3) Luis (cat. 3)	USD700 mn	Anguilla, Antigua and Barbuda Dominica, Montserrat, St. Kitts and Nevis
Hurricane Georges	1998	Category 3	USD 450 mn (not including Dominica)	Antigua and Barbuda, Dominica, St. Kitts and Nevis
Hurricane Floyd	1999	Category 4	n.a.	The Bahamas
Hurricane Lenny	1999	Category 4/5	USD274 mn	Anguilla, Antigua and Barbuda Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines
Tropical Storm Lili	2002	n.a.	USD 7.8mn USD 9.7mn	Grenada St. Vincent and the Grenadines
Tropical Storm Earl	2004	n.a.	n.a.	St. Vincent and the Grenadines, Grenada
Hurricanes Charley/ Frances/Ivan/Jeanne	2004	Charley Frances (cat. 4) Ivan (cat. 5) Jeanne (cat. 3)	USD150 mn	The Bahamas, Cayman Islands Grenada, Jamaica, St. Lucia, St. Vincent and the Grenadines Trinidad and Tobago
Hurricane Emily	2005	Category 5	USD75.5 mn	Grenada
Hurricane Dean	2007	Category 5	USD90 mn (initial estimated damage to infrastructure for St. Vincent and the Grenadines, Dominica and Belize)	Belize, Dominica, Grenada Jamaica, St. Lucia
Tropical Storm Arthur	2008	n.a.	USD26mn	Belize
OTHER EVENTS				
Volcano		1995 to present	1995 negative growth - 7.61%, 1996 negative growth- 20.15%	Montserrat
Landslides	2002		USD116 mn	Jamaica
Floods	2005		USD2.6 bn	Guyana

Adapted from CDERA

TABLE 2: DEVELOPMENT PARTNERS INITIATIVES

DEVELOPMENT PARTNER	PROGRAMMES	DURATION	VALUE
CIDA	**Disaster Risk Management**		
	Capacity building - Supports the implementation of the disaster risk management framework (CDM) adopted by the member states of CARICOM	2007-2015	USD16.66 mn
	Caribbean Disaster Responsive Fund	2003-2008	USD0.98 mn
	Catastrophe Risk Insurance Program - WB	2007-2012	USD19.77 mn
	Health sector Disaster Risk - PAHO	2007-2015	USD2.96 mn
	Disaster Preparedness – OAS, PAHO	2001- 2008	USD3.95 mn
EU	Institutional and capacity building support for disaster management in the Caribbean. Strengthen CDERA's capacity as the regional driver of CDM		
IDB	DRM for Sustainable Tourism in the Caribbean (partners - CTO, CROSQ,CDERA, UWI)	2007-2010	USD.8mn USD.2mn
WB	Sub-regional support to the OECS aimed at vulnerability reduction in terms of human-made and natural disasters, and capacity building in Guyana		
UNDP	Macro Socio-economic Damage Assessment (Post Disaster) in the OECS – capacity building in OECS members to undertake post disaster assessments using the UNECLAC methodology	2006-2009	USD.311mn
	Caribbean Risk Management Initiative building capacity across the Caribbean region to manage climate-related risk	2004-2008	USD1.2mn
USAID	Disaster response and Risk reduction – formal adoption of OECS Bench marking tool by OECS states	2007-2008	USD.089mn
DFID	CDM programme	2008-2013	USD 4.7mn
USAID	**Biodiversity Conservation/Livelihoods** OECS Protecting the Eastern Caribbean Region's Biodiversity	2007-2009	USD2mn
GEF/WB/OAS/ French Govt	Protected Areas and Associated Livelihoods	2005-2010	USD7.54mn
UNEP	Customisation of Harmonised Biodiversity Law in the OECS	2007-2008	USD.058mn

DEVELOPMENT PARTNER	PROGRAMMES	DURATION	VALUE
UNEP	**Climate Change** MAAC SPACC "Implementation of Adaptation Measures in Coastal Zones (SPACC) Project". (Dominica, Saint Lucia, Saint Vincent & the Grenadines) **(GEF)**	2003 - 2008 2007-2011	USD10.95 USD5.7
UNEP	**Sustainable Land Management** **(**UNEP /UNDP/GEF) (St Kitts and Nevis, St Lucia, Antigua & Barbuda, Dominica) includes climate change adaptation and focuses on deforestation and biodiversity loss, by mainstreaming sustainable land management into national development priorities and conservation management techniques. **Watershed Management** Integrated watershed and coastal areas Project (UNEP/GEF) **Pollution Control** National Programmes of Action to protect the marine environment from land-based activities Revolving Fund for Wastewater Management - reduce pollution discharges in the coastal waters of the Caribbean Basin	2008-2010 2006-2011	USD5.446mn USD14mn
UNDP/GEF **GTZ**	**Energy** CREDP CREDP focus on energy efficiency and RE	2004-2009 2008 - 2012	USD3.76mn USD 7mn
CIDA	**Capacity Building** Environmental Capacity Development for OECS – strengthens environmental management capacity of public sector, NGO and CBO institutions in the OECS	2001-2009	USD4.45mn

TABLE 3: SDF 7 – CDB's CONTRIBUTION TO OUTCOMES OF MDG 7 TARGETS: A RESULTS FRAMEWORK FOR SDF 7 THEME 2

CMDG Targets	AREAS FOR CDB INTERVENTION	CDB's CONTRIBUTION TO OUTCOMES
CMDG 7: **Ensure Environmental Sustainability** **CMDG Target 14:** Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources. **CMDG Target 17:** Construct and implement a vulnerability index for the Caribbean within the next five years, which is sensitive to economic, social and environmental threats.	**Integration of Environmental Sustainability in BMCs Development Programmes** Institutional Strengthening and capacity building for improved natural resources management at the regional, sub-regional, national levels through improved and strengthened administrative technical systems for disaster risk reduction, environmental management and climate change adaptation. Capacity building through provision of technical training and awareness building specifically in the OECS	Further integration of environmental sustainability in CDB's policy work, Country Strategy Papers, Country Environmental Analysis, CPA and contributions to national, poverty reduction strategies TA - OECS BMCs for institutional strengthening and capacity building for improved environmental management Capacity Building – technical training for environmental and natural resource management, with emphasis on the development of more robust administrative regulatory frameworks Updating and refinement of CDB's Vulnerability Index
CMDG 7: **Ensure Environmental Sustainability** **CMDG 14:** Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources **CMDG Target 15:** Halve, by 2015, the proportion of people without sustainable access to safe drinking water and improved sanitation. **CMDG Target 16:** Have achieved by 2020, significant improvements in the lives of at least 70% of persons living in poor communities. **<u>Additional Target:</u>** **Environmental Protection** Achieve by 2015, a significant contribution	**Sustainable Land Management and Biodiversity Protection** Investment projects that widen options for sustainable livelihoods for the poor, through improved management of natural resources and ecological services. Examples include: - Establishment and co-management of protected areas including urban revitalization projects - Land management – improved agricultural production and watershed management - Increased interventions under Basic Needs Trust Fund (BNTF) for discrete environmental beneficial community initiatives; and - Financing investments in water and sanitation infrastructure to widen coverage and reliability.	Environmental component provided for BMCs under BNTF programme Investments in water and sewerage projects with emphasis on increasing coverage and reliability for the poor in rural and urban areas. TAs to improve understanding of water resource management issues and strengthen management capacity of resource management institutions and improved management of national utilities

CMDG Targets	AREAS FOR CDB INTERVENTION	CDB's CONTRIBUTION TO OUTCOMES
to sustainable land management and biodiversity protection.		
CMDG 7: **Ensure Environmental Sustainability** **CMDG Target 14**: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources **<u>Additional Target:</u>** **Renewable Energy, Energy Efficiency and Climate Change** Increase the contribution of alternative sources of energy to at least 10% of the energy mix in BMCs by 2010	**Renewable Energy and Energy Efficiency Programme** - Financing viable RE capital projects. Promoting improved national policies and regulatory framework to facilitate expansion of RE and energy efficiency at the regional and national levels. Resource mobilization for innovative financing of climate change initiatives for the Region to finance RE and climate change adaptation issues	TAs for capacity building and strengthening sub - regional or national regulatory framework to promote reduced dependency on fossil fuels Promotion and financing of viable renewable projects Mobilize support for RE and CC Adaptation projects for BMCs through the Carbon market
CMDG 7: **Ensure Environmental Sustainability** **CMDG Target 14:** Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources. **Indicators 65, 66, 67** 65: Incidence of natural disasters 66. Economic losses resulting from natural disasters 67 Social dislocation resulting from natural disasters **CMDG Target 16:** Have achieved by 2020, significant improvements in the lives of at least 70% of persons living in poor communities.	**Disaster Risk Management: Contribute to the Caribbean CDM Framework** - Regional sustainable development is advanced and the lives of people living in poor communities are improved through disaster risk reduction and mitigation activities within the overall CDM framework.	Institutional support for CDM programme implementation at national and regional levels (Outcome 1 of CDM) as seen by: DRM policies and strategies formally adopted in all BMCs; Regional and sub-regional DRM initiatives implemented with other donor/MDB partners; expansion of scope of Caribbean Catastrophe Risk Insurance Facility to include other hazards, e.g. floods Capacity building in BMCs to monitor and assess DRM achievements (Outcome 2 of CDM) as seen by: Comprehensive Disaster Management Database established and maintained; Additional DRM monitoring tools developed and adopted in 50% of BMCs; consolidation of ongoing work on Caribbean Building Code and monitoring of implementation Capacity building at the national level to integrate DRM and Climate Change Adaptation into economic planning and

CMDG Targets	AREAS FOR CDB INTERVENTION	CDB's CONTRIBUTION TO OUTCOMES
		finance sectors, environmental impact assessment procedures, and business continuity planning (Outcome 3 of CDM) as seen by: DRM integrated into economic planning and finance sectors in 50% of BMCs; DRM (and climate change adaptation) integrated into environmental impact assessment procedures at the national level in 50% of BMCs; Business continuity planning strengthened in microfinance institutions in BMCs Build local capacity in vulnerability reduction and safe building practices in low income communities, and collaborate with BNTF programme projects (Outcome 4 of CDM) as seen by: Best practices in DRM shared and implemented widely in low income communities; formal and informal DRM training programmes supported; 10 BNTF projects implemented that include specific DRM measures.
CMDG 1:Eradicate extreme poverty and hunger **CMDG 4: Reduce child mortality** **CMDG 5: Improve Maternal health** **CMDG 6: Combat HIV/AIDS, malaria and other diseases** **CMDG 7: Ensure Environmental Sustainability**	**Climate Change Adaptation** Help society develop ways to live with the degree of global warming that cannot be stopped by integrating climate change adaptation measures into sustainable development and poverty reduction strategies	Support for the development of national climate change adaptation policies, strategies and action plans incorporating results based management as seen by: Climate change adaptation policies formally adopted in all BMCs; Climate change adaptation plans with specific results adopted in 50% of the BMCs Support the BMCs in the mainstreaming of climate change adaptation measures into sector policies and plans, especially in sectors dealing with economic planning, finance, physical planning, environment and disaster risk management as seen by: Climate change adaptation measures integrated into specific sector policies and plans in 50% of the BMCs Build local capacity in vulnerable low-income communities, including BNTF projects, to adapt to climate change as seen by: Climate change adaptation incorporated into existing BNTF policies and procedures; 15 BNTF projects implemented that include specific climate change adaptation measures;

CMDG Targets	AREAS FOR CDB INTERVENTION	CDB's CONTRIBUTION TO OUTCOMES
		Caribbean Technological Consultancy Services expanded to include climate change adaptation, RE and energy efficiency, climate-proofing buildings and projects; support for small-farmer crop insurance Support regional institutions in monitoring climate change adaptation in the region, and the scientific modelling and forecasting of climate change Support regional climate change funding mechanisms and collaborate with other MDBs and donor agencies in climate change adaptation as seen by: Establishment of a climate change adaptation database; Improved climate change modelling and predictions specific to individual BMCs Support regional climate change funding mechanisms and collaborate with other MDBs and donor agencies in climate change adaptation

APPENDICES

APPENDIX 1

SUB-REGIONAL - OECS RESPONSE

The OECS sub-region has long recognised that achieving its sustainable development objectives and priorities including identifying policy opportunities to reduce poverty, requires innovative and proactive thought and action. As a result, the region is engaged in various sub-regional approaches focused on reducing vulnerabilities and building resilience of the nine Member States (MS). One such approach is the *St. George's Declaration of Principles for Environmental Sustainability in the OECS* (SGD) which emerged as a policy response to several of the environmental pressures and associated development challenges facing the region. Given the sub- region's exceptional vulnerability to adverse changes in environmental conditions, environmental protection, sustainable use of natural resources and sustainable development are at the centre of the SGD.

The SGD, signed by all the MS in 2001, is an indigenous regional environmental policy statement that responds to the specific and common needs, problems, contexts and capacities of the MS. A companion document to the SGD, the OECS Environmental Management Strategy (OECS-EMS) identified the specific types of actions that are necessary to give effect to the SGD, as well as the results to be achieved by those actions and accountabilities for ensuring that actions are effective. A monitoring and reporting instrument reporting tracked MS implementation of the SGD.

The rational for the SGD and its continuing relevance was based on the following:

(i) SGD provides a framework through which all the major international and regional environmental agreements and documents, to which OECS Member States were already signatories, can be implemented.

(ii) National policies alone are unable to deal with shared resources and issues and the specificities of the OECS justify the use of a policy instrument such as the SGD to serve the sub-region.

(iii) SGD creates a framework for pooling and exchanging expertise and sharing experiences in the sub-region where skills and capacities are limited; identifying the critical environmental issues which the countries must address collectively and individually, preparing long-term goals, strategies and plans for action on those issues and coordinating the actions of development partners and the MS to support and carry out the strategies and plans.

(iv) SGD is also seen as providing a framework for attracting and channelling financial and TA which is directed at areas which MS determine to be their priorities. Some development partners use the SGD to guide their interventions in the sub-region.

The SGD was reviewed and revised in 2006 and the OECS-EMS was incorporated into the revised SGD The revised SGD considers the changes in the national, regional and global policy environment since its initial development and makes direct links with other policy commitments particularly the MDGs. The revised SGD is now more consistent with the MDGs without losing the essence and specificity of the original SGD. It includes specific environmental targets and indicators that are relevant and applicable to the OECS sub-region and identifies a number of supportive actions that MS agree to implement, in partnership with and in support of national governments and non-governmental stakeholders including civil society, the private sector, and regional institutions.

Achievements

The major accomplishments of the sub-region with regard to the SGD are as follows:

National Environmental Management Strategies (NEMS)

All Members of the OECS translated the SGD into NEMS (formally adopted by Cabinets), that provide a concrete framework for policy implementation at the national level. NEMS provide an instrument for tracking progress towards the goals and targets of the SGD and for communicating with other Member States, national partners and regional institutions on that progress. St Lucia and Grenada developed National Environmental policies to provide a foundation for NEMS.

Legal and Institutional arrangements

NEMS all reflect the need for adequate institutional and legal arrangements to provide an appropriate framework for a coordinated and integrated approach to environmental management in OECS MS. As a result, a draft Model OECS Environmental Management Act was prepared by the OECS Environment and Sustainable Development Unit. The Act is to be tailored to national circumstances and enable effective NEMS implementation. MS are at varying stages of NEMS implementation and reforming existing legal and institutional structures.

SGD/NEMS monitoring and reporting

Recognising that reporting is critical to effective environmental management, a monitoring and reporting process and instrument was established for use at the regional and national levels to keep track of national progress of implementation and make regional assessments possible. Initial SGD implementation reports are available for most of the MS. Reports on SGD implementation (2006-2007) are available for St Lucia, Anguilla and Montserrat.

Communication and Awareness

Communication strategy and a toolkit for communication planning were prepared by the OECS Secretariat and the MS to support public awareness programmes and communications activities on the value of the SGD and NEMS.

Integration into the Draft OECS Economic Union Treaty

SGD integration into the revised OECS Treaty has contributed to environmental mainstreaming at the OECS policy level.

Challenges and lessons Learnt

The usefulness of the revised SGD depends on MS being proactive about meeting the targets set in the revised SGD. This will require, among other actions, urgent attention to establishing effective structures for stakeholder collaboration at every level from the local to the regional, creating the institutional and legal frameworks required for effective environmental management, and building the capacity of Member States to monitor environmental impacts and trends in the status of natural resources and ecosystems.

SGD/NEMS Implementation

Implementation of SGD/NEMS and addressing most environmental and sustainable development issues go beyond the expertise and mandate of national environment agencies. These agencies need the support and multidisciplinary expertise from other public sector agencies (e.g., from economic and social disciplines and not just the environment). Moreover, the implementation of SGD/NEMS will require new kinds of skill and experience in public administrative reform and in the communication of technical and policy information to decision-makers and the public. It will also need the support of people experienced in facilitating multi-stakeholder processes. Finally, it will need the involvement of communities and grass-roots organizations on the one hand and access to senior political and government policy makers on the other.

Monitoring and Reporting

Despite the significant progress that has been made in recent years to implement the provisions of the SGD and to monitor the effectiveness of environmental management policies and programmes in the OECS region, MS still encounter difficulties in providing accurate and useful reports. These difficulties are further compounded by obligations to monitor progress and provide reports under a number of other agreements, without the appropriate mechanisms for coordination and sharing of information, and without the required linkages with national programming, budgeting, monitoring and reporting processes.

Any monitoring reporting process for the SGD must link and integrate, to the maximum extent possible, the various monitoring and reporting instruments and requirements that exist nationally (e.g. reports by Ministries), regionally and internationally (e.g. MDG, BPOA, Mauritius Strategy). It should also ease the reporting process for the OECS Member States.

Another constraint is that many national policies and programmes related to SGD targets, particularly those led by agencies with mandates that are not specifically environmental, do not employ a results-based approach and therefore cannot be translated into national targets. Therefore, in many cases there will be need for considerable consultation and negotiation to agree to certain national targets. MS should be encouraged to focus on meeting targets that already exist and setting targets for major national priorities when no target currently exists.

Communication

Notwithstanding the unique nature of the SGD as a guide for shaping national and regional sustainable development programmes and policies that are tailor-made for the OECS region, it continues, for the most part, to be an abstract political commitment rather than a practical tool used by environmental managers and advocates. The SGD may be known in agencies and departments with direct responsibility for environmental management, but it is less well known in key public sector agencies responsible for related or critical supporting areas, such as planning departments and ministries of finance.

Increasing awareness of the SGD and building ownership of the document within the public sector in particular is not just a matter of giving key agencies information that will increase their knowledge and appreciation of the SGD or environmental management. For key audiences to perceive the SGD differently and engage it, they need to have evidence of its usefulness and importantly, understand how they can use it to further their agenda.

In-country champions are needed to communicate and sustain commitment to the SGD. They should also champion the SGD in regional and international fora, as appropriate.