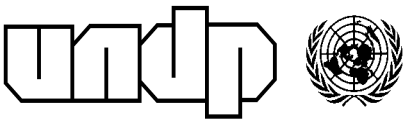
Comprehensive Approach for Disaster Management in the Caribbean Project



A STRATEGY AND RESULTS FRAMEWORK FOR COMPREHENSIVE DISASTER MANAGEMENT IN THE CARIBBEAN

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ACRONYMS

ADRA	Adventists Development and Relief Agency
BDF	Barbados Defense Force
BBRC	Barbados Red Cross Society
BMC	Borrowing Member Country (CDB)
CADEC	Christian Action for Development in the Caribbean
CARDIN	Caribbean Disaster Information Network
CARICOM	Caribbean Community and Common Market
CARIPEDA	Caribbean People's Development Agency
CCC	Caribbean Conference of Churches
CCEO	Council of Caribbean Engineering Associations
CEP	Consulting Engineers Partnership
CDB	Caribbean Development Bank
CDERA	Caribbean Disaster Emergency Response Agency
CDM	Comprehensive Disaster Management
CDMP	Caribbean Disaster Mitigation Project
CDRU	Caribbean Disaster Response Unit
CERO	Central Emergency Relief Organization (Barbados)
CGCED	Caribbean Group for Cooperation in Economic Development
CHA	Caribbean Hotel Association
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute for Meteorology and Hydrology
CLIC	Caribbean Law Institute Center
COTED	Council for Trade and Economic Development (CARICOM)
CPACC	Caribbean Planning for Adaptation to Global Climate Change
CTO	Caribbean Tourism Organization
CU	Coordinating Unit
CUBiC	Caribbean Uniform Building Code
DEMO	Disaster and Emergency Management Office
DERMS	Disaster Emergency Response and Management Systems
DFID	Department for International Development (UK)
DIPECHO	Disaster Preparedness ECHO
ECCB	Eastern Caribbean Central Bank
ECDCG	Eastern Caribbean Donor Coordination Group
ECHO	European Community Humanitarian Office
ECLAC	Economic Commission for Latin America and the Caribbean
EIA	Environmental Impact Assessment

EOC	Emergency Operations Center
FAO	Food and Agricultural Organization
FEMA	Federal Emergency Management Agency (US)
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GIS	Geographic Information Systems
GMDSS	Global Maritime Distress and Safety System
IAC	Insurance Association of the Caribbean
IDB	Inter-American Development Bank
IFRCS	International Federation of Red Cross and Red Crescent Societies
IPCC	International Panel for Climate Change
IR	Intermediate Result
ITU	International Telecommunications Union
JICA	Japan International Cooperation Agency
MEOW	Maximum Envelop of Water
NDC	National Disaster Coordinator
NDO	National Disaster Organization
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration (US)
NRCA	Natural Resources Conservation Agency (Jamaica)
NRMU	Natural Resources Management Unit (OECS)
OAS	Organization of American States
ODPEM	Office of Disaster Preparedness and Emergency Management (Jamaica)
OFDA	Office of Foreign Disaster Assistance (USAID)
OECS	Organization of Eastern Caribbean States
PAHO	Pan-American Health Organization
PCDPPP	Pan Caribbean Disaster Preparedness and Prevention Project
RSS	Regional Security System
SIDS	Small Island Developing States
SO	Strategic Objective
SRU	Seismic Research Unit
SUMA	Humanitarian Supply Management System (developed by PAHO)
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
UWI	University of the West Indies
WFP	World Food Programme

INTRODUCTION

The people of the Caribbean face significant development challenges as their small, export-dependent countries adjust to loss of preferences in an increasingly competitive global marketplace. New technologies and rapid changes in the global economy present new opportunities, but they require the region to adjust, or else be left behind. To meet the challenge of this new competitive environment, the region must do all it can to encourage investment in competitive enterprises. This will include steps to reduce risks to the investment and to the infrastructure on which it depends.

The frequent disasters that the region has endured in recent years reflect its vulnerability. Added to historic exposure to such natural hazards as hurricanes, volcanoes and earthquakes, global climate change brings a prospect of more disturbed weather patterns and a rising sea level.

Although there is ample evidence that modest investments in hazard mitigation measures yield very high returns, it is also clear that people and their governments have often failed to take prudent action in the face of known if not immediate hazards. No one can afford to increase costs unnecessarily in a highly competitive environment, but neither can the region afford to continue bearing the cost of repeated replacement of lost investments. Sustainable development must become a reality and not just a catch phrase.

The small islands of the Caribbean are especially vulnerable to the impact of natural hazards. Due to their small size and populations, they generally lack redundancies in infrastructure and typically rely on one harbor, one international airport, one power plant, etc. A single event can destroy a large part of the country's entire economic base and directly impact every one of its people.

Some leaders in the region have recognized the need for comprehensive disaster management, with its focus on incorporating risk assessment and mitigation into the development process. After several years of pronouncements and some significant beginning steps, this strategy was developed through consultations with a wide range of stakeholders throughout the region. It is not just another call to action, but offers a framework and guide to organize and thereby enhance the many actions the region must take.

CONTEXT AND RATIONALE

1. An Ounce of Prevention

The old adage *"An ounce of prevention is worth a pound of cure"* surely applies to natural and technological hazards. Available information supports a high benefit to cost ratio for measures to mitigate or prevent damage. For example, the World Bank and USGS have estimated that $40 billion invested in risk reduction strategies could have saved as much as $280 billion in worldwide economic losses from disasters in the 1990s – a $7 return for each dollar spent. When planned from inception, the cost of mitigation measures is often very low relative to overall project costs. Retrofitting costs are usually higher, but even so, they are often only a fraction of replacement costs. Besides the potential savings in repair and replacement costs, investments in mitigation and preparedness yield economic benefits of their own and the reduced risk may encourage greater investment in the economy.

It has taken a remarkably long time for this lesson to sink in, especially for the disaster-prone Caribbean. And even when there is general recognition that prevention and mitigation are very worthwhile, commitment and action have been slower in coming.

2. Caribbean Vulnerability

The Caribbean is vulnerable to a variety of hazards. Most of the countries are within the hurricane belt. There is seismic activity throughout the Caribbean related to movement of the Caribbean Plate, and a number of Eastern Caribbean Islands are basically the tops of volcanoes.

Within the past two decades the region has experienced repeated losses from hurricanes and associated wind, rain and storm surge damage. Volcanic eruption destroyed the economy and social life in Montserrat. Flooding and landslides have repeatedly occurred in several territories and continue to damage physical infrastructure. Droughts have reduced agricultural output and water supply.

> We recognize that the Caribbean region is vulnerable to several forms of natural disasters including hurricanes, volcanoes, earthquakes and flooding. This vulnerability has been compounded by the geographic situation of the region, which makes the Caribbean Sea a transit area for many cargoes of a potentially hazardous nature.
>
> – Bridgetown Summit, 10 May 97

Because of the small size of most Caribbean states the impact of a major event can affect the entire community. The amount of damage suffered can equal or exceed the country's total annual GDP, for example:

- 1988 – Hurricane Gilbert caused Jamaica losses`eqõem ~ÿ~v5% of GDP.
- 1989 – Hurricane Hugo caused Montserrat losses`eqõam þÿ>200% of GDP.
- 1994 – Tropical Storm Debbie caused floods and landslides that cost St. Lucia 18% of GDP.
- 1995 – Hurricanes Luis and Marilyn caused Antigua and Barbuda losses worth 65% of GDP.

- 1995 - Volcanic eruptions began in Montserrat totally wiping out the economy
- 1998 – Hurricane Georges affected 85% of the housing stock in St. Kitts & Nevis.

Not only do the small islands experience high economic losses relative to their total economies, but also they often lack redundancy in critical infrastructure. The impact of the disaster can be magnified if it destroys the only hospital, the only airport, or the only road into the community.

Table 1. Disaster Experience of CDERA Member Countries
1970-1999

Country	No. of Occurrences	Total Fatalities	Economic Losses (1998 $m.)	Economic Losses as % of GDP (1995)
Antigua & Barbuda	7	7	105.7	18.1%
Bahamas	4	5	290.4	9.5%
Barbados	5	3	148.4	6.3%
Belize	6	5	33.8	5.4%
Dominica	7	43	133.4	55.0%
Grenada	4	0	30.1	9.5%
Guyana	5	0	29.8	4.6%
Jamaica	19	271	1,988.1	29.3%
Montserrat	5	43	323.7	899.0%
St. Kitts & Nevis	7	6	312.5	116.5%
St. Lucia	8	54	1554.6	272.3%
St. Vincent	9	5	47.0	16.5%
Trinidad & Tobago	8	9	16.7	0.3%

From Table 1.10 in the IDB Research Department Report, "Natural Disasters in Latin America and the Caribbean: An Overview of Risk, October 2000

3. Growing Recognition and Commitment

During the 1990's, the UN International Decade for Disaster Reduction, governments, donors and other key players began to emphasize mitigation and "comprehensive disaster management". Some milestones:

- The Organization of American States (OAS) was one of the first international organizations to focus on disaster mitigation in the Caribbean, with programs dating from the mid-1980s. In 1993 the OAS and the US Agency for International Development (USAID) signed a $5 million agreement for *the Caribbean Disaster Mitigation Project (CDMP)*, which, in its early years was the only0segionëÿ¼ïitigati• n program in the Caribbean.
- The *Programme of Action for the Sustainable Development of Small Island Developing States*, adopted at the SIDS conference in Barbados in 1994, calls for integration of natural and environmental disaster policies into national development planning processes.

- The European Community Humanitarian Organization (ECHO) has been active in disaster prevention and preparedness since 1994. ECHO's mandate states that humanitarian aid should *"also comprise operations to prepare for risks or prevent disasters or comparable exceptional circumstances."* The EC's preventive action program, DIPECHO, started in 1996.
- The *Bridgetown Declaration* of the Caribbean/United States Summit in May 1997 recognized that the region is vulnerable to several forms of natural disasters. The countries affirmed the priority of investment in planning, preparedness and mitigation initiatives, to strengthen the capacity of the countries of the region to protect themselves from disasters and to decrease the need for emergency response resources in the future.
- In 1998 the Caribbean Development Bank (CDB) developed a new *Strategy and Operational Guidelines for Natural Disaster Management* which includes preparedness and mitigation as well as post-disaster rehabilitation assistance. In December 1998 the World Bank approved an *Emergency Recovery and Disaster Management Program* to help the Eastern Caribbean address eisa{ter¶ÿ}nagement in a comprehensive manner.
- In March 1999, the Inter-American Development Bank (IDB) adopted a new policy on disasters to put prevention "at the gorefronöó• æ the devopment debate" and "adopt a more comprehensive and proactive approach in risk reduction as well as post-disaster recovery."
- The 3rd Caribbean Conference on Natural Hazards in October 1999 produced a "Framework of the 21st Century Disaster Management Action Plan for the Caribbean" which, i.a., expanded the mandate of the Caribbean Disaster Emergency Response Agency (CDERA) to include the principles of Comprehensive Disaster Management (CDM).
- In 2000, USAID signed an agreement with the CDB committing a total of US$3 million to establish a Disaster Mitigation Facility for the Caribbean. The Facility will help borrowing member countries adopt disaster mitigation policies and practices and strengthen the Bank's capacity to imple}en}$itsªû½;8 wtretegy.

Also in 2000, USAID and UNDP agreed to support CDERA in implementing the *Comprehensive Approach for Disaster Management in the Caribbean* project to develop a regional CDM strategy, strengthen CDERA to implement CDM and build support for CDM at the national level.

4. Program and Institutional Foundations

4.1. CDERA

CDERA is the central disaster management organization within the Caribbean, and the strategy provides for strengthening CDERA to fulfill a broadened CDM mandate. Several other agencies also have specific disaster management mandates and programs at the regional level, which are described briefly in the next section.

CDERA grew out of the Pan Caribbean Disaster Preparedness and Prevention Project (PCDPPP). A specialized agency, CDERA relates to CARICOM through the COTED (Council for Trade and Economic Development). CDERA was established by agreement of its member states in 1991 to:

- Mobilize and coordinate emergency disaster relief for member states;
- Secure, coordinate and channel reliable and comprehensive information on disasters;
- Mitigate the immediate consequences of disaster; and
- Promote a sustainable disaster response capability among members.

CDERA exists in a dynamic, highly variable operating environment. Each member state has its own set of support needs. CDERA has a large and diverse contingent of partner organizations and when disaster strikes, each situation is different – rapid response, flexibility and communications capabilities are key attributes. Constrained by availability of funding, CDERA operates with a small core staff, supplemented by project-funded personnel.

Although its primary mandate has been to coordinate regional response, the Agency has recognized the need to continue to build disaster management capability within the region, and response management provides a significant point of entry for CDM. CDERA is well positioned to be a driver for CDM among its member states, but the Agency needs to expand its capabilities and resource base to fulfill this role.

4.2. Regional and International Organizations

PAHO – The Pan American Health Organization (PAHO) has a strong disaster mandate particularly as it relates to the health sector and is a key partner with CDERA. PAHO has been engaged in mitigation activities with respect to health and sanitation infrastructure, and the preparedness and response mechanisms. Training has included contingency planning for the health sector, mass casualty management, stress management during and after disasters, incident command systems and the Humanitarian Supply Management System (SUMA). SUMA a system for management and distribution of relief supplies was developed by PAHO.

USAID/OFDA – USAID's Office of Foreign Disaster0Assióta~ãm ê÷_AID/OFDA) is € engaged in several varied preparedness,#respons÷ò}nd mitigaon activities including community level disaster management, public education, disaster management training, institutional strengthening of disaster offices and emergency response and disaster recovery programs, all designed toward wulnerabÿþývy reduction. The CDMP activity with OAS is described below. More recently the USAID/OFDA has instituted support for development of a Disaster Mitigation Facility for the Caribbean at the Caribbean Development Bank, and USAID has included mitigation as a serious component of the post-Georges and post-Lenny reconstruction program.

OAS – The OAS partnered with USAID/OFDA to execute the Caribbean Disaster Mitigation Project (CDMP) during 1993 to 1999. CDMP activities were in six major streams:

- Community-based preparedness,

- Hazard assessment and mapping,
- Hazard-resistant building practices,
- Vulnerability and risk audits for lifeline facilities,
- Promotion of hazard mitigation within the property insurance industry, and
- Incorporation of hazard mitigation into post-disaster recovery.

The outputs from these activities have provided a significant body of technical products, which are available for use within each territory.

The OAS has also been the implementing agency for the Caribbean Planning for Adaptation to Climate Change (CPACC) project, an initiative funded by the Global Environmental Facility and executed through the UWI Centre for Environment and Development.

ACS – The Association of Caribbean States (ACS), comprises some 28 states "bordering" the Caribbean Sea. In 1999 members and associate members signed an Agreement for Regional Cooperation on Natural Disasters. The ACS identified natural disasters as a priority in its first phase work program and formed a Special Group on Natural Disasters to promote cooperation among the members and interaction with relevant regional and international organizations.

Two working groups were formed at a meeting in October 2000 to deal with 1) Early Warning Systems, Floods and Earthquakes, and 2) Training Program, Education, Awareness and Strengthening of DEMOs. Three projects emanated from the discussions:

- Strengthen Response Capabilities of the Disaster Relief Systems of ACS members
- Utilize existing disaster information centers to create information related to the activities of the priority areas of the work program identified, and
- Develop the exchange of technical cooperation in emergency relief among members in order to strengthen Disaster Management Organizations.

The ACS is also spearheading a study on wind and earthquake codes for the Greater Caribbean Basin to be undertaken through the University of the West Indies in collaboration with Universities of Costa Rica and Pavia (Italy).

UNDP – Besides this Comprehensive Disaster Management Strategy initiative, the UN Development Program (UNDP) has a substantial role in coordinating the activities of the many agencies engaged in assistance to the region. Of specific relevance, UNDP chairs the Eastern Caribbean Donors Group, which supports CDERA in coordinating disaster response assistance.

UNDP funded the Disaster Emergency Response and Management System (DERMS) Project which began in 1996 and ended in 2000 and with CDMP provided the immediate antecedents to this CDM Strategy initiative.

European Community – The European Union through the European Community Humanitarian Office (ECHO) has implemented a program in disaster preparedness (DIPECHO) which has supported successful community-based initiatives and training through CDERA, PAHO, the International Guteúãuiÿÿ<of Red CrossSocieties (IFRCS), and the National Disaster Organization (NDO) in Jamaica. DIPECHO has supported

establishment of the sub-regional Caribbean Disaster Information'Net• ovëæú_ÁRDIN) at" the University of the West Indies, which is intended to strengthen the capacity within the Caribbean to collect, index and disseminate disaster relevant material.

DFID – The Department for International Development (DFID) of the UK Government engaged in an assessment of disaster management within the Caribbean to determine points of intervention which could best support on-going initiatives and advance sustainable development. The recommendauionpjqs~ó• ån for DFHC to support disaster management within the Independent Commonwealth Caribbean, to assist targeted countries to achieve sustainable national disaster management systems by 2010, and to treat vulnerability reduction as a major contribution to poverty alleviation.

CIDA – The Canadian International Development Agency (CIDA) supports a Disaster Response and Preparedness Program in the Eastern Caribbean through bilateral and multilateral activities. The latter includes CIDA's International Humanitarian Assistance (IHA) division, which supports disaster preparedness projects implemented by specialized agencies such as the IFRCS and PAHO. CIDA's bilateral support includes an ongoing Disaster Preparedness Program in the Eastern Caribbean. Recent initiatives included a 1998 disaster preparedness survey of airports in Antigua, St. Kitts & Nevis and Dominica.

JICA – The Japan International Cooperation Agency (JICA) swppoötsªÓÝRICOM with the Caribbean Disaster Management Planning Project. The project has provided experts in Disaster Management, Volcanic Planning and Earthquake Planning and includes initiatives in hazard mapping, application of GIS technology to planning, and enhancing emergency communications.

CDB – In May 1998 the CDB adopted a new Strategy and Operational Guidelines for Natural Disaster Management. Embracing the entire disaster management cycle from mitigation and preparedness through to restoration, the strategy aims to assist borrowing member countries (BMCs) in disaster management, fully integrate disaster management into the banks own operations, and improve collaboration and coordination with other development institutions working in the region on this issue.

The Caribbean Development Bank has established a Disaster Mitigation Facility for the Caribbean with support from USAID/OFDA. The two principal objectives are 1) to assist BMCs to adopt and institutionalize disaster mitigation policies and practices, and 2) to strengthen CDB's institutional capacity to implement the 1998 strategy and integrate its provisions into its work program.

World Bank – The World Bank is supporting the Organizatmïþ ÿÿ=Eastern Caribbean States (OECS) Emergency Recovery and Disaster Management Program. The program of individual lending operations in five countries supports physical investments, capacity building, institutional strengthening, and community preparedness. Currently St Kitts/Nevis, St Lucia, Dominica and Grenada have loan agreements and are developing implementation plans.

Reports from one territory highlight the difficulty of implementation, perhaps due in part to lack of capacity to meet the Bank's project design and management requirements.

IDB – The Inter-American Development Bank has placed disaster mitigation and risk reduction high on its agenda and is supporting technical capacity building through geographic information systems (GIS) such as in Jamaica. IDB's collaboration with the CDB in assistance to Belize following Hurricane Keith provides a recent and useful model for incorporating mitigation and prevention into recovery assistance.

FAO – The UN Food and Agriculture Organization (FAO) recently completed its "Emergency Assistance for the Formulation of National Hurricane Disaster Preparedness and Impact Mitigation Plan for the Agriculture, Forestry and Fisheries Sector." Research and national consultations produced significant information sharing and recommended approaches. The activity highlighted the need for more sector specific content – especially with regard to the economic and food security aspects of agricultural production – in national disaster management plans.

CHA and CTO – The Caribbean Hotel Association and the Caribbean Tourism Organization are long-established regional industry organizations thaöûüwve taken an active role in disaster management. They have developed hurricane procedures and provided training for hotel operators. Under its Sustainable Tourism strategy, CTO has begun a series of integrated planning workshops and is developing a cadre of trainers. CTO already exchanges information with CDERA and is well positioned to be an effective partner for CDM.

CIMH – The Caribbean Institute of Meteorology and Hydrology (CIMH) provides the main training for meteorologists in the region with two programs. CIMH has the TAOS/L storm surge model software, installed under the CDMP project. Modeling that is more specific to the Caribbean scale can be developed by CIMH if financing is made available. CIMH has produced storm surge vulnerability maps for OECS states. The mapping should be extended to all CDERA members and vulnerability information integrated into CDM training programs.

CIMH will maintain the sea-level monitoring network instituted under the CPACC project. CIMH also has responsibility for regional hydrology research and data base development, and should therefore play a larger role in research regarding water availability and management and such activities as floodplain mapping.

ITU – The International Telecommunications Union (ITU) has collaborated closely with CDERA in preparation of telecommunications manuals, coordination of frequencies, and provision of equipment and training. In response to the recognized need of the maritime aspect of disaster prevention and response, ITU has been working with the International Maritime Organization in a series of seminars and development of national plans. A regional plan for participation in the Global Maritime Distress and Safety System (GMDSS) is being developed.

UWI, U Tech – The University of the West Indies (UWI) provides training relevant to CDM, including building design and structural mitigation through the Engineering Faculty and courses in geohazards, disaster management and environmental management through the Department of Geography and Geology. The CPACC project is implemented through the UWI Centre for Environment and Development, with the Centre for Marine Sciences and Institute for Marine Affairs as effective partners. The sub-regional

Caribbean Disaster Information Network (CARDIN) at UWI is being established with DIPECHO support as mentioned below.

The Faculty of the Built Environment, which includes the School of Architecture and the Department of Planning at the University of Technology (U Tech), offers courses relevant to CDM, and provides an opportunity for integrating CDM into the relevant curricula and courses of study.

4.3. National Disaster Organizations

National Disaster Organizations (NDOs) have primary responsibility for disaster management at the national level. The level of organization and effectiveness varies from state to state. The NDO includes not only the national disaster office, but also the committees and linkages that are necessary for effective multi-hazard management through all phases of the disaster cycle.

The following criteria were used to evaluate NDO readiness to promote CDM:

- An established organizational structure with highly trained professional staff
- Well-established and functioning linkages/partnerships for disaster management (government agencies, private sector, NGOs, community organizations)
- Research and data management capability
- Fully functional Emergency Operations Center
- Operational outreach program
- Public education, public information ane0uraioi~÷5capability
- Operational multi-hazard disaster plan
- Legislative framework

Based on structured interviews with relevant stakeholders, review of documents, and some country visits, none of the territories were considered as completely satisfying all criteria. Some countries have made considerable progress in disaster management capability particularly as it relates to preparedness and response.

Jamaica has a well-developed organizational structure and has a decentralized committee structure through parish organizations. The BVI also has a sound organizational structure and well-established planning procedures and outreach linkages.

A preparedness audit undertaken by CDERA in early 2001 questioned member states regarding legal framework, institutional capacity, disaster planning, emergency management skills inventory, hazard mitigation, and identification of needs to improve efficiency and effectiveness.

The results of institutional capacity revealed considerable variation in staffing, physical plant/facilities and planning. Only two countries have more than six full time professional staff and five countries have only one. Jamaica stands in contrast to other territories with 28 full-time professionals. Belize is next with seven. Countries expressed the need for an average increase of 72% in staff.

With respect to hazard mitigation, six countries have completed studies on natural hazards affecting their country and five have identified the vulnerable geographical areas. Four other countries have indicated that the respective studies are underway.

The National Disaster Coordinators are also at varying stages of development. Several have come from communications and education rather than technical fields associated with disaster management. Understanding the development and timing of key messages is a useful skill for promoting CDM, but some of the NDOs might benefit from additional scientific grounding as well as strengthened strategic planning. Some are executing their mandate with few resources, but through strategic alliances. NDOs could also improve technical capabilities in the area of program and proposal development, mitigation planning and advocacy.

In many instances NDOs and NDCs do not occupy high status in the government hierarchy. Without sufficient funding and other resources or access to key decision-makers, they cannot effectively influence policy development. They need to be able to articulate the vision of CDM to the leadership of the public and private sectors.

It has been the experience of the region that those countries that have been hit hardest and repeatedly in successive years have begun to pay more attention to disaster reduction. Progress has been most marked where there has been a "champion" at a high level in government, and an NDC equipped with knowledge and skill. For effective access and consistent representation, NDC positions should be elevated to the level of Assistant or Deputy Permanent Secretary.

4.4. Other National Agencies

CDM is virtually non-existent in most government agencies otier tèá~ªi\Os. Where disaster plans exist they are rudimentary and often limited to procedures for securing furnishings and assets. Disasters are perceived as the purview of the NDO. New disaster legislation is reported to have had a positive impact on broader inter-agency cooperation where such legislation has been adopted.

The Development Control Authority or its equivalent has a critical role in CDM. At present, much development ignores provisions of development control aþö}considerable losses have resulted. Peter Island Resort in the BVI, for example, was destroyed twice by hurricane after having been sited against plannÿ• • advice.

Ministries of Finance also have a major role. Vulnerability and risk assessments and appropriate mitigation measures should be used to protect public investments. If sensitized to the link between development investment, GDP and disaster losses and reconstruction costs, the Finance Ministry's control of the purse strings can be a potent force in influencing all national agencies.

Environmental assessments are increasingly the norm for development activities of all Ministries and should incorporate hazard vulnerability and risk considerations. Enforcement of building codes and standards is another area of responsibility that relates to CDM. Ministries of Works and other agencies responsible for public infrastructure can do much to enhance the safety of these facilities both in initial design and construction and in their maintenance.

4.5. Communities and Non Governmental Organizations

Communities play a vital role in preparing for natural disasters and mitigating their effects. The impact of disasters on the community requires that the community be first to respond when disaster strikes. The community approach may be the most effective way of selling integration of disaster mitigation to the population, for it can be applied at the local level on a scale which can be easily recognized. In addition, community initiatives may be more readily implemented as they are not necessarily constrained by the procedures and timing of national budget requests and allocations.

Non governmental organizations (NGOs) stand as a crucial third leg with government and the private sector in serving communities' needs. They frequently take the role of intermediary between the community and national and international agencies and will be important partners for the CDM process. A number of NGOs are active in the Caribbean, although most of their disaster related activities are addressed to preparedness and response rather than mitigation. Three have formal agreements with CDERA:

IFRCS – The International Federation of Red Cross and Red Crescent Societies (IFRCS), besides being preeminent in disaster response, is one of CDERA's key partners in promoting community level disaster preparedness and mitigation in the Caribbean and an implementing entity under the DIPECHO project. The CDERA partnership with IFRCS is spelled out in a formal memorandum of understanding.

ADRA – The Adventist Development and Relief Agency (ADRA), one of the more prominent faith-based organizations engaged in development and relief in the Caribbean, is also a partner with CDERA under formal memorandum of understanding. ADRA's activities are focused on local community level relief, training and education and disaster management programs.

CARIPEDA – The Caribbean People's Development Agency (CARIPEDA), a regional development-focused NGO based in St. Vincent & the Grenadines, also has a formal agreement with CDERA focused on local community preparedness and insuring that concerns of the poor are taken into account.

5. Momentum and Direction

Circumstances and recent history indicate a clear need to break the cycle of building, destruction and rebuilding. There is a substantial foundation on which to establish a more comprehensive approach to disaster management in the Caribbean. A wide array of agencies have recognized the need and taken some concrete steps in this direction.

This strategy is not intended to start a new program, but to reinforce the momentum that has been building. It provides a framework and direction to organize and enhance activities underway as well as to identify gaps that must be filled if the Caribbean target countries are to achieve their CDM objective and their sustainable development goal.

STRATEGIC PLAN

1. Goal

The overarching goal to which the Comprehensive Disaster Management Strategy will contribute is ***sustainable development in the Caribbean***. The region faces significant development challenges as its small, export-dependent countries adjust to loss of preferences in an increasingly competitive global economy. New technologies and rapid changes in the global market present new opportunities, but require the region to adjust or else be left behind. The region must do all that it can to encourage investment in competitive enterprises, including measures to reduce risks to that investment and the infrastructure on which it depends.

Goal: Sustainable development in the Caribbean

Although there is ample evidence that modest investments in hazard mitigation measures yield very high returns, it is also clear that people and their governments frequently failed to take prudent action in the face of known if not immediate hazards.

While no one can afford unnecessary costs in a highly competitive environment, small island economies are especially vulnerable to the impact of natural hazards. Due to their small size and populations, they generally lack redundancies in infrastructure and typically rely on one harbor, one international airport, one power plant, etc. A single event can destroy a large part of the country's entire economic base and directly impact every one of its people.

2. Strategic Objective

The objective of the strategy is that ***Comprehensive Disaster Management is integrated into the development processes of CDERA member countries***.

Comprehensive Disaster Management (CDM) has been defined through the DERMS project as incorporating management of all hazaú÷• ¬ throughlla phases of the disaster management cycle – prevention and mitigation, preparedness< respoþó}. recovery– by public and private sectors, all segments of civil society and the general population in hazard prone areas. CDM involves risk reduction and integration of vulnerability assessment into the development planning process.

SO: Comprehensive Disaster Management is integrated into the development processes of CDERA member countries

While the CDM strategy puts priority on building a foundation of solid disaster management organizations in each country, integration into the development process means that the full range of government agencies and private sectÿòýrlayers will incorporate vulnerability information and mitigation measures into their development planning and decisions.

The best protection from natural hazards is avoiding hazard prone areas, but regrettably the settlement and land use history of the Caribbean territories already place population and livelihood in vulnerable areas, and land use decisions have in turn exacerbated vulnerability. For new developments exposure to hazards must be taken into account in land-use decisions.

When facilities cannot be sited away from vulnerable areas, proper design, construction and maintenance can mitigate the risks. This requires knowledge of prevalent hazards and vulnerabilities as well as knowledge of structural mitigation techniques, costs and benefits. It requires effective institutional and regulatory mechanisms that set and promote the application of appropriate standards. And it requires economic and financial incentives and that decision-makers bear the burden of bad decisions.

The target countries for this strategy are the sixteen members of the Caribbean Disaster Emergency Response Agency (CDERA). Besides their shared interest expressed by membership in CDERA, these countries have numerous similarities in size, climate, and institutions. They also have differences of relevance to the strategic objective, for example, in current disaster management capacity and resources and in their recent disaster experience. The latter is significant, because there has been a clear correlation between recent disaster experience and action to apply standards and invest in mitigation. Indeed, the strategy incorporates an assumption that political will and economic incentives will have greatest effect in the immediate aftermath of disaster experience.

The overall measure of progress in achieving the CDM strategic objective will be a reduction in severity of disasters. The occurrence of natural phenomena will not necessarily change, but losses of human life and property will be reduced.

To achieve the CDM objective, the strategy will need to promote a "culture of safety" enlisting a broad coalition of interested partners – insurance and banking industries, schools, churches, governments. Knowledge and sensitivity to natural hazards is a natural expansion of environmental programs. All of this will not be accomplished overnight. The overall planning period used in this strategy is seven years, with shorter periods applying to some sub-components. Even at the end of the strategy period, a realistic expectation is that most but not necessarily all target countries will have incorporated comprehensive disaster management in the bulk of their development planning and decision-making processes.

Examples of interim measures of progress include:

- Number of countries in which hazard vulnerability and risk assessment are included in required environmental assessment procedures.
- Number of countries that have enacted disaster management legislation.
- Percentage of surveyed financial institutions that incorporate hazard vulnerability criteria in financing decisions (or rate structure).

3. Intermediate Results

The essence of the strategy is the organization of activities needed to achieve the strategic objective within a structured framework. At the first level ov tjis ~ÿýmework, five intermediate results (IRs) have been identified which, if achieved, will together lead to the strategic objective.

IR-1: Stronger regional and national institutions promote CDM.

The institutions that will drive the entire process toward the strategic objective will, themselves, need to change in structure and capabilities in order to do so. This institutional development, therefore, is identified as the first Intermediate Result and must be undertaken as a first priority. The focus must first be on the regional and national institutions that will have a central role – CDERA and the NDOs – but a number of other regional organizations may also need to develop capacity to more effectively contribute to the process.

IR-2: Research, education and training support CDM.

Besides appropriate institutions, the region needs an adequate base of information and knowledge to support CDM. This includes the range of education and training programs needed to build and maintain needed technical skills as well as an informed public. It also includes research to continue developing information specific to the needs of the region, and systems to store, disseminate and apply the information to local circumstances.

IR-3: Major regional institutions and donors incorporate CDM in their own programs and promote CDM to their national members/clients.

International funding agencies and regional economic and financial sector organizations are important players in the region's development process. They`oe}d0tÿó}ntegrate CDM into their own programs. Beyond that, they have influence and resources that can support action by their national-level clients and members. Conversely, they can be impediments if they support investments that do not incorporate risk and mitigation considerations, and ineffective if their positions are inconsistent. This IR organizes activities related to the programs of international funding agencies, key regional economic sector organizations, and regional financial and insurance entities.

IR-4: Preparedness, response and mitigation capability is enhanced and integrated.

In its focus on building institutional capacity, IR-1 included the National Disaster Organizations. IR-4 focuses on specific disaster management actions and programs at the national level in all stages of the disaster management cycle. Thispi~cludÿó<negislation, planning and emergency facilities, as well as special attention to safe lifelines and critical infrastructure, and to integrating mitigation in response, recovery and reconstruction.

IR-5: Hazard information is incorporated into development planning and decision making.

IR-5 also organizes actions at the national level, moving from disaster management per se to development planning and investment decisions and focusing on the physical planning process and then on broader actions of top level policy and decision makers.

Results Frameworks: The Results Framework in Annex I provides a graphic representation and suggests the cause and effect links among the goal, strategic objective and intermediate results necessary to achieve it. Expanded Results Frameworks are also provided to graphically portray the relationship of subosdinave • Ó• ¢to eech IR.

This strategy has been compared to a "roadmap." Like many roadmaps, it does not have all the details needed along the way. There is still a great deal of planning to further define the specific activities and outputs needed to achieve the desired results, the means for achieving them and the timing. Who will take responsibility and do the work must, in many cases, still be decided. Costs must be calculated, sources of funding must be identified, and funding agreements must be negotiated. Milestones or other indicators of progress in the right direction also need to be identified and checked, and mid-course corrections may be needed if roadblocks or detours are encountered along the way.

Results Packages: The Results Packages in Annex II are a start along this road. They contain complete descriptions of each IR, the related Sub-IRs and as well as activities that have been identified and defined to this point.