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Risk Management Benchmarking Tool (BTool)

National Assessment: Saint Lucia

August 2007

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Risk Management Benchmarking Tool

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BTool National Assessment: Saint Lucia

Table of Content

List of Acronyms and Abbreviations		4
Preface		5
1. PHYSICAL AND SOCIO-ECONOMIC BACKGROUND		6
2. MAJOR DISASTER ISSUES CONFRONTING THE COUNTRY		7
3. RISK MANAGEMENT BENCHMARKING TOOL	7	
4. USING THE RISK MANAGEMENT BENCHMARKING TOOL	10	
4.1 Scoring Responses to the Questions		10
4.2 Calculating the Risk management Index		11
4.3 Calculating the Total Disaster Risk Management Index		13
4.4 Assessment of the adequacy of Disaster Risk Management Tools		13
5.0 REGIONAL BENCHMARKING		21
List of Figure		
Figure 1: Map of Saint Lucia		6
List of Tables		
Table 1: Key Components of Risk Management		8
Table 2: Summary of Scores Attained in all Categories of Disaster Risk Management Tool		19
Table 3: Regional Benchmarks		22

BTool National Assessment: Saint Lucia

List of Acronyms and Abbreviations

BTool	Risk Management Benchmarking Tool
CBO	Community Based Organizations
CDB	Caribbean Development Bank
COTS	Caribbean Open Trade Support Program
CRMI	Caribbean Risk Management Initiative
CDMP	Caribbean Disaster Mitigation Project
CRDR	Caribbean Reducing Disaster Risk report
DRM	Disaster Risk Management
DRMBT	Risk Management Benchmarking Tool
GDP	Gross Domestic Product
IADB	Inter-American Development Bank
MAS	Maximum attainable score
NGO	Non-Government Organizations
OAS	Organization of American States
OECS	Organization of Eastern Caribbean States
RMI	Risk Management Index
SVG	St. Vincent and the Grenadines
TDRMI	Total Disaster Risk Management Index
TNQ	Total number of questions
TS	Total score
USAID	United States Agency for International Development

Preface

The Caribbean is particularly vulnerable to natural hazards such as hurricanes, earthquakes, volcanoes, and flooding. In order to achieve sustained growth, the public and private sectors in the region must formulate and implement meaningful actions to measurably reduce the region's risk profile for such natural disasters.

The approach to disaster risk reduction in the region is varied. In some cases, national policies and plans exist, but lack resources for implementation. In other cases, national policies and plans are not in place, and there are no overarching frameworks to address disaster preparedness and mitigation. Generally, the technical analysis regarding the region's risks and the appropriate solutions has already been undertaken. However, a specific action agenda that is directed to achieving a measurable reduction in the region's risk profile for natural disasters has largely been missing.

The Caribbean Open Trade Support Program (COTS), funded by the United States Agency for International Development (USAID), is designed to help facilitate the transition of countries in the Eastern Caribbean from traditional trading regimes to open trade and to enable them to compete more successfully and sustainably in the global economy. Working with the Organization of Eastern Caribbean States (OECS) Secretariat, national institutions and other organizations, the USAID-funded COTS team is therefore designing a series of activities to improve the ability of national governments, civil society organizations, and the private sector to proactively plan and implement actions to reduce vulnerability to natural disasters and create greater economic resilience when they do occur.

COTS will focus on the following activities to help reduce the region's vulnerability to natural hazards:

- Assisting the OECS Secretariat and selected national governments to develop and utilize a methodology for identifying and prioritizing risk reduction actions and for quantifying reductions in the risk profile.
- Working directly with businesses and related associations to enable businesses to become more resilient to the impact of natural disasters.
- Assisting in the development of market-based incentives for risk reduction activities, e.g., through the insurance and financial sectors.
- Supporting the development of a vulnerability tool to be used throughout the region to assist countries to assess their vulnerability to natural and man induced disasters.
- Assisting selected countries in the implementation of their risk reduction action agenda by strengthening elements of their legislative and institutional frameworks, and implementing actions that result in a measurable reduction of the countries' exposure to natural disasters.

Public awareness and outreach are a key component of this strategy, ensuring that needed information is readily available to the public and private sectors and the NGOs. At the end of the four-year project, COTS expects to see:

- Effective legislative and institutional frameworks in place for risk reduction in the face of natural disasters, in accordance with regional models.
- Sustainable and diversified economic growth that is more resilient to the impact of natural hazards.
- Approaches to risk reduction that are fully integrated with other cross-cutting policies and interventions (e.g., coastal zone management, climate change, biodiversity, forest management).
- Measurable reduction in the assisted countries' risk profile for natural disasters.

BTool National Assessment: Saint Lucia

1 Physical and socio-economic background

Saint Lucia, a small island developing state in the Eastern Caribbean chain of islands, is situated at approximately between 13° 43' and 14° 07'N, and 60° 05'W. With a total area of 238 square miles (616 km²), this volcanic island is mountainous and rugged, with numerous rivers flowing in deep, narrow valleys over short distances to the sea. The highest peak, Mount Gimie (3117ft or 950m), is in the southwestern part of the main north-south trending axial ridge.

The island has a tropical marine type of climate, being affected by the prevailing Northeast Trade winds throughout the year. The dry season is from January to May and the wet season from June to December. Saint Lucia is affected by tropical storms and hurricanes, mainly from June to November, during the wet season. Roughly 20% of the island is covered by tropical rainforest vegetation that provides habitats for a wide range of flora and fauna.

The population of Saint Lucia is about 162,000 (2003), with 31% of its people under 15 years old and 64% being the economically active population. The country is actively diversifying its economy from bananas to tourism and offshore banking. Its per capita GDP is an estimated US \$5,400, with the sectors of agriculture, industry and services contributing 7%, 20% and 73% respectively to the GDP (2002) (CIA Fact Book 2003).



Figure 1: Map of Saint Lucia

<http://www.lonelyplanet.com/worldguide/destinations/caribbean/saint-lucia>

2. MAJOR DISASTER ISSUES CONFRONTING THE COUNTRY

Saint Lucia is part of a volcanically active ridge formed along the subduction zone in the Eastern Caribbean. As a result, the island is affected by volcanic and seismic activity. The landscape carries evidence of volcanic activity, namely lava domes, volcanic necks/plugs or 'pitons', explosion craters, pyroclastic flows and surges, and lahars. The potentially active centre is the Soufrière Volcanic Centre, found in the southwest of the island. The Sulphur Springs geothermal field form part of the Soufrière Volcanic Centre.

The island experienced at least five swarms of shallow earthquakes over the last hundred years, occurring in 1906, 1986, 1990, 1999, and 2000 (Seismic Research Unit, 2002).

Saint Lucia has been affected several times by tropical storms and hurricanes within recent times. Storm surges, floods and landslides often accompany these events. Coastal erosion is a continuous threat to property and communication networks, along with anticipated sea level rise that make the coastal zone particularly vulnerable to beach erosion, loss of habitat for marine life, loss of fresh water aquifers, and damage to coastal infrastructure.

Volcanoes, earthquakes, hurricanes, storm surges, floods, landslides and coastal erosion are potential disaster issues facing the country.

3. RISK MANAGEMENT BENCHMARKING TOOL

The Risk Management Benchmarking Tool (BTool) was developed to improve the ability of national governments, civil society organizations, and the private sector to proactively plan and implement effective and efficient actions that would reduce their vulnerability to natural disasters and create greater economic resilience when they do occur. The BTool has the following utilities:

- A tool for evaluating the adequacy of current disaster risk management tools.
- A tool for evaluating the readiness and capability of local national institutions to deal with the risk of disaster.
- A list of best practice recommendations for disaster risk management.
- A tool for regional benchmarking of nations and programmes.

The Benchmarking Tool is designed as a self-administered tool with responsibility for oversight, data analyses, data storage, data management, and quality control assigned to an independent regional lead agency. It is not intended, at this time, to be comprehensive given the following multi-dimensions of disaster risk management: risk exposure, geographic extent, and vulnerable elements. In terms of risk exposure, it was designed for multi-hazards with the scope to rework it for a particular hazard. In geographic extent, it could be redesigned for use at national, community, or enterprise levels. It is, however, customizable to meet specific dimensions. In its present form, it covers all the vulnerable elements in general but may be redesigned to focus on any one of the following vulnerable elements: affected population, infrastructure, economy, and environment. The benchmarking tool provides the following benefits to the region as a whole:

- It provides a snapshot of a country's exposure to natural disaster.
- It can be used to build support for the allocation of resources to reduce risk in areas defined by the BTool.
- It can be used to prioritize national and regional programmes of activities.
- It can be used as an incentive at the political level to stimulate action due to the comparative nature of its scores against another country.
- It provides information, in a consistent manner, on the state of readiness of each country. This information can be used by regional and international funding agencies to define or redefine programmes of assistance to the region.

The tool was developed in six stages. These are:

- Selection of a comprehensive disaster management framework
- Identification of disaster risk management tools and resources
- Design of assessment questions
- Stakeholder review and modification of the tool
- Pilot testing and modification of the tool
- Adaptation of the tool by local and regional stakeholders.

Stage 1: Selection of a comprehensive disaster management framework

After an extensive literature review, the following six (6) components of key disaster risk management activities were adopted: hazard identification, hazard mitigation, risk transfer, disaster preparedness, emergency response, and recovery as provided in Table 1 (IADB, 2000).

Table 1: Key Components of Risk Management

Source: Inter-American Development Bank, 2000, "Facing the Challenge of Natural Disasters in Latin America and the Caribbean: an IDB Action Plan."

Pre-Disaster Phase				Post-Disaster Phase	
A. Risk Identification	B. Risk Mitigation	C. Risk Transfer	D. Disaster Preparedness	E. Emergency Response	F. Rehabilitation and reconstruction
1. Hazard assessment (frequency, magnitude, and location)	1. Physical and engineering mitigation works	1. Insurance and reinsurance of public infrastructure and private assets	1. Early warning and communication systems	1. Humanitarian assistance	1. Rehabilitation and reconstruction of damaged infrastructure
2. Vulnerability assessment (population and assets exposed)	2. Land-use planning and building codes	2. Financial market instruments (catastrophe bonds and weather-indexed hedge funds)	2. Contingency planning (utility companies and public services)	2. Clean-up, temporary repairs, and restoration of services	2. Macroeconomic and budget management (stabilization and protection of social expenditures)
3. Risk assessment (a function of hazard and vulnerability)	3. Economic incentives for pro-mitigation behavior	3. Privatization of public services with safety regulation (energy, water and transportation)	3. Networks of emergency responders (local and national)	3. Damage assessment	3. Revitalization for affected sectors (exports, tourism, and agriculture)
4. Hazard monitoring and forecasting (mapping, and scenario building)	4. Education, training and awareness about risks and prevention	4. Calamity Funds (national or local level)	4. Shelter facilities and evacuation plans	4. Mobilization of recovery resources (public, multilateral, and insurance)	4. Incorporation of disaster mitigation components in reconstruction activities

Stage 2: Identification of disaster risk management tools and resources

The next stage in the design process is the selection of tools and resources required to effectively and efficiently manage the six components of disaster risk management activities listed above. The following are the tools selected for review:

- Policies and plans
- Standards and regulations
- Legislation
- Human capacity
- Financial resources
- Technical tasks and contents.
- Public education and awareness
- Infrastructure development

- Administrative arrangements
- Assignment of responsibilities
- Stakeholders participation
- Information management
- Monitoring and evaluation of programmes
- Effective use of disaster risk management products

Stage 3: Design of risk management assessment questions

Stage three involved the formulation of a series of management questions that aim to explore the adequacy and content of current disaster risk management tools and resources of the country in each of the six disaster management phases and the design of a scoring system. The questions were phrased to highlight best practices recommendations in disaster risk management activities. It contains a list of easily understood questions that were chosen through extensive review of risk management literature and broad-based consultation.

The questions were aimed to solicit three forms of responses: a definite "YES", a definite "NO", and a "PLANNED" response. Where the response is "NO" or "planned", the respondents are encouraged to provide short comments that will help in understanding the country's position on a particular question. A score of three (3) would be assigned for a "YES" response, zero (0) to a "NO" response, and one (1) for a "PLANNED" response. Where a question is not applicable to the situation of a country, "NA" should be returned as a response.

Stage 4: Stakeholder review and modification of the BTool

In stage four (4), the draft BTool was sent for review to regional and international practitioners and specialists in disaster risk management. Very useful feedback was received leading to the production of several updates of the BTool. All of the feedback received helped in improving the BTool.

Stage 5: Workshop on the use of the BTool

At the end of the regional and international reviews, national stakeholders' reviews were held in six Caribbean States: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines. A series of technical and policy level workshops were held between September 2006 and July 2007 in these selected countries. One of the objectives of these workshops was to have the BTool reviewed by a broader range of implementers at national levels so as to test the appropriateness of the product and to determine how best to have it adopted in the region. Workshop participants provided valuable comments and suggestions. These were incorporated into the BTool, thus improving the assessment questions and tool in general.

In general, there was overwhelming support for the use of the BTool as a national and regional benchmarking tool. Implementers also expressed the need to adapt the BTool as a disaster risk management tool for communities and industry. It was felt that a similar but specific BTool should be developed for other social and economic entities, such as hospitals, airports, and utilities, so as to ensure that risk reduction mechanisms of these enterprises are monitored, and, where, necessary, strengthened.

Stage 6: Adoption of the tool by local, national, and regional stakeholders

After the series of reviews, the next stage is the adoption of the tool by national and regional stakeholders. Participants at the workshops suggested the following action plans toward the adoption of the BTool:

1. Provide sufficient financial and technical resources by national governments to fulfill the objectives of the BTool; that is, reducing the region's risk exposure to natural hazard events.
2. Establish a National Risk Reduction Committee in each country that has the responsibility to implement the BTool, and present the results of each country's readiness to withstand natural hazards.

3. Build the knowledge-base of political directorates, Permanent Secretaries, and Chief Executive Officers of major public and private agencies on the utility of the BTool as a self-assessment disaster risk management evaluation tool.
4. Formulate policy directives and legislative support towards the mainstreaming of the BTool as an annual audit tool to be implemented by all key agencies of a country.
5. Build effective public awareness programmes that promote stakeholder participation and involvement in the use and adaptation of the BTool.
6. Establish and fund an award programme that recognizes and rewards progress made by stakeholders towards meeting the disaster risk reduction agendas of enterprises, communities, and the nation.
7. Identify and nominate a national champion that will promote the use of the BTool.

4. USING THE RISK MANAGEMENT BENCHMARKING TOOL

The BTool may be used as both a national assessment tool as well as a regional disaster risk benchmarking tool if implemented among groups of countries in a region. As a national assessment tool, it is recommended that a national multi-sector assessment team be established. The team should comprise of persons from the public sectors, business community, and community-based organizations. The work of the team should be supported by a research assistant who will be responsible for the sourcing of relevant documents, data, and information required to accurately respond to the assessment questions. If necessary, the team should be divided into six sub-teams, with each sub-team focusing on one of the six disaster risk management components: risk identification, risk mitigation, risk transfer, disaster preparedness, emergency response, and rehabilitation and reconstruction. The team will score the adequacy of the country's risk management tools and resources and return an agreed score for each of the six components of disaster risk management.

4.1 Scoring Responses to the Questions

In section AO (Hazard Identification), simply respond **Yes** or **No** to the questions posed and feel free to write appropriate comments in the remarks column. If the space provided in the remarks column is not large enough, write the remark in a separate sheet of paper and attach this to the assessment report.

For each of the other questions in section A1 through F4, select one of four types of responses that best describes the current status of disaster risk management of the country. The four optional responses are **"YES"**; **"Qualified Yes"**; **"PLANNED"**; and **"No"**.

Response	Description	Score to be awarded
Yes	Means that the country has an absolute positive response to the question posed.	3
Qualified Yes	Means the country has a conditional positive response and the condition that prevented an absolute response should be clearly stated in the remarks column e.g. outdated laws; inadequate funding	2
PLANNED	Means the country has initiated action towards providing a positive response within the next 2 years. In the remark column, a statement on the status of the plan should be provided.	1
No	Means the country has a negative response to the question posed.	0

A score of three (3) would be assigned for a "YES" response, two (2) for "Qualified Yes" response ; one (1) for "Planned" response and zero (0) to a "NO" response.

Note: the concept of “Qualified Yes” was introduced into the BTool after the country has completed its assessment.

4.2 Calculating the Risk management Index (RMI)

$$RMI_i = [TS_i / MAS_i]$$

TS_i is the total scored in a particular component of CDRM; MAS_i is the maximum attainable score for that particular component of CDRM; and TNQ_i is the total number of applicable questions posed about that particular component of CDRM.

$$TS_i = ([\text{No. of YES responses} \times 3] + [\text{No. of Qualified Yes responses} \times 2] + [\text{No. of PLANNED responses} \times 1])$$

$$MAS_i = [TNQ_i \times 3]$$

For the component Risk Mitigation (RM) therefore:

$$RMI_{RM} = [TS_{RM} / MAS_{RM}];$$

$$TS_{RM} = ([\text{No. of YES responses} \times 3] + [\text{No. of Qualified Yes responses} \times 2] + [\text{No. of PLANNED responses} \times 1])$$

$$\text{and } MAS_{RM} = [TNQ_{RM} \times 3]$$

Example

If country A has the following raw score for each of the components of CDRM:

Phases of Risk Management	Total No. of Questions (TNQ _i)	Number of Yes responses	Number of Qualified Yes responses	Number of Planned responses
1. Risk Identification Index	106	53	10	12
2. Risk Mitigation Index	62	14	6	21
3. Risk Transfer Index	48	28	7	9
4. Disaster Preparedness Index	123	75	15	5
5. Emergency Response Index	57	16	5	12
6. Rehabilitation and Reconstruction Index	56	12	10	19
Total	451	198	53	78

The TS_i and RMI_i for each of the six components would be as follows:

Phases of Risk Management	Total No. of Questions (TNQ _i)	(MAS _i)	Total Score (TS _i)	RMI _i
1. Risk Identification Index	106	318	$53 \times 3 + 10 \times 2 + 12 = 191$	60%
2. Risk Mitigation Index	62	186	$14 \times 3 + 6 \times 2 + 21 = 75$	40%
3. Risk Transfer Index	48	144	$28 \times 3 + 7 \times 2 + 9 = 107$	74%
4. Disaster Preparedness Index	123	369	$75 \times 3 + 15 \times 2 + 5 = 260$	70%
5. Emergency Response Index	57	171	$16 \times 3 + 5 \times 2 + 12 = 70$	41%
6. Rehabilitation and Reconstruction Index	56	168	$12 \times 3 + 10 \times 2 + 19 = 75$	45%
Total	451	1353	778	55%

Result of Saint Lucia National Assessment (2006)

Saint Lucia				
Phases of Risk Management	Total No. of Questions (TNQi)	Maximum Attainable Score (MASi)	Total Score	%Score
Risk identification Index	106	318	157	49%
Risk Mitigation Index	62	186	93	50%
Risk Transfer Index	48	144	36	25%
Disaster Preparedness Index	120	360	247	69%
Emergency Response Index	57	171	95	56%
Rehabilitation and Reconstruction Index	56	168	63	38%
Total	449	1347	691	51%

4.3 Calculating the Total Disaster Risk Management Index (TDRMI)

The Total Disaster Risk Management Index (TDRMI) of a country is the average of its score in each of the six components of comprehensive risk management. This is computed as:

$$\text{TDRMI} = \text{S}[\text{RMI}_{\text{RI}}, \text{RMI}_{\text{RM}}, \text{RMI}_{\text{RT}}, \text{RMI}_{\text{DP}}, \text{RMI}_{\text{ER}}, \text{RMI}_{\text{RR}}] \times 1/6$$

Using these indices, the country is able to identify the adequacy of its risk management initiatives, identify gaps, overlaps, omissions, as well as strengths and successes. The indices may be used to select and prioritize projects and programmes that will help to improve its future rankings. The result of this assessment may also be used to develop remedial actions, programs of work, and build support for budgetary allocations in the following years after the assessment. The effectiveness of corrective actions taken may be evaluated by comparing the TDRMI of one year against another by posing the question:

$$\text{Is } \text{TDRMI}_{2007} > \text{TDRMI}_{2006} ?$$

The TDRMI for the year 2006 (TDRMI_{2006}) is therefore equal to:

$$\text{TDRMI}_{2006} = [0.49 + 0.50 + 0.25 + 0.69 + 0.56 + 0.38] \times 0.6 = \mathbf{0.48}$$

A score of 48% in the total disaster risk management means a lot of work and resources are required for the country to be able to mainstream disaster risk reduction.

4.4 Assessment of the adequacy of Disaster Risk Management Tools

The adequacy of the following disaster risk management tools: policy, legislation, standards and regulations, assignment of responsibilities, technical task, contents of technical tasks, public awareness, stakeholder participation, funding, human capacity, information management, use of results, and monitoring and evaluation is assessed in this section.

Policy

Effective Disaster Risk Management (DRM) hinges on the formulation and implementation of adequate and appropriate national policies that promotes disaster risk reduction in all aspects of the country national development. The BTool contains a total of 15 policy related questions. The country attains an overall score of 47%. Score of 100% was obtained in disaster preparedness but a low 14% was obtained in risk identification policies.

1. Policy		
	Percent Score	No. of questions
Risk identification Index	14%	7
Risk Mitigation Index	33%	3
Risk Transfer Index	-	0
Disaster Preparedness Index	100%	5
Emergency Response Index	-	0
Rehabilitation and Reconstruction Index	-	0
T_P	47%	15

Legislation

A comprehensive legislative framework is required to provide authority for the implementation of DRM activities. Legislation may be used to ensure the performance of a particular activity. The country obtained 59% overall in the use of legislative tools with a score of 100% in risk identification and risk mitigation legislations. A 25% score in risk transfer legislation needs some improvements.

2. Legislation		
	Percent Score	No. of questions
Risk identification Index	100%	4
Risk Mitigation Index	100%	1
Risk Transfer Index	25%	8
Disaster Preparedness Index	60%	5
Emergency Response Index	25%	4
Rehabilitation and Reconstruction Index	-	-
T_L	59%	22

Standards and regulations

In order to ensure that DRM actions and activities are effective, implementation standards and regulations should be formulated. Using best practices standards and regulations are designed to achieve a desired result. They ensure that DRM activities are impersonal and non-discretionary. Appropriate standards and regulations need to be formulated to support DRM policy and legislation.

The country scored an overall 65% out of a total of 23 standards and regulations questions. This is good but more work is needed in terms of the drafting and adoption of DRM Standards and Regulations. It should be noted that the country scored a perfect 100% in the standards and regulations questions on emergency response management.

3. Standards and Regulations		
	Percent Score	No. of questions
Risk identification Index	20%	5
Risk Mitigation Index	-	-
Risk Transfer Index	33%	3
Disaster Preparedness Index	82%	11
Emergency Response Index	100%	4
Rehabilitation and Reconstruction Index	-	-
T_R	65%	23

Assignment of Responsibilities

DRM required a multi-disciplinary and multi-agency approach. No one single discipline or agency can effectively handle all the various components of DRM. A formal coordinating approach is required. The formalization of the coordinating mechanism is very important. It must be official and if necessary legislated. The BTool examines the extent to which the country has formally assigned responsibilities to the different stakeholders.

The country scored an overall 69% in this regard. 70% and 100% were scored in disaster preparedness and emergency response respectively. An improved overall score under this category would ensure that more stakeholders have a formal authority to play their role towards improving the country's DRM efforts.

4. Assignment of responsibilities		
	Percent Score	No. of questions
Risk identification Index	67%	6
Risk Mitigation Index	33%	3
Risk Transfer Index	-	-
Disaster Preparedness Index	70%	20
Emergency Response Index	100%	5
Rehabilitation and Reconstruction Index	0%	1
T_{AR}	69%	35

Technical Tasks

Technical tasks are DRM activities that require the inputs of technical experts. Technical expertise may be in natural sciences, social sciences or humanities. The preparation of flood hazard maps for example requires some level of technical inputs in hydrology and community disaster management. The BTool has a total of 117 technical tasks that should be undertaken. The country scored an impressive 70% in terms of technical tasks that need to be performed. An average score of 53% in emergency response means the emergency response machinery needs some improvements.

5. Technical tasks		
	Percent Score	No. of questions
Risk identification Index	67%	18
Risk Mitigation Index	73%	15
Risk Transfer Index	43%	7
Disaster Preparedness Index	86%	42
Emergency Response Index	53%	15
Rehabilitation and Reconstruction Index	60%	20
T_{TW}	70%	117

Technical Content

The BTool evaluated some technical tasks in terms of their contents. This was done so as to ensure that the technical tasks contain some minimum level of details. A total of 84 questions were designed in relation to technical contents. The country scored just 56% in the evaluation of the technical contents of its DRM activities. This demonstrated an average levels of adequacy and also indicates the need to upgrade existing technical tasks ensuring that new tasks contain, as much as possible, most of the technical contents recommended.

6. Technical content		
	Percent Score	No. of questions
Risk identification Index	64%	25
Risk Mitigation Index	59%	17
Risk Transfer Index	38%	8
Disaster Preparedness Index	83%	12
Emergency Response Index	57%	7
Rehabilitation and Reconstruction Index	27%	15
T_{TC}	56%	84

Public Awareness

The strength of a good DRM plan hinges on the level of public awareness of the nature, extent, and magnitude of the hazard to which the public is exposed. The BTool contained 35 questions on public awareness. High level of public awareness generally translates to a reduction in the impact of natural disaster. The country has a good score 60% on public awareness. The score of 100% and 78% in risk mitigation and rehabilitation and reconstruction respectively is commendable. It is important that the public awareness strategies and plans implemented in St. Vincent and the Grenadines should be emulated by other countries in the Caribbean.

7. Public Awareness		
	Percent Score	No. of questions
Risk identification Index	38%	8
Risk Mitigation Index	100%	5
Risk Transfer Index	60%	5
Disaster Preparedness Index	40%	5
Emergency Response Index	33%	3
Rehabilitation and Reconstruction Index	78%	9
T_{PA}	60%	35

Stakeholder Participation

This is an effective and efficient tool for reducing the impact of disasters and lowering the cost of DRM activities. The participation of all stakeholders implies a reduction in reliance on the State Agencies in the performance of DRM activities. The BTool contains 26 questions that measure the extent of Stakeholder Participation. The country scored a 65% in this area. A score of 100% each was obtained in disaster preparedness, emergency response and rehabilitation and reconstruction. This means the country has an expanded involvement of other stakeholders in DRM activities, with particular involvement of local communities.

8. Stakeholders participation		
	Percent Score	No. of questions
Risk identification Index	17%	6
Risk Mitigation Index	50%	2
Risk Transfer Index	40%	5
Disaster Preparedness Index	100%	7
Emergency Response Index	100%	4
Rehabilitation and Reconstruction Index	100%	2
T_{SP}	65%	26

Funding

Access to capital and recurrent cost is key to the success of DRM activities. Enormous amount of funding is required in implementing a national hazard mitigation measures for instance. The BTool assessed the capacity of the country to fund key DRM activities using 18 questions. The country scored a total of 28% in this category. This reflects the trying financial condition of the country.

9. Funding		
	Percent Score	No. of questions
Risk identification Index	25%	4
Risk Mitigation Index	25%	4
Risk Transfer Index	0%	2
Disaster Preparedness Index	67%	3
Emergency Response Index	0%	1
Rehabilitation and Reconstruction Index	25%	4
T_F	28%	18

Human Capacity

The ability of a country to implement a DRM programme is dependent on the availability or access to local and regional trained personnel in DRM. In view of the fact that DRM programmes are multi-disciplinary, the country need to have access to capacity building programmes that would enhance its capacity to undertake many of the technical tasks. The BTool identified 34 areas in which a country should have human capacity to manage DRM programmes. Saint Lucia scored an overall of 88% in this category. This demonstrates an improved level of staffing.

10. Human capacity		
	Percent Score	No. of questions
Risk identification Index	93%	14
Risk Mitigation Index	80%	5
Risk Transfer Index	0%	1
Disaster Preparedness Index	100%	4
Emergency Response Index	89%	9
Rehabilitation and Reconstruction Index	100%	1
T_{HC}	88%	34

Information Management

Data and information are key inputs to the designs and implementation of DRM programmes. Many DRM programmes have failed because of inadequate attention being paid to access and use of data and information. The development of an accurate and current information management system will ensure that all stakeholders have access to the information needed to make critical decisions. Only 6 questions on information management were posed in the BTool and these were only in emergency response and rehabilitation and reconstruction. The country scored 17% in this category. This is quite poor.

11. Information management		
	Percent Score	No. of questions
Risk identification Index		
Risk Mitigation Index		

Risk Transfer Index		
Disaster Preparedness Index		
Emergency Response Index	0%	4
Rehabilitation and Reconstruction Index	50%	2
T_{IM}	17%	6

Use of Results

Experience has shown that more needs to be done in terms of adequate use of DRM products (e.g. hazard maps, vulnerability assessment) in the design of national development programme. The value of hazard mitigation legislation is dependant on the use of the legislation to obtain the desired results. 18 questions were posed on the use of DRM products. The country scored a perfect 100% in this category. This is a very impressive score and the region should examine how Saint Lucia was able to archive this. This is a benchmark score.

12. Use of results		
	Percent Score	No. of questions
Risk identification Index	100%	4
Risk Mitigation Index	100%	5
Risk Transfer Index	100%	7
Disaster Preparedness Index	-	-
Emergency Response Index	100%	1
Rehabilitation and Reconstruction Index	100%	1
T_{USE}	100%	18

Monitoring and Evaluation

DRM programmes are designed based on current level of knowledge of the hazards, vulnerability and management tools. The knowledge base is subject to change and influenced by a number of factors. Monitoring and evaluation activities are required to assess the impact of the DRM programmes. The result of such an assessment should be used to improve the effectiveness of current initiatives. Of the 11 questions posed in relation to monitoring and evaluation activities. The country scored a perfect 100% in this category. This is a very impressive score and the region should examine how Saint Lucia was able to archive this. This is a benchmark score.

13. Monitoring Evaluation		
	Percent Score	No. of questions
Risk identification Index	100%	4
Risk Mitigation Index	100%	2
Risk Transfer Index	100%	1
Disaster Preparedness Index	100%	1
Emergency Response Index	100%	2
Rehabilitation and Reconstruction Index	100%	1
T_{ME}	100%	11

A summary of the score in the 13 tool sets for each of the 6 components of DRM is provided in Table 2 below.

Table 2: Summary of Scores Attained by Saint Lucia in all Categories of Disaster Risk Management Tool

1. Policy			2. Legislation		
	Percent Score	No. of questions		Percent Score	No. of questions
A	14%	7	A	100%	4
B	33%	3	B	100%	1
C		0	C	25%	8
D	100%	5	D	60%	5
E		0	E	25%	4
F		0	F		0
T_P	47%	15	T_L	59%	22
3. Standards and Regulations			4. Assignment of responsibilities		
	Percent Score	No. of questions		Percent Score	No. of questions
A	20%	5	A	67%	6
B		0	B	33%	3
C	33%	3	C		0
D	82%	11	D	70%	20
E	100%	4	E	100%	5
F		0	F	0%	1
T_R	65%	23	T_{AR}	69%	35
5. Technical tasks			6. Technical content		
	Percent Score	No. of questions		Percent Score	No. of questions
A	67%	18	A	64%	25
B	73%	15	B	59%	17
C	43%	7	C	38%	8
D	86%	42	D	83%	12
E	53%	15	E	57%	7
F	60%	20	F	27%	15
T_{TW}	70%	117	T_{TC}	56%	84
7. Public Awareness			8. Stakeholders participation		
	Percent Score	No. of questions		Percent Score	No. of questions
A	38%	8	A	17%	6
B	100%	5	B	50%	2
C	60%	5	C	40%	5
D	40%	5	D	100%	7
E	33%	3	E	100%	4
F	78%	9	F	100%	2
T_{PA}	60%	35	T_{SP}	65%	26

9. Funding			10. Human capacity		
	Percent Score	No. of questions		Percent Score	No. of questions
A	25%	4	A	93%	14
B	25%	4	B	80%	5
C	0%	2	C	0%	1
D	67%	3	D	100%	4
E	0%	1	E	89%	9
F	25%	4	F	100%	1
T_F	28%	18	T_{HC}	88%	34
11. Information management			12. Use of results		
	Percent Score	No. of questions		Percent Score	No. of questions
A			A	100%	4
B			B	100%	5
C			C	100%	7
D			D		0
E	0%	4	E	100%	1
F	50%	2	F	100%	1
T_M	17%	6	T_{USE}	100%	18
13. Monitoring Evaluation					
	Percent Score	No. of questions			
A	100%	4			
B	100%	2			
C	100%	1			
D	100%	1			
E	100%	2			
F	100%	1			
T_{ME}	100%	11			

A	Risk identification Index
B	Risk Mitigation Index
C	Risk Transfer Index
D	Disaster Preparedness Index
E	Emergency Response Index
F	Rehabilitation and Reconstruction Index

5.0 Regional Benchmarking

The BTool may also be used as a regional benchmarking tool for comparing the level of disaster risk management of one country against another. In order to do this, the indices of each of the countries in the six components of comprehensive disaster risk management should be recorded as well as their Total Disaster Risk Management Index (TDRMI). A ranking of countries based on their indices in each of the phases of disaster risk management may be produced in order to determine the relative position of each country in the region as well as a regional ranking of the overall Total Disaster Risk Management Index. Such a ranking scheme could be used to promote healthy regional competition for best practice in Disaster Risk Management and provide the opportunity for countries to learn from one another in terms of the sharing of success stories as well as failure stories. The ranking scheme may also be used to design award and recognition programmes for participating States.

As a benchmarking tool, the BTool has the following utilities:

- It identifies the country that has a higher index in a particular component and thus helps to identify what risk reduction tools and mechanisms the country has deployed to attain this high index. Other countries may then seek to learn from this country.
- It identifies countries that scored low indices in a particular component and thus supports in the design of regional projects to reduce a country's risk and improve their score in the next year.
- If the assessment is done on an annual basis, the RMIs and TDRMIs of a country over a period of years may provide an indication of whether the country is improving in its disaster risk reduction efforts or not.
- It may be used to evaluate the impacts of a disaster risk reduction investment project.
- It may be used to evaluate the relative strengths and weakness of disaster risk reduction initiatives of a country.

The table below provides the ranking of the six countries whose assessment has been carried out: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines.

St. Kitts and Nevis has the highest overall score of 57% while Dominica has the lowest with an overall score of 31%

Country	Overall Performance	Sub-regional position
St. Kitts and Nevis	57%	1 st
St. Vincent and the Grenadines	52%	2 nd
Saint Lucia	51%	3rd
Antigua and Barbuda	47%	4 th
Grenada	45%	5 th
Dominica	31%	6 th

St. Kitts and Nevis secured a first position in four of the six components. These are: risk identification, risk mitigation, risk transfer, and rehabilitation and reconstruction. It would be useful to investigate the reasons why this country did so well in the four components.

Table 3: Regional Benchmarks

Antigua and Barbuda					Regional rank
Phases of Risk Management	TNQ	Max Score	Total Score	%Score	
Risk identification Index	105	315	83	26%	6 th
Risk Mitigation Index	63	189	39	21%	5 th
Risk Transfer Index	48	144	32	22%	5 th
Disaster Preparedness Index	122	366	246	67%	2 nd
Emergency Response Index	55	165	138	84%	1 st
Rehabilitation and Reconstruction Index	52	156	90	58%	2 nd
Total	445	1335	628	47%	4th
Dominica					Regional rank
Phases of Risk Management	TNQ	Max Score	Total Score	%Score	
Risk identification Index	105	315	113	36%	5 th
Risk Mitigation Index	63	189	35	19%	6 th
Risk Transfer Index	48	144	32	22%	5 th
Disaster Preparedness Index	122	366	148	40%	3 rd
Emergency Response Index	55	165	77	47%	4 th
Rehabilitation and Reconstruction Index	52	156	3	2%	6 th
Total	445	1335	408	31%	6th
St. Vincent & the Grenadines					Regional rank
Phases of Risk Management	TNQ	Max Score	Total Score	%Score	
Risk identification Index	105	315	136	43%	3 rd
Risk Mitigation Index	63	189	127	67%	2 nd
Risk Transfer Index	48	144	48	33%	3 rd
Disaster Preparedness Index	122	366	205	56%	4 th
Emergency Response Index	55	165	92	56%	2 nd
Rehabilitation and Reconstruction Index	52	156	82	53%	3 rd
Total	445	1335	690	52%	2nd

Grenada					Regional rank
Phases of Risk Management	TNQ	Max Score	Total Score	%Score	
Risk identification Index	106	318	129	41	4th
Risk Mitigation Index	62	186	76	41	4th
Risk Transfer Index	48	144	61	42	2nd
Disaster Preparedness Index	120	360	228	63	5th
Emergency Response Index	57	171	91	53	3rd
Rehabilitation and Reconstruction Index	56	168	27	16	5th
Total		1347	612	45%	5th
Saint Lucia					Regional rank
Phases of Risk Management	TNQ	Max Score	Total Score	%Score	
Risk identification Index	106	318	157	49	1st
Risk Mitigation Index	62	186	93	50	3rd
Risk Transfer Index	48	144	36	25	4th
Disaster Preparedness Index	120	360	247	69	1st
Emergency Response Index	57	171	95	56	2nd
Rehabilitation and Reconstruction Index	56	168	63	38	4th
Total		1347	691	51%	3rd
St. Kitts and Nevis					Regional rank
Phases of Risk Management	TNQ	Max Score	Total Score	%Score	
Risk identification Index	106	318	145	46	1st
Risk Mitigation Index	62	186	127	68	1st
Risk Transfer Index	48	144	67	47	1st
Disaster Preparedness Index	120	360	201	56	4th
Emergency Response Index	57	171	90	53	3rd
Rehabilitation and Reconstruction Index	56	168	144	86	1st
Total		1347	774	57%	1st