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# CASE STUDY:
# Disaster Risk Reduction in Barbados: The Role of Parish Councils in Early Warning and Preparedness

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACP | African, Caribbean and Pacific Group of States |
| BCPR | Bureau for Crisis Prevention and Recovery |
| BRAGSA | Buildings, Roads and General Services Authority |
| CARILEC | Caribbean Electric Utility Services Corporation |
| CARICOM | Caribbean Community |
| CBO | Community Based Organisation |
| CC | Climate Change |
| CCA | Climate Change Adaptation |
| CCCCC | Caribbean Community Climate Change Centre |
| CCRIF | Caribbean Catastrophe Risk Insurance Facility |
| CB | Community Band |
| CDB | Caribbean Development Bank |
| CDEMA | Caribbean Disaster Emergency Management Agency |
| CDM | Comprehensive Disaster Management |
| CERS | Central Emergency Relief Secretariat |
| CERT | Community Emergency Response Teams |
| CIMH | Caribbean Institute of Meteorology and Hydrology |
| CPU | Central Planning Unit |
| CWSA | Central Water and Sewerage Authority |
| DANA | Disaster Assessment Needs Analysis |
| DALA | Damage and Loss Assessment |
| DDC | District Disaster Committee |
| DEOs | District Emergency Organisations |
| DIPECHO LAC | Disaster Preparedness European Commission's Humanitarian Aid for Latin America and the Caribbean |
| DFATD | Department of Foreign Affairs, Trade and Development |
| DFID | Department for International Development |
| DRM | Disaster Risk Management |
| DRR | Disaster Risk Reduction |
| ECDG DM | Eastern Caribbean Development Partners Group on Disaster Management |
| ECLAC | Economic Commission for Latin America and the Caribbean |
| EIA | Environmental Impact Assessment |
| EMAC | Emergency Management Advisory Council |
| EOC | Emergency Operations Centre |
| EU | European Union |
| EWS | Early Warning Systems |
| FAO | Food and Agriculture Organization |
| GFDRR | Global Fund for Disaster Risk Reduction |
| GDI | Gender Development Index |
| GII | Gender Inequality Index |
| GIS | Geographic Information Systems |
| GDP | Gross Domestic Product |
| GOSVG | Government of St. Vincent and the Grenadines |

| | |
|---|---|
| HDI | Human Development Index |
| HFA | Hyogo Framework for Action |
| HR | Human resources |
| HTERP | Hurricane Tomas Emergency Recovery Project |
| ICT | Information, Communications and Technology |
| IDA | Initial Damage Assessment |
| IDB | Inter-American Development Bank |
| IDDR | International Day for Disaster Reduction |
| IFRC | International Federation of Red Cross |
| INFORM | Index for Risk Management |
| MCMH | Milton Cato Memorial Hospital |
| MIRA | Multi-Cluster/Sector Initial Rapid Assessment |
| MoF | Ministry of Finance |
| MOTW | Ministry of Transport and Works |
| NAEB | National Environmental Advisory Board |
| NCC | National Climate Committee |
| NDO | National Disaster Organisation |
| NEMO | National Emergency Management Organisation |
| NEMS | National Emergency Management System |
| NEOC | National Emergency Operations Centre |
| NHMC | National Hazard Mitigation Committee |
| OCHA | Office for the Coordination of Humanitarian Affairs |
| OECS | Organization of Eastern Caribbean States |
| OFDA | Office of Foreign Disaster Assistance |
| PAHO | Pan American Health Organization |
| PDNA | Post Disaster Needs Assessment |
| PPCR | Pilot Program for Climate Resilience |
| RDVRP | Regional Disaster Vulnerability Reduction Project |
| RMI | Risk Management Index |
| RRT | Regional Emergency Response Team |
| RSS | Regional Security System |
| SIDS | Small Island Developing State |
| SITREP | Situation Report |
| SWMU | Solid Waste Management Unit |
| SMU | Soufriere Monitoring Unit |
| SOP | Standard Operating Procedure |
| SPCR | Strategic Program for Climate Resilience |
| SVG | St. Vincent and the Grenadines |
| UN | United Nations |
| UNDG | United Nations Development Group |
| UNDP | United Nations Development Programme |
| UNICEF | United Nations Children's Fund |
| UNISDR | United Nations International Strategy for Disaster Reduction |
| US | United States |
| USAID | United States Agency for International Development |
| USD | United States Dollars |
| UWI | The University of the West Indies |
| VINLEC | St. Vincent Electricity Services |
| WB | World Bank |

# EXECUTIVE SUMMARY

In the last decade, Barbados has seen its fair share of natural hazard and extreme weather events. However, in some ways, the country has been spared tragedies of loss of human life and livelihood that struck its Caribbean neighbours during the same period. Barbados has been reasonably successful in embracing a holistic and comprehensive approach to disaster risk management that has seen a continuous evolution of coordination and alignment of institutions, regulations and a multi-level network of stakeholders consisting of international and regional actors as well as sub-national and local communities.

This case study focuses on the evolution, current activities and future development of the parish level disaster and emergency organisations developed in Barbados and which have over time, become an integral part of the disaster preparedness, risk reduction and recovery machinery. Born out of existing parish councils over thirty years ago, a concerted effort has been made to include them in national emergency and disaster early warning planning and provide the necessary institutional support, training, funding and opportunities to participate in national emergencies. This approach is now showing visible successes with one such example being the yeoman work of the District Emergency Organisations (DEOs) in the extreme rainfall events of November 2014. With the additional responsibility and integration of parish councils into the overall disaster risk reduction strategy, DEOs are also involved in numerous other related activities.

This case study also addresses the movement towards gender related equality in council participation, leadership and decision-making. Women have been elected to council leadership in several parishes, where coincidentally, there have been significant disaster preparedness and emergency activities requiring their efforts and support. Additionally, it is noted that the vibrancy and proactivity of DEOs especially in the face of disaster risk reduction activities, early warning and preparedness are often driven by contingents of women within these structures. It appears, therefore, that the struggle for gender balanced perspectives in local level disaster risk reduction may be more of a reality in the Barbados context than elsewhere in the region, by virtue of women being in leadership and decision influencing positions at the parish level. This is a positive development for the region.

At the same time, the case study also identifies several areas of weakness that require improvement on multiple levels, with the local community participation being the central focus. These include the need for institutional strengthening and governance structures to support greater community engagement in disaster risk reduction; viable continued financing; training and capacity building. There are also tremendous opportunities to strengthen gender balance in DEOs as gender equity is far from being a reality. Another burgeoning challenge is the lack of participation and interest of youths in the community. This must be addressed early, to ensure the continued diversity of participation, views and perspectives. Women, the elderly and all others must be actively engaged to effectively strengthen disaster resilience at local levels in the future.

# INTRODUCTION

# 1 INTRODUCTION

## 1.1 SOCIO-ECONOMIC, GEOGRAPHICAL AND POLITICAL BACKGROUND

Barbados, located 30 degrees north and 59 degrees west is a unique island. It is the most easterly island of the Caribbean archipelago. It has a population of 277, 821 people, of which 47.9% are male and 52.1% female. The disabled community constitutes 5.1% of the population. With an area of 166 square miles, the island is one of the most densely populated in the region (see Figure 1)[1] . Education and healthcare in Barbados are rated well above average and the island is considered one of the most literate in the Caribbean. Generally, the Human Development Index (HDI), a statistical tool developed for the United Nations Development Programme (UNDP) to rank countries' social and economic development, is above average for the region. Barbados has a Gross Domestic Product (GDP) of $4.348 billion (World Bank, 2014). The island's main economic activity is tourism. Unlike most islands in the Eastern Caribbean which are volcanic, Barbados is comprised of coral and limestone, with many caves below its surface, placing it in a high risk position.


Source: http://world-mapss.blogspot.com/2017/05/barbados-map.html

**FIGURE 1:** A RELIEF AND ROAD MAP OF BARBADOS

[1]The National Geographic Society website provides a highly interactive Barbados map resource which can be used to explore the island's development aspects including geography, roadways and population concentrations. http://travel.nationalgeographic.com/travel/countries/barbados-map/

This has manifested itself in several hazards over the years, most notably landslides. There has also been an instance in recent years, where a cave in Barbados collapsed and killed a family of five. Along with these inherent risks and because of its geographic location, Barbados is also vulnerable to hurricanes, storms, tsunamis and earthquakes. Grass and cane fires occur frequently and have been both naturally occurring and purposefully started. The island has also had to address a number of petrochemical spills.

In Barbados, several areas are deemed vulnerable because of some environmental or infrastructural proclivity to certain hazards. These susceptible communities include Charles Rowe Bridge and South District, St. George, Church Village in St. Philip, Martins Bay, St. John and others in which vulnerability and capacity assessments were recently conducted by the Barbados Red Cross Society with the guidance of District Emergency Organisations (DEOs).

**TABLE 1:** HISTORIC HAZARDS AFFECTING BARBADOS AND THEIR IMPACTS

| Date | Hazard | Lives lost | Persons affected | Economic losses US $'000 | Main sectors affected |
|---|---|---|---|---|---|
| Aug 1959 | Flood | 41 | | | |
| Sept 1955 | Hurricane Janet (Cat3) | 38 | 29,000<br>8,000 homes | | Housing |
| Oct 1970 | Floods | 3 | 200 | 500 | Infrastructure (roads, bridges), fishing, agriculture (soil erosion), electricity, communication |
| Jul 1980 | Hurricane Allen (Cat3) | | 5,007 | 6,000 | Fishing, poultry, housing |
| Nov 1984 | Floods | | 100 | 2,000 | Infrastructure |
| Sept 1987 | Tropical Storm (Emily) | | 230 | 100,000 | |
| Aug 1995 | Floods | 1 | | 5,000 | |
| Sept 2002 | Storm | | 2,000 | 200 | |
| Sept 2004 | Tropical Storm (Ivan) | 1 | 880<br>531 homes | 5,000 | Coastal erosion, housing |
| Nov 2007 | Earthquake 7.4 | 0 | 1 | | |
| Oct 2010 | Tropical Storm (Tomas) | | 2,500 | 37,000 | Housing, electricity, water |

Source: Barbados Country Document for Disaster Risk Reduction 2014

## 1.2 THE DISASTER RISK MANAGEMENT PERFORMANCE OF BARBADOS

In a 2009 Inter-American Development Bank (IDB) study, the risk management index (RMI) was calculated for Barbados. The RMI is an important measurement because it directly assesses risk management performance against predefined targets or benchmarks. The index has four components: risk identification (RI), risk reduction (RR), disaster management (DM) and governability and financial protection (FP). Each component, referred to as public policy in the IDB report, has six sub-indicators that characterise management performance in the country. Evaluating the sub-indicators using a non-linear aggregation model determined the value of each component of RMI. The value of each element is between zero and 100, where zero is the minimum performance level and 100 is the maximum level. Total RMI is the average of the four indicators. High values of RMI mean better performance of risk management in the country.

**TABLE 2:** IDB RISK MANAGEMENT INDEX, BARBADOS (1995 – 2008)

| Index | 1995 | 2000 | 2005 | 2008 |
|---|---|---|---|---|
| RMI-Risk Identification | 11.85 | 29.79 | 35.76 | 37.81 |
| RMI- Risk Reduction | 17.21 | 38.78 | 38.78 | 50.61 |
| RMI-Disaster Management | 13.61 | 35.46 | 55.41 | 55.41 |
| RMI-Governability & Financial Protection | 5.25 | 11.35 | 13.65 | 35.78 |
| **Risk Management Index** | **11.98** | **28.84** | **35.9** | **44.9** |

Source: ID District Emergency Organisations (DEOs) B (2009)

As Table 2 shows, all four components and the overall Risk Management in Barbados have demonstrated important and progressive improvements from 1995 to 2008. According to the IDB, Barbados' RMI performance is superior, in comparison, to the majority of the countries of the region. However, there is still a long way to go in order to achieve high performance levels and sustainability in risk management." Although between 1995 and 2008, the RMI rose by 33 index points, it still stood at only 44.9 points.

## 1.3 PUBLIC ATTITUDE TOWARDS DISASTER MANAGEMENT

Barbados has made significant strides in its formal approaches to disaster risk reduction – from the incorporation of relevant legislation and regulations to structured governance and operational institutions entrusted with various disaster risk reduction powers and functions (as described above). Despite these national and local level advances, those in authority still allude to a prevalent nonchalant attitude among the general population. They suggest that the lack of a major disaster on the island since hurricane Janet in September 1955, appears to have caused a sense of complacency when it comes to disaster management.

The Department of Emergency Management (DEM) notes that numerous, routine emergency drills have been carried out at various government institutions and public facilities including schools and hospitals. These are conducted by the DEM, its affiliates and responsible professional units set up by respective organisations and communities. Such drills are often met with non-participation, lackadaisical participation and even complaints from persons involved that such drills (or frequency thereof) are not justified, exhausting and provide no return on investment. This pervasive attitude of nonchalance with regard to emergency drills creates a distinct possibility that portions of the population remain unprepared for emergency situations.

This nonchalant attitude is also evident during hurricane or storm events, where warnings are given, encouraging persons to secure roofs, galvanised sheeting and other objects that may become loose and cause injury. Instead of heeding the early warnings, many individuals are seen in the high winds and heavy precipitation attempting to secure their property.

Excerpt from "Disaster Preparedness is your responsibility' by J. Rawlins-Bentham, Barbados Government Information Service, May 28, 2015

As Barbados prepares for the start of the 2015 Atlantic Hurricane Season, former Director of the Department of Emergency Management (DEM), Judy Thomas, issued her final official warning – the responsibility is yours!

"The safety and well-being of yourself and your family is your responsibility. *It is a responsibility that you cannot push on someone else." She stressed,*

*"There comes a time in the whole scheme of things when you are on your own, and your own survival instincts and your survival capacity will determine the next day if you are alive or dead."*

Simon Alleyne, Department of Emergency Management (DEM), Barbadian Reporter News, June 14, 2011

*"June too soon, July stand by, August a must, September remember and October all over." This popular expression, once uttered by both children and adults to signal the arrival of the hurricane season, no longer holds true given today's unpredictable climate conditions. "The habit of most Barbadians is to wait until June to start to prepare for the season but we at the Department of Emergency Management don't want that, as we want persons to have a whole idea of disaster preparedness throughout the year. So, … we want individuals to assess their homes and to make arrangements to have those large trees on their properties cut, and [also] to try and keep the drains in front of their respective homes clear, so as to reduce flooding."*

## 1.4 EXAMPLES OF EXTREME WEATHER INDUCED HAZARDS

Being one of the Small Island Developing States (SIDS), the small size and densely populated nature of Barbados makes it particularly vulnerable to hazard events. Barbados' low-lying, extensive coastal zones and its tourism based economy make it more vulnerable to the vagaries of nature, causing higher overall risk that can potentially have physical and economic ripple effects through the entire island. Barbados has the potential to be impacted by meteorological, geological and biological hazards. The table below shows some of the hazards the island is vulnerable tos.

**TABLE 3:** SUMMARY OF TYPES OF HAZARD EVENTS IN BARBADOS BETWEEN 1650 AND 2000

| Hazard Type | Time Period | Events | Return Period |
|---|---|---|---|
| Flooding | 1886-2000 | 34 | 3.35 |
| Drought | 1946-2009 | 22 | 2.86 |
| Tropical systems | 1786-2010 | 20 | 11.20 |
| Earthquake (and felt shocks) | 1670-2014 | 10 | 34.40 |
| Landslide | 1901-2000 | 8 | 12.38 |
| Tsunami | 1751-2000 | 7 | 35.57 |

Source:Barbados Country Document for Disaster Risk Reduction 2014

## Landslides

The major landslide activity in Barbados is confined to the Scotland District in the northeast of the island. It is reported that soil movement in the Scotland District dates back to as early as the mid-eighteenth century. These reports are very general, however, a description of soil sliding in large sections with some aggression, suggests landslide movement. Through these early reports, it can be concluded that landslide activity is a persistent geomorphic process of immense significance to this part of Barbados.

The main landslide types present in the Scotland District are earth flows, slumps and debris flows. These occur along the steep slopes of deep v-shaped valleys and sharp-crested ridges in the district which are formed by stream dissection.

Shallow debris slides on slopes of 20 to 30 degrees. On steeper slopes in the Scotland District, some large slides have rafted large blocks of the oceanic series and limestone downslope. When moderate to heavy rainfall occurs, the water undercuts these areas and causes landslides and slippage.

Scotland District has had to contend with several episodes of landslides and slippage. The Deputy Chairwoman recounted stories of residents whose houses fell into the gully because of the instability of the land on which they built. The White Hill community specifically, experienced landslide events for more than three decades. Figures 2 and below show a collapsed road as a result of land slippage from water damage and the remains of a house that once stood in the White Hill area.

**FIGURE 2:** LAND SLIPPAGE IN THE SCOTLAND DISTRICT


**FIGURE 3:** RESIDENTS LOOKING AT THE MANGLED HOUSE WHICH COLLAPSED AS A RESULT OF THE INSTABILITY OF THE LAND.

## Flooding

Flooding has long been a major challenge for Barbados, with records of flood related injuries and death dating back to the early 1900s. Some areas are predisposed to flooding and have experienced recurrent flood events. The most recurring cause of flooding remains improper drainage habits resulting in clogged drains. Moderate rainfall over a long period of time can cause these clogged drains to overflow. During hurricanes, as seen with Tomas in 2010, these events are exacerbated.

One major example of persistent flooding in Barbados is the Charles Rowe Bridge community which is located at the bottom of the slope of St. George valley and has a number of roads leading into it. In 2008, the community experienced a particularly heavy flood event. Three families were severely affected with the contents of their homes damaged by water and one resident's pigs were washed away. The flooding in Charles Rowe Bridge is caused by inadequate wells and poor drainage in the area. To help combat this, the road running through the community was rebuilt to facilitate the flow of water. However, the wells are not able to accommodate all of the water flowing from the area.

**FIGURE 4:** AERIAL PHOTOGRAPH SHOWING CHARLES ROWE BRIDGE AND SURROUNDING DISTRICTS

**FIGURE 5:** OVERFLOWING WELL IN CHARLES ROWE

The aerial photograph shows the Charles Rowe Bridge area and the minor and major roads which lead to it. The numerous buildings used for both commercial and residential purposes, increase the vulnerability in the area.

# DISASTER MANAGEMENT INSTITUTIONS AND GOVERNANCE

2

# 2 DISASTER MANAGEMENT INSTITUTIONS AND GOVERNANCE

Disaster management in Barbados is primarily governed by the Department of Emergency Management (DEM) which was established on April 1, 2007 by the Emergency Management Act, 2006. This is the main legislation which governs disaster management on the island. This Act provides for the effective organisation and management of disasters and other emergencies and establishes the Emergency Management Advisory Council and the DEM. Under the Act, the Governor General is empowered to declare a disaster or other emergency by proclamation after he has been advised by the Prime Minister and in consultation with the Director of the DEM. There are other legislation that do not directly address disaster management but also govern the operations of agencies engaged in disaster risk reduction activities (see Appendix for details). These are:

- Emergency Powers Act, Cap. 161
- Prevention of Floods Act, Cap. 235
- Town and Country Planning Act, Cap 240
- Health Services Act, Cap 44
- Soil Conservation (Scotland District) Act, Cap 396
- Shipping (Oil Pollution) Act, Cap 296A
- Coastal Zone Management Act, Cap 394

The national disaster management mechanism has promoted interdisciplinary and inter-sector partnerships and supported the mainstreaming of risk management into the national planning process. The regulatory system possesses tools for decision-making with the purpose of preventing or correcting vulnerability and risk through land use zoning, construction guidelines, natural resource management and climate change adaptation (Evanson, 2014). Some of the key provisions include:

- Physical Development Plan and Environmental Impact Assessment (EIA) Guidelines
- Water Zoning Regulations
- National Building Code
- Integrated Coastal Zone Management Plan

Several other institutions work together in the management of disasters in Barbados. The Barbados Police Force, Barbados Defence Force, Barbados Red Cross Society, Barbados Fire Service and St. John's Ambulance Brigade among others, all aid in the response to disasters and also participate in resilience building, through outreach and training programmes.
Since its inception, the DEM has changed significantly. Initially formed in the 1940s along with the Organisation for Hurricane Relief, it was called the Central Emergency Relief Organisation. However, in an attempt to move away from being solely focussed on relief, it became the Department of Emergency Management.

[2] http://www.lexadin.nl/wlg/legis/nofr/oeur/lxwebar.htm offers full copies of these legislative instruments. The latest revisions to the main legislation are regularly made available on the Barbadian parliamentary page http://www.barbadosparliament.com

Unlike the DEM, the Organisation for Hurricane Relief was never involved in disaster preparedness. Its main focus was providing relief after a disaster. For instance, the population was informed of an impending hurricane impact through public warnings, which were disseminated according to standard hurricane categories: Advisory, Cautionary Warning and the Onset of a Hurricane. The organisation's procedures were specifically designed to facilitate the action of members, rather than provide the public with a thorough briefing of impending hazard impact. As a result, all of its actions were geared towards returning things to normal after the event, rather than with lessening the impact.

Although this was a major shortcoming in the context of today's operations, it appeared to have functioned with some efficiency in 1955, when as a result of the actions of the organisation, the losses and suffering experienced during hurricane Janet were reduced (Walsh, 1998). In 1978, the Organisation for Hurricane Relief was renamed the Central Emergency Relief Secretariat (CERS), the main objective of which was to provide administrative support and coordination to the wider disaster management system in Barbados.

Over the years, the secretariat was required to increase the scope of its responsibility. It was expected to respond to other natural and man-made hazards, such as flooding, landslides, oil spills, industrial fires, aircraft crashes and large scale public service vehicle accidents.

Further still, an entire system for the management of disasters has been developed, with a number of stakeholders who assist in facilitating activities under the guidance of the now, Department of Emergency Management. Referred to as the National Emergency Management System (NEMS), it consists of the following:

1. Emergency Management Advisory Council (EMAC)
2. Emergency Operations Centre /Emergency Management Teams
3. Fifteen (15) Emergency Management Standing Committees
4. Thirty (30) District Emergency organisations (DEOs)

The membership of the Emergency Management Advisory Council (EMAC) consists of representatives of the emergency services, key government ministries and departments, the private sector, Non-Governmental Organisations (NGOs), Community Based Organisations (CBOs) and regional and international emergency management organisations (DEM 2015).

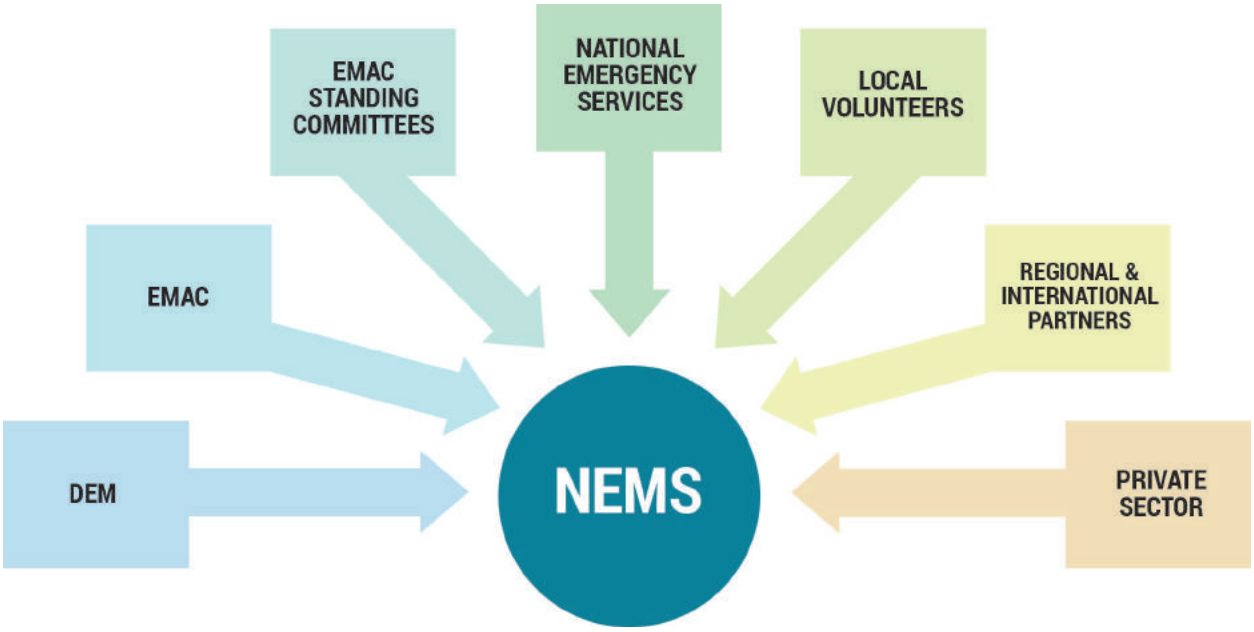


**FIGURE 6:** MULTIPLE STAKEHOLDERS COMPRISE THE NEMS

Under the EMAC, there are 15 sub-committees called Standing Committees which are organised along emergency response functions such as shelter, evacuation, mass feeding, emergency telecommunications and public utilities etc.

The Standing Committees are chaired by select members of the Emergency Management Advisory Committee who are technical heads of government agencies with responsibility for the execution of national disaster management policy and programmes in their respective areas of expertise (see Appendix for details). The Standing Committees include:

1. Public Information (PIEC)
2. Damage Assessment and Statistics (DASC)
3. Health and First Aid Services (HFASC)
4. Food and General Supplies (FGSC)
5. Public Utilities (PUC)
6. Emergency Transport (ETC)
7. Road Clearance and Tree Trimming (RCTTC)
8. Welfare Services (WSC)
9. Shelter Management (SMC)
10. Telecommunications (TEC)
11. Emergency Housing and Rehabilitation (EHRC)
12. National Mitigation (NMC)
13. Tourism Emergency Management (TEMC)
14. Technical Standing Committee on Coastal Hazards (TSCCH)

These sub-committees work in their separate areas and when needed, coordinate efforts and information for the efficient functioning of the EMAC. All sub-committees respond to the DEM which shares information with the DEOs through the Programme Officer assigned to each DEO. The district level organisations therefore play an important role for the flow of information and the designation of responsibilities and activities in the disaster risk reduction cycle before, during and after a disaster. The organisational stakeholders involved have noted that with this linkage among the different players within the NEMS, they have an elevated level of confidence in the system's efficiency and ability to coordinate efforts. The stakeholders in the NEMS include the following:

1. Barbados Defence Force
2. Barbados Fire Service
3. Royal Barbados Police Force
4. Prime Minister's Office
5. Ministry of Agriculture
6. Ministry of Health
7. Ministry of Home Affairs
8. Ministry of Tourism
9. Ministry of Transport and Works
10. Ministry of Education and Human Resource Development
11. Ministry of Environment, Water Resources and Drainage
12. Ministry of Social Care, Constituency Empowerment and Community Development
13. Town and Country Planning Development Office
14. Division of Energy and Telecommunications
15. Barbados Red Cross Society


**FIGURE 7:** THE EMERGENCY MANAGEMENT ADVISORY COUNCIL (EMAC) AND ITS STANDING COMMITTEES

## 2.1 THE NATIONAL EMERGENCY OPERATIONS CENTRE (NEOC)

The National Emergency Operations Centre (NEOC) is the centralised location from which the mobilisation and coordination of responses and resources is carried out in the event of a major incident, emergency or disaster. The NEOC is staffed by the Emergency Operations Centre (EOC) Management Teams. These teams are structured to provide a 24-hour operation in the event of any major disaster. The teams are made up of the technical heads/representatives of the agencies which are members of the National Disaster Committee. The primary functions of the teams are:

1. Notification of key individuals and appropriate agencies
2. Mobilising additional and extraordinary resources
3. Collecting, collating and analysing information
4. Prioritising response activities
5. Providing warnings and keeping the public updated on the progress of the incident, the need for evacuation or other precautions and the termination of the incident
6. Coordinating damage assessments and conducting needs analysis
7. Coordinating emergency relief and initial rehabilitation activities (DEM 2015)

Along with the coordination of these committees and institutions locally, the Department of Emergency Management has also embraced regional and international policies for disaster management.

In 2003, the Cabinet of Barbados formally agreed to the principles of the Caribbean's strategy on Comprehensive Disaster Management (CDM), which is an all-encompassing policy involving all of civil society in an all-hazard approach at the various stages of the Disaster Management Continuum. The goal of the CDM Strategy therefore is to reduce the risks and losses caused by natural and anthropogenic hazards, in an effort to enhance sustainable development. This policy initiative laid the foundation for the integration of disaster risk reduction into national programmes which previously had mandates that predominantly incorporated preparedness, response and relief of meteorological threats.

In 2005, the Government of Barbados adopted the Hyogo Framework of Action (HFA), which was in accordance with its formal acceptance of the CDM mandate two years prior. It also further demonstrated the Government's commitment to reduce risks and build national resilience. Through the development of policies and legislation founded on the principle of comprehensive disaster management and aligned with the five priorities for action under the HFA, Barbados continues to implement programmes and projects aimed at lessening the country's disaster threats. These include:

1. The strengthening of institutional arrangements for Comprehensive Disaster Management including the enactment of the Emergency Management Act, 2006.
2. Increased and sustained knowledge management and learning for Comprehensive Disaster Management.
3. Improved integration of Comprehensive Disaster Management at sectoral levels.
4. Strengthened and sustained community resilience which emphasises the empowerment of communities to address disaster risks (GOB 2015).

Emergency telecommunications training was conducted for DEM volunteers including DEOs, St. John Ambulance Association of Barbados, Barbados Red Cross, the Roving Response Team and the Barbados Citizen Band Radio Association. Similar training was also provided for members of the DEM support staff who operate in telecommunications roles in emergency events.

Barbados' affiliation with international disaster risk reduction strategies did not stop at the HFA. On April 30, 2014, the country showed its ongoing commitment to improving disaster management in the island with the hosting of a national consultation to document its priorities and perspectives on the proposed elements of the Post-2015 DRR Framework. Specific recommendations which came up for consideration in the framework were:

1. The proposed new outcome statement "Secure, Healthy, Wealthy and Resilient Nations and Communities" should be linked to sustainable development goals.
2. Strengthened accountability with respect to Post HFA targets at the impact level in order for such sustainable goals to be achieved. Enhanced results-oriented programming and monitoring at the local, national, regional and international levels is therefore essential.

## 2.2 DISTRICT EMERGENCY ORGANISATIONS (DEOS)

Over the years, the District Emergency Organisation evolved from a simple hazard response unit into a mitigation and capacity building entity. The accompanying systematic management structure made up of a Chairman, a Deputy Chairman, a Secretary, a Public Relations Officer and officers covering the areas of Shelter Management, First Aid, Damage Assessment, Road Clearance, Transportation, Communication, Clothing and Feeding. Figure 8 shows the organisational structure of the DEOs.

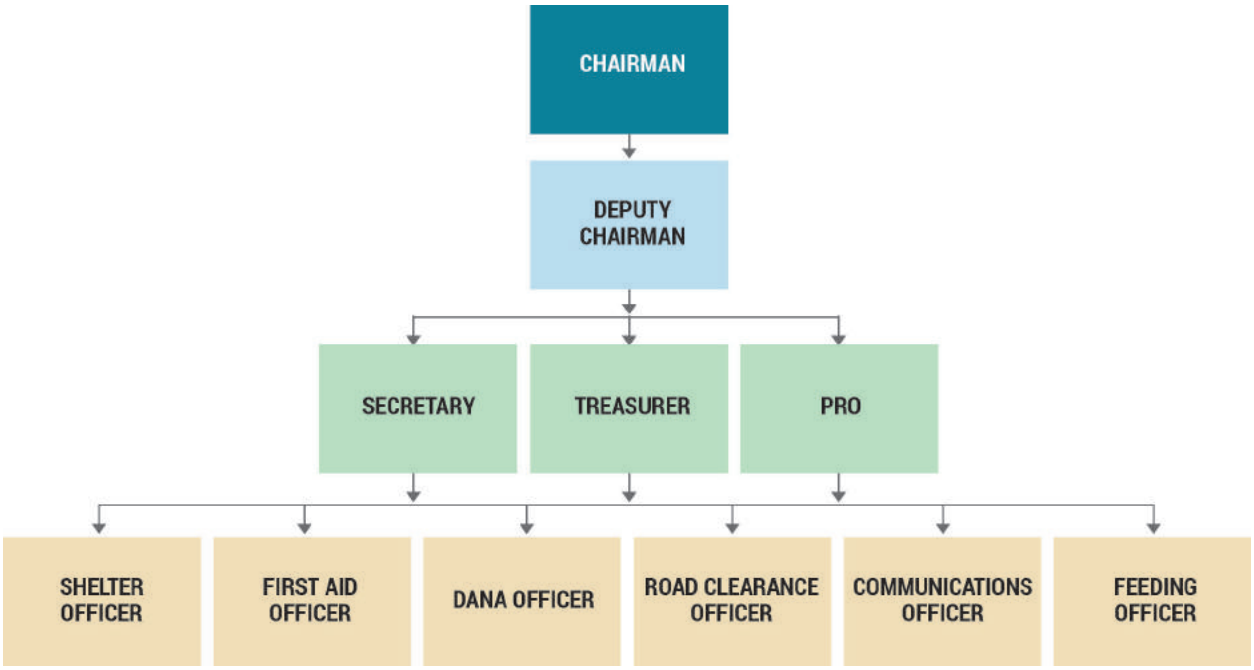


**FIGURE 8:** ORGANIZATIONAL STRUCTURE OF EACH DEO

Disaster prevention and preparedness programmes are administered to the DEOs and associated communities to lessen the impact of identified hazards such as hurricanes, floods, earthquakes, fires, aircraft and vehicular accidents as well as environmental hazards being addressed by the DEOs.

According to the DEM, *"The DEO reaches out to all groups in the community, including churches, service clubs, neighbourhood watches, PTAs, skilled artisans, families, community groups, non-governmental organisations and most importantly the individuals living in the community. There is also a close association with the government agencies such as the Fire Service and the Police that operate in the respective communities."*

DEO members receive training associated with the different areas in which they function, including public speaking, radio operations, damage assessment, first aid and more.
Vulnerability assessment procedures within the communities are also taught and carried out. Much of the training is obtained through the DEM. However, where the department is not able to, individual DEOs outsource training from local organisations such as the St. John's Ambulance Brigade. In some cases, DEOs collaborate for training and rely on internal resources, usually older, more knowledgeable members to give talks and conduct seminars. Funding for these ventures is sometimes received from generous donors within the constituency as the DEM's budget allocations for DEOs are not always sufficient to facilitate the multiplicity of training and administrative needs of the 24 operational organisations.

The DEM typically provides any assistance it can, with DEOs utilising their centrally located office for the printing of pamphlets and other teaching materials. Other materials required for seminars and some meetings such as projectors are also obtained through the department. The open door policy of the DEM encourages chairpersons and other members of the DEOs to liaise on a one on one basis, with the programme officer assigned to DEOs, an approach which encourages good relations between the two.

# GENDER, LEADERSHIP AND DISASTER RISK REDUCTION

3

# 3 GENDER, LEADERSHIP AND DISASTER RISK REDUCTION

While 'sex' refers to the universally recognised biological differences between men and women (Enarson and Meyreles, 2014), 'gender' encompasses the socially created differences ascribed to these two groups (Brown and Sua, 2009). Men and women are assigned separate roles within a society, including control of and access to resources, decision-making and responsibilities and activities undertaken (Ibid).

The broad concept of gender reflects the relations, social attributes and opportunities associated with males and females (CRMI, 2009). Different social groups have varying ideas concerning these and so gender changes over space and time. In many cultures around the world, women exist in marginalised conditions, with limited access to education, land ownership and with little or no say in the decision-making process (World Bank, 2014). Gender equality is therefore needed, whereby identical conditions for both men and women are pursued (UNISDR, 2014).
In the Caribbean, women often serve as heads of households, in many cases multi-generational ones, income earners and community activists which places them in a disadvantaged position, in comparison to males (Kambon, 2013).

A common characteristic of female-headed households is a single income, resulting in limited access to resources and assets. The issue is compounded by the existing wage gap between men and women, causing households headed by women to be placed at further disadvantage. The cumulative result is that female-headed households have to meet greater needs but with less resources. Consequently, the vulnerability of these households is exacerbated during times of disasters and resilience is compromised (Ibid). Within Caribbean society, elderly men are also vulnerable to the negative impact of disasters, as they are generally found to be living alone, with little or no assistance (CRMI, 2009).

A gender-balanced approach to disaster risk management (DRM) is therefore beneficial to both men and women and is demonstrated worldwide in gender-inclusive DRM best practices (Enarson and Meyreles, 2014). Mainstreaming gender into DRM takes into account the differences between men and women, boys and girls. Policies and plans should be designed along this vein to protect different groups of persons in society that may be vulnerable to the impacts of disasters (Saito, 2014). Gender imbalances within society are revealed during disasters and both vulnerabilities and capabilities are seen, the origin of which includes class, caste, minority status and disability (CRMI, 2009).

Careful consideration of the vulnerabilities and capabilities of men and women is very important as mandated by international and regional DRM policies (Senior and Dunn, 2009). The International Strategy for Disaster Risk Reduction mandated in their last two legislative frameworks Hyogo Framework for Action and Sendai Framework that gender should be incorporated (UNISDR, 2009). At the regional level, the Caribbean Disaster Emergency Management Agency's (CDEMA) Comprehensive Disaster Management Strategy 2014-2024 also mandates gender mainstreaming and includes gender as a cross-cutting issue (CDEMA, 2014).

According to Brown and Sua (2012), the effective incorporation of gender into DRM plans and programmes helps to prevent loss of life and contributes to efficiency in the distribution of resources in all phases of the DRM cycle. It also encourages men and women to actively participate in all phases of the DRM cycle, whether it be mitigation, preparedness, response or recovery.

The interaction of all sectors in society is needed for effective disaster risk management and to achieve gender mainstreaming. All members of society should be engaged in order to tackle their differing needs and limitations in DRM.

## 3.1 GENDERED PARTICIPATION IN DISASTER RISK REDUCTION

The significance of incorporating a gendered perspective in disaster risk management frameworks has been highlighted in much of the DRM literature, and consideration should be given to the impact on both men and women. It must also be noted that both genders contribute significantly and in different ways to disaster risk management (CRMI 2009). This inclusion can reduce the likelihood of hazard events overwhelming a society and becoming disasters (Pulwarty and Riebsame,year). For this reason, policy measures and actions have been put in place at the international and regional levels, namely the CDM mandate and the HFA.

Disaster risk reduction that delivers gender equality is a cost-effective, win-win option for reducing vulnerability and sustaining the livelihood of whole communities" (Margareta Wahlström, et al, year??). Women and girls account for over half of the 200 million people affected annually by natural disasters. For this reason, they are also typically at greater risk from natural hazards than men – particularly in low-income countries and among the poor. Natural disasters and climate change often intensify existing inequalities and discrimination, including those that are gender-based, sometimes leading to new forms of discrimination.

The term gender refers to "the socially-constructed roles, behaviour, activities and attributes that a society considers appropriate for a person based on his or her assigned sex at birth."
Achieving effective disaster risk management practices that facilitate resilient communities and countries, demand an understanding of the gender implications and facets of natural disasters and climate change. All women, men, girls and boys do not have the same needs or face the same vulnerabilities as a result of natural disasters and climate change. Even within each group and between individuals, differences exist and these differences shift over time and throughout the disaster and post-disaster phases. For example, people with mental or physical disabilities, minorities and indigenous populations, the elderly, chronically ill, unaccompanied children, child-headed households, female-headed households and widows constitute different vulnerable groups, which share some commonalities but which are ultimately different from each another.

Various factors, including social, economic, ethnic, cultural and physiological, affect the ways that disasters impact women, men, girls and boys as well as their coping strategies and their participation in prevention, relief, recovery and reconstruction processes.

Women's leadership and participation is therefore very important.

Participation is one area in which inequities must be addressed for gains to be made in risk reduction. Special Representative of the UN Secretary General for Disaster Risk Reduction, Margareta Wahlström, speaking on the occasion of the International Day for Disaster Reduction (IDDR, year), which focused on women and girls, said "countries that do not actively promote the full participation of women in education, politics and the workforce will struggle more than most when it comes to reducing risk and adapting to climate change."

Women serve their communities as leaders in ways that are not always recognized by national governments and international organisations. While they may not hold visible positions of political leadership, women play a critical role in society and its capacity for resilience. Behavior, culture and knowledge are taught by women, usually responsible for rearing of children and are passed on to kin, through different social networks. This is critical to risk prevention and response efforts.

Women help to rebuild their communities after disasters strike. They often serve as teachers, nurses and social workers and are generally in a good position to assess community needs and implement disaster relief and recovery programmes. Women's leadership in civil society organisations can provide opportunity for their participation in more formal processes of DRR, response and recovery efforts.

Several countries have led the way in promoting the visibility of women. India's National Policy on Disaster Management (2009) highlights the vulnerability of women and other at-risk groups. It also stipulates the inclusion of women in State Disaster Response Forces, the participation of women and youth in decision-making during community-based disaster preparedness. States are also mandated to provide for the "permanent" restoration of livelihoods for female-headed households and other marginalised and vulnerable groups.

The policy also recognises that "… many women are also particularly affected by environmental disasters, serious and infectious diseases and various forms of violence against women," and called on governments to implement actions which address these issues.

Disaster management policies and programmes should involve the participation of women in their development. However, it is critical that efforts are taken to ensure that women are well-informed about these policies and programmes.

True integration of gender and participation in projects and programmes needs to be undertaken at each stage of the project cycle. The entire cycle, from participatory planning to implementation, monitoring and evaluation, provides information at different levels to accomplish new insights for action. Critical to the process of gender mainstreaming and participation, is the question of who controls the process of information gathering and analysis, and the search for solutions. Data needs to be processed in a way that exposes and explains interconnections between issues; that is also gender disaggregated and reaches conscious conclusions which can be fed back into the project strategy. The question of who collects, analyses and evaluates the data also needs to be addressed. Ensuring critical analysis of gender dynamics alleviates the danger that men and women will be represented in isolation of the web of social relationships that affect their well-being, and as such, their participation would be meaningful.

Reflective processes, analysis and social action by different sections of communities need to be the core of the general participation strategy. This has led many to recognise that a strategy for institutional change is a necessary component of any change process (*State of the World's Volunteerism Report 2011*).

## 3.2 THE EVOLUTION OF THE DEO SYSTEM: A GENDER MAINSTREAMING PERSPECTIVE

The District Emergency Organisation concept originated in the mid-1970's, in large part through consultations between Barbados and various Commonwealth agencies that recommended the DEOs operate as volunteer arms of government emergency services. The design was based on systems established in several West African countries at that time. This original intent had little or nothing to do with a shared management approach or a participatory model. Rather, it sought to recruit able-bodied community members, who, with some disaster preparedness training, could be maintained and activated in times of emergency. It is worthwhile to note therefore that from this time to well into the 1990s, with the purpose of the DEOs thus framed, women were hardly the targeted participants and rarely, if ever, became significantly involved.

It was much later in the 1990s that the DEOs further evolved and developed into organised community based entities, facilitating the timely response to disasters and promoting community participation. Still rather informally recognised at that point, the DEO concept became attached to various iterations of government branches responsible for disaster management. In most instances, these ministries focused on social development. Through the next decade or so, the DEOs gained prominence (some also suggest newfound respect) throughout the constituencies in which they existed and the chairpersons became influential in their community. One particularly strong reason for the increased prominence of the DEOs was a general shift in government policy positions towards broadening the social protection net. In short, that meant increasing directives to work at the community and local levels with 'targeted groups' and 'high vulnerability groups'. Simultaneously, while DEOs stood as beacons in their respective parishes, their increasing visibility grabbed the attention of the political directorate.

By the late 1990s into the new millennium, the influence of local political interference in DEO appointments was widely felt. Stakeholders candidly recalled instances of politically connected community members being appointed to lead DEOs while others were clearly shunned. Again, to a large extent, this did not bode well for increasing the participation of women in the DEOs, much like historical village councils which were traditionally led my men. While based only on stakeholder provided information, the general perception was that DEOs were politically aligned. Therefore, if a particular constituency had a certain political sway, it was assumed that only persons of that political persuasion were part of the organisation and that DEO activities would benefit only certain groups. This widespread notion remained prevalent for many years despite alleged attempts by heads of the department to disassociate DEOs from any particular political party.

In the early 2000s, there was also a countervailing and more positive influence that would also sharply shift the evolution of the DEOs towards being more gender balanced and later on women empowering structure. The Millennium Development Goals (MDGs) placed the issues of gender sensitivity and women empowerment in Latin America and the Caribbean front and centre of government agendas. Being one of the most vociferous advocates for Caribbean development in the talks leading up to the MDGs, Barbados reflected on what existed internally.

With the above discourse in mind, the progressive evolution of women leaders in community level DRM, in effect being 'local agents of development' is worth analysing. In addition to being part of the beneficiary community, they are also in a position to participate in the implementation of DRM policy on the ground. Regardless of whether headed by women or men, young or old, they share the ability to exercise parish-level influence in one way or another. In addition, councils are in close contact with the Department of Emergency Management as well as that agency's many partners including non-governmental organisations (NGOs).

In the past, several local and foreign NGOs have utilised this government-community relationship for the purpose of disseminating community information and best practices in local sustainability development, small business development and childhood education. In this way, the councils have been able to expose female members to a broader range of opportunities. For women-led councils, these leaders were exposed to interactions, cooperation and negotiation with a broad range of stakeholders and partners, which served to reinforce their leadership status and improve their leadership skills through experiential learning. It must be emphasised that these opportunities are still very rare for rural women, even in a highly literate society as Barbados.

The second shift in operational policy in the early to mid 2000s made by the Department of Emergency Management, involved its critical moves to decentralise the DRM process and involve community stakeholders in a more structured and formalised way. This model, in part, was seen as a way forward especially with community-based, early warning systems and additional on the ground human resources in post-disaster situations, especially where such resources could be trained and maintained. A similar approach was being taken by another government unit – the Coastal Zone Management Unit around that time. With close relations between both government entities and in some cases complementary responsibilities, this was seen as a modern, potentially positive approach. Interestingly, in both government agencies, senior technical and managerial staff positions were held by women and a few years later, women would hold the reins of leadership in both organisations. While we are not able to draw distinct causal relationships between women in leadership in government agencies and women in leadership within the community councils later on, it is interesting to consider whether or not one reinforces the other. In interviews with the women of the Department of Emergency Management, it was clear that the objective was to build parish councils to be effective partners with no conscious gender bias. However, there were specific attempts to bring a sense of gender balance and inclusiveness within the councils as much as possible and where female members showed initiative, this was highly encouraged and leadership roles presented.

The parish councils were also involved with the multiple special focus committees established by the Department of Emergency Management. Again, this provided new fora and an expanded audience for councils to be heard and for women to be empowered through added visibility and practice of their skills.

The actual decentralisation process and entrusting councils with a larger number of functions and responsibilities, meant greater scope for women to become and be seen as 'local agents of development', playing a more important role in the future. Interviews with council members revealed a very obvious, but perhaps partially unintentional shift from the previously popular 'target group approach' paradigm, which until that time, had been the norm in development practice. Community groups were seen as a 'target group' to influence rather than as 'change agent' or 'partner in development', terms made popular in the 2000s. At the intra council level as well, several female members revealed that this shift in tone and relationship also boosted their personal morale and confidence to be more involved in the decision-making process along with their male counterparts. Even where women were not official leaders of councils, they were making themselves heard and began seeing their ideas and suggestions turned into actions and initiatives. Interviews with male council members revealed that for the most part, men welcomed the decision-making interventions of women and there were no stark evidence of contention based on sex. In some cases, men pointedly expressed that in disaster situations, women face several pressures as the main caretakers of households.

# DEOS PLAYING A CRITICAL ROLE IN DISASTER RISK REDUCTION

4

# 4 DEOS PLAYING A CRITICAL ROLE IN DISASTER RISK REDUCTION

The District Emergency Organisations have had to respond to several hazards over the years including floods, major vehicular accidents, oil spills and landslides. When they occur, these hazards often have immediate and longer lasting impacts on the physical, social and economic strength of the communities in which they occur and wider afield. Provided below are two examples of where DEOs have been activated and proved critical to risk reduction. The first example is the November 2014 extreme rainfall event and the second refers to the long-term community risk presented by an invasive species. Both exemplify the range of risk reduction activities that have benefited from DEO involvement. These examples also highlight several gender impacts that have to be considered in risk reduction.

## 4.1 THE NOVEMBER 2014 EXTREME RAINFALL EVENT

Annual precipitation varies from 1008 mm on the coasts to 1650 mm in the Barbadian interior. Rainfall patterns have generally followed the same trends over many years, with October and November generally seeing a peek in the amount of precipitation. In 2014, this continued and there was consistent rainfall within those months (CIMH 2015). As a result of the heavy rains and saturated soils, during that time period, multiple flood warnings were issued. The graph below shows the monthly rainfall patterns from 1971-2014.

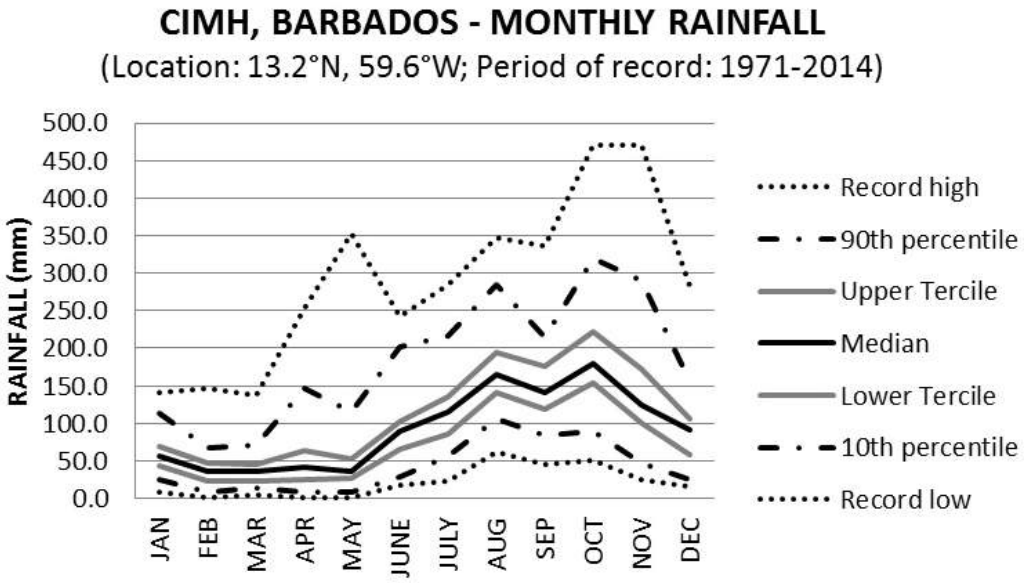


**FIGURE 9:** AVERAGE MONTHLY RAINFALL PATTERNS

Although the rains in November 2014 caused significant damage to the infrastructure of the island, the wettest year on record was 2010 with 1790.9 mm of rainfall. However, November 21st , 2014 had the highest amount of precipitation for the entire year (89.4mm), warranting the severe damage caused.

From November 20-22 2014, the interaction between a trough system and the Inter Tropical Convergence Zone (ITCZ) caused this moderate to heavy rainfall and some isolated thunderstorms, which then resulted in flooding across the island. A flood warning was given at 5:00 a.m. on November 20th and as a precautionary measure, schools remained closed. Persons residing in low-lying and other flood-prone areas were advised to remain vigilant and take necessary precautionary measures. Over the three days, rainfall totalling 173.2 mm was recorded by the meteorological office at the Grantley Adams International Airport.  Significant flood damage was reported.

Major damage to infrastructure occurred in the parishes of St. George and St. Andrew, with the latter being most severely impacted. In South District, St. George, a road collapsed (Figure 10), while in White Hill, an immensely vulnerable area in St. Andrew, there was severe land slippage and a collapsed road. Utility poles were leaning as a result of the slippage and over a dozen houses and attendant garages, shelters and several small home businesses (including road side parlours and mechanic shops) were destabilised. Assessment of the White Hill area on the November 23rd revealed that the entire stretch of road had fallen a full metre from where it originally stood. The crumbled, cracked and creviced former road material slid into very close in proximity to many more houses threatening imminent and continued damage. Figures 10 and 11- below show these. Some roads on the island such as in South District in St. George and Needham's Point in St. Michael were impassable as a result of the flood waters. Houses in parts of St. Philip were completely surrounded by water, trapping occupants inside. The Drainage Unit was assigned to these cases .

**FIGURE 10:** PART OF A COLLAPSED ROAD AT SOUTH DISTRICT IN ST. GEORGE

**FIGURE 11:** COLLAPSED ROAD IN WHITE HILL, LAND SLIPPAGE AND LEANING UTILITY POLES

[3]This information was kindly provided by the Barbados Ministry of Environment (Mr. Goodridge et al.), Drainage Unit and Sanitation Authority (Mr. Alleyne et al.year)

The entire disaster management system was engaged in the November 2014 floods. Residents in the affected communities were the ones who first witnessed the damage and subsequently contacted the authorities. In many cases, the DEO chairpersons were contacted, a norm during times of hazard impact. The DEOs where necessary and possible, dispatched teams to undertake tasks such as chainsaw handling to address fallen trees. In some cases, the DEOs were not able to directly address emergencies in the communities and contacted the DEM through the programme coordinator. The appropriate standing committees of the EMAC were called upon to address specific areas of concern in the communities. Some national emergency services had to be dispatched to assist given the extent of the damage caused by the floods.

The Government of Barbados established a system, involving several different areas of significance in disaster management which filter down to the smallest unit of government and operate continuously in order to prevent, prepare for and respond to disasters with reasonable efficiency. The Department of Emergency Management works along with several different entities on the national and community level, to manage hazards on the island. At every level of governance, participation is evident to varying extents.

In the November 2014 floods, the Barbados Defence Force (BDF) played a critical role in responding in the White Hill area in St. Andrew, where the most significant damage occurred. The flood event itself caused such severe damage to the roads that the main access road to the community was impassable and an alternative route had to be taken. Information was communicated to the BDF's Reconnaissance Team via residents in the community that this was especially problematic for school children, the majority of whom walked to school. Members of the community and the BDF worked together to shuttle children to and from the nearby Hillaby-Turner's Hall Primary School.

The DEOs worked the frontlines, aiding the BDF's Reconnaissance Team to navigate alternative foot and vehicular routes through the devastated landscape to reach flood victims. In many cases, local knowledge at the household level also helped prioritise the more vulnerable homes in the immediate areas of impact. In other words, through the knowledge of the DEO members, quick assessments could be done, often without difficult door to door tactics. These assessment revealed things such as which households were without vehicles for emergency evacuations, locations where elderly and bedridden persons were being cared for, where infants and children resided, and also, which schools and businesses remained open for food, water and other emergency supplies. The vulnerable persons list generally compiled by the District Emergency Organisations was passed on to the BDF. These persons included those with asthma, diabetes and the elderly. In the days prior to the imminently rising floods the DEO members were also out in force on the ground, appraising residents of the potential emergencies. They also worked with community members to obtain further information about the state of the community, post-disaster.

The BDF was apprised of a breakdown in the garbage collection service, with reports that garbage had not been collected in six weeks. This, along with floating and displaced garbage in streets, public areas and private yards caused a considerable health hazard for the community. The DEOs were the leading point of liaison for relaying this information to the Department of Emergency Management to facilitate further relief and recovery efforts.

The gender disparate impacts of this event became very apparent in retrospect. Gender perspectives can be viewed from two vantage points: first, the vital role played by female DEO members in the disaster risk reduction process and second, the differential impacts that community women suffered in the event and the advantages that the gender diverse DEOs had in coping with the challenges of assisting the community. The DEOs in the most affected parishes of St. Georges, St. Andrew, St. Michael and St. Philip were in broad agreement that pre-disaster precautions including the need for some to evacuate, might have gone unheeded, were it not for the strong relationships that respective DEO women had with women folk in the impacted communities including other influential women. DEOs also noted that in many cases, female council members had better and more accurate information on household level details such as numbers of school aged children, newborn babies and bedridden occupants in households. Such detail became critical in quickly identifying the most vulnerable and prioritising how to provide assistance to disaster victims. In the post disaster assessments, without the aid of external agencies, DEO women are also credited with being able to efficiently gather and distribute extra clothing and organising village activities to distribute foodstuff and cooked meals when and where needed. Several male council members admitted that in their view, without female DEO members, these tasks could have been mishandled. So in many ways, out of the tragic community impacts, female council members, through their leadership initiative and determination, gained significant respect from male DEO members and communities in which they operated.

## 4.2 THE GIANT AFRICAN SNAIL

Achatina fulica, also called the Giant African Snail is a species of land snail native to East Africa. However, it can be found in numerous territories outside of its native range where mild climates exist. It has been introduced unintentionally through trade movements between East Africa and the Caribbean and intentionally as a source of food. The snail's feeding pattern is described as insatiable and it causes significant damage to agricultural crops and native plants. The Giant African Snail is listed as one of the top one hundred invasive species in the world and is a costly and disturbing addition to the natural Caribbean fauna.

Classified in China in 1931, its initial point of distribution was the Xiamen province. The snail has also established itself in the Pratas Islands of Taiwan and throughout India, along with the Pacific and Indian Ocean islands. Barbados formally recognised the snail's ubiquitous presence in 2002. The Giant African Snails have spread from their assumed point of invasion on the west coast of Barbados to all 11 parishes. Their populations grew rapidly due to a high rate of reproduction and certain adaptive traits such a varied diet and egg dispersal on vehicles, people and soil.

Seeing the devastation the snail caused throughout the island and specifically in agrarian communities, the DEOs pioneered a programme in response to the invasive pest. The snails were destroying crops and threatening livelihoods. The St. George North Chairwoman became the initiator and most vociferous advocate of the now national snail baiting programme. She drew much needed national attention to the issue, especially its impact on rural communities, noting the she could not bear to see the pests "destroying the meagre income of the little old ladies who sell their produce". As leader of the St. George North DEO, the chair was able to convince the entire council and other neighbouring councils to take a proposal for action to the Ministry of Agriculture. With the ministry's approval and support, the DEOs commenced the snail-baiting programme. Community residents were encouraged to call and report sightings of the snails. Bait was then placed in the areas of reported sightings to ensnare and dispose of the snails over time. In a short while, the snail population diminished significantly.

It should not be discounted that a fundamental driver for this leadership initiative by the chairwoman was a clear appreciation of the plight of rural women, working the land and selling by the roadside and in markets to support themselves and their families. It is quite possible that another council could have concluded that this issue was beyond its responsibilities. Hence, along with the end success of ridding the communities of the snails, this must also be considered as another example of a gender diverse DEO, in this case one with female leadership, bring additional perspective and innovativeness to DEO operations.

# LESSONS LEARNED AND FUTURE CHALLENGES TO GENDER MAINSTREAMING

5

# 5 LESSONS LEARNED AND FUTURE CHALLENGES TO GENDER MAINSTREAMING

## 5.1 GENDER PARTICIPATION IN BARBADOS DEOS

When hazard events have struck in Barbados, in local communities and nationally, women are often most heavily impacted. However, it must also be highlighted that women often overcome immense obstacles to lead response efforts and provide care and support, even at risk of their own health and well-being.

The ratio of male and female participation has changed significantly over the years with the DEOs in the early days, predominantly comprising males. The chairperson was usually a man and this continues today, with only one third of the 24 DEOs in operation being headed by females. These female heads lead some of the vibrant DEOs on the island, with rural districts such as St. Lucy and St. Andrew, known to be both energetic and female headed. Disasters indeed exacerbate pre-existing barriers and inequalities that women face, putting them at greater risk of injury and death but the situation is gradually evolving in Barbados such that more women are sitting in the lead chairs during these important disaster risk reduction and preparedness discussions. They are very much part of the decision-making process and have made themselves part and parcel of the national conversation.

*"Women must be recognised for who they are and the roles they undertake, which are central pillars of disaster response and recovery. We must recognise and mobilise women going forward…it is time to move from aspiration to implementation."*

E. Cousin, Executive Director, UN World Food Programme at the
3rd World Conference on Disaster Risk Reduction, May 2015.

In some districts, while men are seen to be responsive during times of hazards, women are found to be hands on with the on-going activities of the organisation. Some districts however reported equal participation among men and women throughout the operations of the organisation. Notably, in both cases, fundraising activities and outreach programmes involving the sale of food are embraced by women and the more strenuous activities are favoured by men. This illustrates a distinct gender division of labour, established as a result of societal norms.

Even given this division of labour, the model has worked successfully in several past disaster events such as heavy rainfall and flooding, landslides and breakdown of the transportation infrastructure including rural roadways. The enthusiasm and initiative of women in DEO leadership positions has led the Department of Emergency Management to review how it can support district council women in their leadership roles. The options considered include:

- Leadership courses for all DEOs that include specialised coverage of women in decision-making processes, gender sensitive decision-making and conflict resolution.
- Increasing financial and other logistical resources across all DEOs paying special attention to supporting those led by women and proactive councils in general, so as to incentivise future involvement of female members.
- Enhanced agency to council communication and support through more intensive meetings and collaboration agenda to demonstrate DEM commitment to placing more women in leadership and decision-making positions.
- Peer-to-peer exposure of all DEO leaders including women in councils, to government mentors and other officials in DRR governance as a source of continued encouragement and knowledge and experience sharing.

Improving the resilience of local communities through the DEOs requires accelerating social, economic and environmental investments in their success. Even with successes seen so far, there is need to integrate gender dimensions into risk reduction and disaster response involving women and men actively engaged in planning and implementation. It is hoped that this clear leadership role being played by women in the DEOs highlights the fact that women can be great community change agents who are often overlooked in the context of hazard events, or all too frequently categorised as a "vulnerable group". Promoting and mobilising women's leadership and gender equality in building resilience is critical to the sustainability of risk reduction priorities and sustainable development goals.

With consistent advocacy over the last 10 years by the Office of Disaster Management, there is growing recognition of the central role of women in disaster risk reduction at the parish level in Barbados. Moreover, during DEO meetings with the Office of Disaster Management (ODM), it was observed that all participants, including men, reiterated that the empowerment of women and their balanced representation in disaster risk management are essential factors in reducing impacts and building their community resilience. The ODM now has several more actions and plans for the systematic collection of gender disaggregated data for use in the development of gender responsive early warning systems and gender-sensitive programmes and policies for disaster risk reduction.

While progress has been made in the implementation of the Hyogo Framework for Action, it is widely recognised that gaps and challenges remain in delivering on the national commitments to gender equality and women's rights in disaster risk reduction efforts at the very local level. The ODM will be moving towards periodic reviews of progress to show how the status of gender equality and women's social, economic and political empowerment are evolving. A key objective emerging from national consultations on the post-2015 framework for disaster risk reduction, is to develop targets and indicators to measure progress on inclusion of women and gender equality in disaster risk reduction and to also determine women's resilience with the progress measure systems of the Sustainable Development Goals and climate change.

To fully capitalise on women's central role in building social and economic resilience, gender equality considerations and the effective mobilisation and promotion of women's leadership in disaster risk reduction require a stronger focus on the implementation of gender equality commitments, coupled with political attention and prioritisation, adequate capacities, as well as monitoring and accountability mechanisms. It is hoped that more national high level dialogue will explore how the contribution and capacity of women can be expanded and strengthened to maximise the impact of disaster risk reduction efforts on the resilience and well-being of the whole Barbadian society.

## 5.2 CHALLENGES TO LOCAL ORGANISATION AND IMPACT

Like all organisations, DEOs face challenges caused by a number of factors and they have had to be innovative in their response to these challenges.

**Lack of interest among young persons**

*"The DEOs unfortunately do not attract the type of people they should attract; that is, young people."-St. George North DEO Chairperson*

A common challenge expressed by many DEOs is the lack of interest in the organisation among the younger generation. This is a major concern for the chairpersons who fear for the future of the DEOs. However, the St. Joseph chairwoman appears to have overcome the age barrier by securing the involvement of her daughter and other young persons in the community, whom she personally reached out to. As a result, that particular DEO has both the young and old working towards a common goal.

Successful youth engagement strategies require that young people have genuine and meaningful opportunities to work within the council system and with policymakers to impact DRR issues in their communities. Effective initiatives respect the value of young people and provide them with information, tools and support to work effectively and at the same time, allowing opportunities to take ownership of parts of the process. The DEOs have recognised the importance of being inclusive in planning and working with youths, placing particular emphasis on engaging young people who have not traditionally been included in DRR and other activities in their respective communities. Emphasising this type of civic engagement provides young people with opportunities to gain work experience, acquire DRR skills and learn responsibility and accountability - all while contributing to building resilience in their communities.

**Antagonism towards meetings**

*"Individuals just don't like the meeting culture"- Christ Church West DEO Chairperson*

Many residents are willing to support DEO activities with their presence, finances or other tangible means, but they are not willing to commit themselves to attend meetings consistently. Individuals cite personal commitments and lack of time as reasons for not being able to attend meetings. As a result of this, much of the training being offered is not accessed by numerous members. Some DEOs therefore try to host training sessions in areas of interest within communities to facilitate participation by more persons.

The strain between enthusiasm to participate in meetings, household and employment responsibilities is often exacerbated for women. Meetings were usually held in after work hours as cottage meetings in a community home or business, church or school setting or periodically, in conjunction with the Department of Emergency Management at their office. This is usually a difficult time for women employed outside of the community as well as women engaged in agrarian livelihood in the vicinity, who on their return home, have traditional household duties such as cooking and childrearing to tend to. These sentiments were also expressed by other female community members who currently do not participate in the DEOs. In fact, a common retort across parishes was similar to the quote below:

"Is better that the men go on evenings because after work they headed to the canteen anyway…so is better they get into something constructive…"

St. Joseph resident

**Lack of Financial Resources**

"With the economic challenges, it is not always possible to provide all the funds that are required of the DEOs"

-Danielle Skeete, Programme Officer for the DEOs


**FIGURE 12:** DEO FUND-RAISING IN ST.GEORGE

The funds allocated to DEOs are not always sufficient to meet training needs and other demands which they have. This, in effect becomes a hindrance to the progress of the organisations, leading to the need to source financial aid from community donors. While actual budgetary figures were not made available, the DEOs of St. George, St. Andrew, St. Michael and St. Philip estimated that about 50% of their annual finances were derived from self-initiated fund-raising activities, corporate sponsorships and other donations from community members. One challenge reported was their inability to access funds directly through proposals to aid agencies. Such avenues were only possible through the Department of Emergency Management, of which they were extension organisations.

**Limited visibility**

"An area we have always had a challenge with is marketing. We need new and innovative ways to get our message across"

-Kerry Hinds, Acting Director, Department of Emergency Management

Although the District Emergency Organisations have been in existence for more than 30 years, they are still relatively unknown in many communities. Also, the lack of funding inhibits advertising at the level that promote the desired amount of exposure, giving rise to poor turnouts at community events. Some DEOs try to combat this by setting up stalls at fairs, talking with the public and providing giveaways, along with engaging in fund-raising activities in the community and conducting outreach programmes such as health fairs.

## 5.3 ANALYSIS OF DEO RESPONSES TO HAZARD EVENTS

The type of damage recorded during the 2014 flooding warranted response by the Barbados Defence Force (BDF), the Ministry of Transport and Works (MTW), Drainage Unit, Soil Conservation Unit and a number of other national entities. However, where possible the DEOs, especially in the severely damaged parishes of St. George and St. Andrew, intervened and gave of their services.

Members of the St. George North DEO, along with other residents of the community readily assisted persons in need. In Charles Rowe Bridge, one of the vulnerable communities, the flood waters swept away a resident's pig and became too much for an employee of the nearby fast food restaurant who was trying to leave.

In White Hill St. Andrew, the most severely affected area, the DEO chairperson along with representatives from other relevant authorities, visited the scene to assess the damage, also assisted where possible with the work being done on the ground.

**DEO Response Protocol**

A well-functioning disaster coordination mechanism is in place with clear policies and procedures and in which all entities are clear about their roles and responsibilities. Below are some of the main characteristics of the DEO level response protocol utilised by the Office of Disaster Management when deploying DEO resources. It must be noted that the protocol DEOs utilise, is generally in need of review and updating, having been inherited from the old CERO organisation.

**TABLE 13:** CURRENT RESPONSE PROTOCOL

| |
|---|
| Where DEOs are called upon, there is generally a line of action and authority that is taken in order to ensure efficiency within the organisation. |
| All hazards are to be reported to the DEO chairperson who would then contact the Department of Emergency Management through DEO Programme Officer. |
| If the event is within the scope of the DEO's capacity to respond, DEO representatives on the scene would fulfil any of the required actions, until relevant authorities such as the police arrive. |
| If the event is outside the DEOs capacity, authorities áre to be contacted. |
| In some instances, the DEM might have knowledge of an event in a particular constituency before the DEO in that constituency is made aware. In such instances, the DEOs would be informed by the DEM. |

Experience has shown that a critical feature of an effective disaster preparedness capability is the extent to which different actors and entities operate in a coordinated and timely manner, avoiding gaps, duplication of effort and parallel structures. Skillful coordination among the wide range of potential stakeholders that may provide assistance during an emergency (such as the military, NGOs, utility companies and private sector entities) is critical to avoid confusion and to facilitate an effective response. Ensuring a clear focal point and location for coordination, such as an Emergency Operations Centre is also essential. Different local political, cultural and socio-economic norms necessitate institutional arrangements, including coordination mechanisms which are appropriate to that particular context.

Effective coordination also requires a clear division of labour and clarity of roles, meaning who does what. It is also important to recognise that even in systems that are decentralised, responsible entities can still provide information and benefit from participation in more centralised coordination mechanisms. Effective preparedness requires close coordination and information exchange among the District Councils and externally, with other stakeholders such as businesses. Close attention must also be paid to ensuring vertical communication between the national and local levels. An effective coordination system will promote two-way information flow and actual dialogue rather than just information sharing between different components of the system.

## 5.4 DISTRICT LEVEL VOLUNTEERING

In order to promote resilience, managing disaster risk efficiently and effectively, begins and ends with communities (UNV, 2011). Resilience encompasses the ability of communities to prevent, prepare for, cope with, and recover from disasters. It must be recognised that those located in hazardous environments are not helpless prospective victims of events outside of their control. They may have limited livelihood options, but given opportunities, they can engage in initiatives that reduce their vulnerability.

Volunteers have a critical role to play in creating awareness about the sustainable management of natural resources that can prevent and mitigate the impact of disasters. According to State of the World's Volunteerism Report, 2011, "volunteers from within communities are the first line of response". In real life scenarios, the first responders are not trained emergency personnel but rather local residents and neighbours. People at the local level are best placed to identify their immediate emergency response needs. Therefore, the most effective resources for reducing vulnerability are community self-help organisations and local networks. In many countries, volunteer-based fire services are an example of how people engage in volunteerism to strengthen local capacities to respond to disasters. Volunteer fire brigades tend to be highly reliable and respected all over the world.

As volunteer organisations, DEOs may be seen by some as having no real incentive for members. However, most of the members of the DEOs have been in the respective organisations for decades. This signifies a great level of commitment which for some, "comes naturally." For the St. Joseph DEO chairwoman, she saw the need for educating the community, showing people how they can contribute to the safety of their friends and loved ones. The responsibility to give back to the community is also a major driving force for the energetic leader. When asked why they have stuck with the organisation so long, persons unanimously articulated their pride in their people and their community.

**TABLE 14:** PROPOSED STRATEGIC DIRECTIONS AND PRIORITIES FOR DRR IN BARBADOS

| Key Issues | Proposed actions | Suggested lead agency | Timeframe for completion |
|---|---|---|---|
| Capacities for hazard monitoring, forecasting and mapping are inconsistent across hazards and agencies<br><br>Lack of adherence of agencies to data sharing protocols<br><br>Apparent lack of understanding within agencies of usefulness of data to other parties<br><br>Lack of dedicated monitoring and research personnel<br><br>Inability to access datasets from multiple agencies for comprehensive analysis and planning<br><br>Limited compilation capabilities inhibits comprehensive analysis for effective planning | Protocols development for consistent data collection and transformation<br><br>(Building a culture of information as a public good. Potential for designating specialised research and data collection personnel, and sharing between agencies with similar needs to maximise scarce resources) | Data Processing Department | Jun 2015 |
| | Build a multi-sector hazard monitoring network | Barbados Meteorological Service | Dec 2015 |
| | Mapping of floods and tsunami risk areas and identification of evacuation routes | Coastal Zone Management Unit | Dec 2015 |
| | Education on the functionality and benefits of the DEWETRA platform, such as the capacity to integrate GIS layers, hazard monitoring information and forecast models towards its greater and consistent use | Lands and Surveys Department with support from CIMH | Dec 2015 |
| | Development of guidelines or protocols for integration of data and analysis into specific decision making processes (non-restrictive, non-exhaustive) | Data Processing Department | Mar 2016 |
| Variable tools and methods employed by agency teams in dmage and loss assessments<br><br>Inconsistent methodologies impede comparability of data | Standardise methodology for post-disaster data collection and input of metadata across agencies, including use of geo-ref equipment e.g. the UNDP implemented World Bank funded Post Disaster Needs Assessment (PDNA) project being rolled out across the Eastern Caribbean | Barbados Statistical Service | Dec 2015 |
| | Sharing of best practices and tools among agencies | Town and Country Development Planning Office | Jan 2016 |
| | Training of field operatives on standardised methodology | Lands and Surveys Department | May 2016 |

| | | | |
|---|---|---|---|
| Inconsistent capacities across DEOs<br><br>Absence of clarity on the roles and responsibilities of Constituency Councils in DRM; potential conflict with DEOs<br><br>Constituency Councils and DEOs are aligned along electoral boundaries, which are not applicable in the context of environmental risk management e.g. watersheds | Instituting regulations for the Emergency Management Act Cap 160A to empower the DEM | Office of the Attorney General | Dec 2015 |
| | Institutionalisation of the new Community Emergency Programme | Department of Emergency Management | Jun 2016 |
| | Modify disaster framework to empower communities to conduct assessments and make decisions at a local level (e.g. as in Speightstown with the flood EWS) | Department of Emergency Management | Jun 2016 |
| | Provide standardised training for community teams to ensure safety and accountability | Barbados Fire Service<br><br>Ministry of Health<br><br>Environmental Protection Department | Dec 2016 |

Barbados has had reasonable success in responding to and preparing for disasters, with the use of a comprehensive system for engaging many stakeholders in various areas of society. However, there are areas highlighted for improvement and the Department of Emergency Management has, therefore, proposed new strategic direction for disaster management in Barbados. The above figure highlights a number of key issues and proposed solutions, departments to oversee these actions and an intended timeframe in which they would be accomplished.

# CONCLUSIONS

6

# 6 CONCLUSIONS

Even with the institutionalisation over time of public and civil society elements of the Barbadian disaster risk reduction mechanism, there are several opportunities for institutional strengthening, including aspects of gender mainstreaming and the coordination of functions among stakeholders. The DEM works at the national level in close collaboration with district and local authorities, and the relevant line ministries under the overall authority of a high-level inter-ministerial committee. It is a technical arm which coordinates all activities related to disaster management from the national to the grassroots level. The roles and responsibilities of the DEM have to be strengthened. Community organisations, namely the DEOs, have progressively mainstreamed female participation and leadership but this has occurred more by organic evolution rather than deliberate design. There should be more defined efforts to promote, increase and maintain gender mainstreaming even further.

Significantly more attention should be paid to collaborating with existing international and regional training institutes, training materials development units, and NGOs already engaged in relevant training activities, to co-ordinate and promote the production of curricula and relevant training materials for various target groups. There has been no formal policy intent to promote gender balanced leadership opportunities in Parish Councils; this has in fact evolved over time, by promoting policies that support gender balanced engagement. In so doing, policymakers ensure that diverse persons are able to participate in both guiding policy and participating in the decision-making process. By recognising the valuable and unique experience and knowledge of women, youth and other diverse views and providing concrete ways for their participation in guiding policy, Barbados ensures that public problem-solving in disaster risk reduction is more comprehensive.

There may be a need for clear policies to consistently provide for gender balance, through on-going training that would promote civic participation. This is essential for women and diverse groups to feel empowered and capable of engaging in the projects they choose to pursue. Parishes, through local government authorities, can invest in and coordinate training opportunities in the policy process, governance structure and community resources as well as skills like community organising and delivering presentations to decision-making bodies.

In retrospect, the experience of community intervention and participation in disaster risk reduction activities illustrates that the mere existence of a plan, at the community level, is not enough. The plan needs to be tested and exercised by all members of the community including women, children and the elderly. Field simulation exercises, based on specific scenarios, are an effective means to determine how realistic the plan is and to assess the capacity of the different actors. Based on the results and lessons learned during such exercises, plans detailing procedures, responsibilities etc. can be modified accordingly. Simulation and response exercises can help to identify strengths and weaknesses, as well as the type of training required to ensure that all participants are able to execute their identified responsibilities. The use of simulation exercises also serve to keep the plan ‘fresh’ in the minds of all participants and to keep knowledge and skills up to date.

The same holds true in the testing of the effectiveness of early warning and alert systems. Conducting lessons learned exercises based on previous responses, is also important. Simulation exercises can also be a good means of reviewing how well cross-cutting issues are reflected in the plan, and if women and other vulnerable groups will be able to access extra support in responding to a potential hazard. Once the planning process is complete, it is essential to ensure that its content be used to directly increase levels of readiness through activities such as upgrading early warning systems, pre-positioning resources within sectors likely to be impacted or the provision of contingency budgets for associated government departments with central responsibilities for preparedness. It is also important that sufficient resources are allocated for the review and dissemination of the plan by all those who are expected to play a role in its implementation. It is vital that all involved clearly understand the plan and their role and responsibilities.

Evaluation is another essential factor. It is critical for successful policy implementation and to ensure intended outcomes. Accountability requires determining whether programmes are implemented correctly and whether or not the right programmes and strategies are used. It was observed that although the District Council system has been seeing more successes and several instances of effective actions in the face of disasters, there was almost no formal evaluation or assessment of the organisations, network or systems themselves. This is a significant opportunity for review, adjustment and creation of opportunities to increase effectiveness and efficiency.

To ensure that national level disaster risk reduction policies are sustainable, it is important to consider ways to both maximise public sector funding resources and to utilise public-private partnerships.

# RECOMMENDATIONS

7

# 7 RECOMMENDATIONS

### Gender Policy Development

As this case study suggests, the growing role of women in leadership positions in local parish councils is an important phenomenon to note. With women in these leadership roles, it provides evidence over the long term that women can and do perform at the same levels or greater than men in these important decision-making and resource allocation roles. It reduces possible prejudices towards women in leadership at the very community level and this contributes to societal change in the long run. While this situation has evolved uniquely over time, it is not widely prevalent in all spheres and levels of community governance in Barbados or the Caribbean. As such, a women's leadership quota policy should be opened for discussion within the sphere of disaster risk management and more broadly, in community development. This provides a secure mechanism to build community confidence in women's leadership and in women themselves, that they can and should lead. Such programmes have solid precedence of success with examples from Rajastan, India (Banerjee, Duflo, Pande 2011, Empowering Female Leaders and voters in Rajasthan, India) to Botswana (Pande and Ford, 2011).

### Institutional Strengthening and Co-ordination Function

The roles and responsibilities of the DEM have to be strengthened in the following aspects in order to execute its mandate more effectively:

- Developing, updating and refining the National Disaster Action Plan and associated practical guidelines for those responsible for its implementation.
- Helping line ministries and agencies to develop and test their own contingency/action plans.
- Helping district level government and community networks to develop and test their own disaster preparedness plans.
- Working with local NGOs and businesses to help councils and communities in high-risk areas to develop their own contingency plans and increase their coping capacity.

### Strengthening the Capabilities of Districts

- Investing further in facilities, information systems operating procedures and telecommunications systems for a national emergency operations centre (EOC) control room, which would be available for immediate use when an emergency arises.
- Establishing arrangements for the mobilisation of additional trained personnel (e.g. military, police) for the districts and to assist local DEOs in the field, when required.
- Working more cohesively with the physical planning authorities and concerned line agencies to increase awareness of risks and ensure that such risks and possibilities to reduce them, are considered and that appropriate measures are incorporated into development planning with emphasis on rural geographies.

- Monitoring and reporting to the Government and Parliament on the risks faced, the vulnerability of specific communities and their economic assets to known hazards, the status of preparedness at local levels and any delays/bottlenecks in the implementation of disaster prevention/preparedness programmes.
- Working with District Councils to co-operate with the physical planning authorities and line agencies as required, in compiling data on reconstruction requirements and coordinating the preparation of an integrated reconstruction programme.
- Including District Councils in all post event evaluations, drawing lessons and feeding them back into training activities and updated guidelines.

### Promoting policies to support gender balance and diversity in council and DEO leadership

- Considering the creation and support of women's support networks which are separate but closely linked to the District Councils to ensure the voices of women are heard and play a meaningful role in shaping DRR policy.
- Encouraging local government authorities to spearhead such networks which can then be drawn upon to institutionalise the inclusion of diverse voices in the policy-making process
- Encouraging the participation of women, youth and other diverse populatsions in official early warning planning efforts to better understand the resources available to them in their communities and to ensure that community development reflects their diverse needs.
- Diversifying the forms of gendered service opportunities available to women and men. For example, women are less likely to participate in nightly meetings when they must tend to children, the sick and the elderly, while men are less likely to attend during midday hours when they are in the formal workforce.
- Engaging communities in a range of gender sensitive service options, allowing them to develop skills and gain experience, while giving back to their communities. This also allows for authorities to undertake needed projects, while providing women and other groups with opportunities for skills development. Women who participate in diverse service opportunities have an increased interest in furthering their participation and leadership roles in Parish Councils.
- Providing gender sensitive opportunities for women to engage in disaster risk reduction strategy help to promote community level resilience to natural disasters and hazards.

### Preparing for Implementation

- Matching expectations with sufficient resources by being clear about the goals, purpose and target audience for specific programmes and providing sufficient resources to ensure fidelity to the evidence-based model or modifying expectations to accommodate variances.
- Identifying barriers that can impede effective policy development and implementation.
- Making provisions for broad-based input which will increase the likelihood that the needs of children and families are being met by the policy and engaging community stakeholders (children and youth, parents, schools, service providers, faith leaders and community groups) in implementation.

- Supporting local capacity and communication through the provision of technical assistance, monitoring and oversight for local programmes and agencies and creating opportunities for local-to-local communication, best practice sharing and local input on state policy decisions.
- Supporting ongoing evaluation and continuous programme improvement.
- Accountability within a coordinated system
- This is likely a significant opportunity for review, readjustment and increasing effectiveness and efficiency by:
- Monitoring results: Through data, other information and consultation, it is possible to determine if post disaster intervention success has been attained. By examining selected indicators, progress towards desired results can be measured.
- Monitoring performance: Oversight requires authorities such as the Office of Disaster Management to determine if policy objectives have been achieved by focusing attention on the performance of specific District Councils. This involves reviewing individual programmes and their impact on the communities they are designed to serve.
- Assigning responsibility for realistic outcomes: Responsibility for outcomes should be designated based on the appropriate roles, resources and capacity of District Councils and their partners and stakeholders.
- Measuring and reporting progress to stakeholders and the community:  Ensure that data is available publicly to allow administrators, policymakers and the public to measure community level progress on key outcomes.

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# APPENDIX I: SUMMARY OF DRR RELATED NATIONAL LEGISLATION

| Legislation | Objectives |
|---|---|
| Emergency Powers Act, Cap. 161 | An Act to make exceptional provision for the protection of the community in cases of emergency. L.N. 1481 1967. |
| Prevention of Floods Act, Cap. 235 | An Act to make provision for the execution of works necessary to prevent and control flooding and inundations caused by excessive rains and by high tides and by reason of the low level of various places, causing inconvenience to persons and injury to health and property and to authorise the Minister to take all reasonable steps in connection therewith. [12th November, 1951] |
| Town and Country Planning Act, Cap 240 | An Act to make provisions in ten parts to constitution and duty of Town and Country Planning Advisory Committee; Development Plans; Planning Control; Enforcement of Planning Control; Acquisition and disposal of land for planning purposes; compensation for refusal or conditional grant of planning permission; compensation for other planning restrictions; validity of planning instruments and decisions and proceedings made thereto. |
| Health Services Act, Cap 44 | An Act relating to the promotion and preservation of the health of the inhabitants of Barbados. [1st September, 1969] |
| Soil Conservation (Scotland District) Act, Cap 396 | An Act to make provision for the improvement and conservation of the soil and for the prevention of damage or deterioration by erosion to land in certain areas of Barbados and for matters connected therewith. [1st February, 1959] |
| Shipping (Oil Pollution) Act, Cap 296A | An Act to make provision concerning oil pollution of navigable waters by ships, to provide for civil liability for oil pollution by ships and to give effect to certain international conventions relating to pollution of the sea. [12th May, 1994] |
| Coastal Zone Management Act, Cap 394 | An Act to provide for the more effective management of the coastal resources of Barbados, for the conservation and enhancement of those resources and for matters related thereto. [1st May, 2000] |

# APPENDIX II: DUTIES OF EMERGENCY COMMITTEES OF THE DEPARTMENT OF EMERGENCY MANAGEMENT

| Committees | Duties |
|---|---|
| Food and General Supplies (FGSC) | Co-ordination of relief food supplies and emergency supplies for households, shelters and community resources. |
| Public Utilities (PUC) | Co-ordination of public utilities including water and sewerage; connection and reconnection logistics; associated infrastructure services. |
| Emergency Transport (ETC) | Co-ordination of transportation service providers including the national public transportation service stakeholders to provide transportation services and logistic assistance. |
| Road Clearance and Tree Trimming (RCTTC) | Co-ordination in disaster preparation of agencies responsible for clearance of main roadways, transportation ways and waterways for evacuation; post disaster to co-ordinate agency resources for clearance of debris and passages of egress and exit. |
| Welfare Services (WSC) | Co-ordination of post disaster financial assistance, emergency accommodation, catering of meals to victims, material aid and personnel support. |
| Shelter Management (SMC) | Co-ordination of public and private spaces and infrastructure preparation for disaster recovery; continuous liaison with schools, churches, government campuses and other involved bodies. |
| Telecommunications (TEC) | Co-ordination of emergency telecommunications services including radio, television; telecommunications infrastructure review and periodic recommendations for upgrades and maintenance. |
| Emergency Housing and Rehabilitation (EHRC) | Co-ordination of emergency housing and relocation services; emergency social services to disaster victims and causalities. |

| | |
|---|---|
| National Mitigation (NMC) | Responsibilities including co-ordination of the national mitigation framework; flood mitigation assistance; multi-hazard mitigation planning; pre-disaster mitigation; natural & technological hazards risk reduction. |
| Tourism Emergency Management (TEMC) | Co-ordination of efforts across tourism and hospitality stakeholders including hotels, restaurants, transportation services. |
| Technical Standing Committee on Coastal Hazards (TSCCH) | Co-ordination of scientific research efforts of relevant public agencies and private stakeholders to support data driven and evidence-based decision-making. |

# SUPPLEMENTAL INSTRUCTIONAL GUIDE

## Case Usage

The primary themes of this case study revolve around the organisation and deployment of resources and capabilities for disaster risk reduction in Barbados. It illustrates the multi-level strategic approach across national to very local governance levels, across multiple sectors and including a broad coalition of public and civil society stakeholders.

This case particularly highlights the mainstreaming of gender sensitivity into disaster risk reduction. This appears in the discussion of the district emergency organisations as a key part of the overall formal disaster risk reduction machinery. In this regard, the sub-themes of gender balanced governance, community leadership and participation are emphasised.

As a supplemental instructional resource, this case can be integrated into lesson plans for disaster risk reduction related courses and workshops. It is useful to students in related undergraduate and graduate courses; to practitioners and policy makers; and to interested community and civil society groups. Below, guidance is provided on the substantive academic coverage covered in this case study which can be closely linked to theoretical concepts.

## User Groups

*Practitioners*

Professionals in DRR operations and planning will benefit from hearing the perspective of community stakeholders, the obstacles and challenges they face and their concerns about the DRR process. This insight can help practitioners to plan DRR processes that accommodate community concerns. In particular, this case recommends where opportunities might exist to enhance the potential for them to intervene i to bring gender-balanced leadership and perspectives to the parish level councils. In so doing, they will benefit from the diversity of input in the DRR process. Insights here can be used at an operational level to enhance DRR response protocols for great effectiveness.

*Policy users*

This case has several policy implications that decision-makers and DRR planners can consider. First is the consideration of how the institutional framework for DRR has evolved over time, in particular building in sub-national levels. Secondly, this is a good example for policy-makers of how successful public-civil society partnerships for DRR can be built, sustained and to some extent, strengthened and grown. Thirdly, it offers policy-makers insights related to gender sensitivity in community level DRR and the leadership related issues facing female participants. This is not an aspect of gender mainstreaming in DRR often studied or closely observed in the Caribbean context.

*Community and interest groups*

Civil society groups including local communities can benefit from several aspects of this case. This case demonstrates that partnerships with government can be beneficial to the communities and highlights several mechanisms that have evolved over time to make the partnership effective. Importantly are the principles of shared leadership between community men and women in leadership and decision-making positions as well as aspects of co-ordination of efforts, division of labour and hierarchical action especially pre-event. The case is also useful to these groups in identifying challenges to diverse and sustained civic participation as well as potential solutions to overcome such challenges.

## Substantive academic coverage

1. Institutional design for DRR governance:

   Use this case to explore the institutional environment in which DRR is governed (e.g. public perceptions of DRR) and how it influences the development of formal structures over time. Have these structures spanning government and civil society evolved in innovative, effective ways or do they promote irrational or negligent approaches that increase disaster risk and/or reduce disaster mitigation success? How do these formal structures minimise disaster risk?

   Sample Activity

   The assessment of the state of DRR governance can be assessed through four dimensions that we observe: autonomy, adaptability, complexity, and coherence. They do provide an avenue for understanding the transformation of DRR governance structures that are required to manage disaster events, influence stakeholders and partners in the operating environment.

   Considering the institutional arrangements for DRR described in this case study, use the four assessment dimensions to analyse the arrangements and proposed intervention points at which the systems can be improved upon. Special attention should be paid to emergent themes of mainstreaming gender sensitivity, climate change adaptation and sustainability.

      1. Autonomy represents a concern with the capacity of institutions to make and implement their own decisions.
      2. Adaptability taps the extent to which an institution is capable of adapting to changes in the environment, or more importantly capable of molding that operating environment.
      3. Complexity demonstrates the capacity of the institution to construct internal structures to fulfill its goals and to cope with the environment.
      4. Coherence represents the capacity of the institution to manage its own workload and to develop procedures to process tasks in a timely a reasonable manner.

2. Organisational management in public-civil society relationships:

   There are opportunities here for the exploration of public-private partnerships for DRR which are being more and more prioritised through the Hyogo declaration and regionally through the CEDMA strategic plan. But effective partnerships that reduce disaster risks are formed and function on the basis of mutual recognition and respect for role responsibility, knowledge and technical capabilities, formal and informal systems of division of labour, communications, resource allocation and other factors.

Samples Questions and Activities:

1. From the Barbados case study, how are the following factors, which are considered essential to establishing effective relationships and addressing partnership challenges, fostered (or not) between government agencies and Parish Councils?

   - Fostering trust and respect
   - Establishing effective, timely, and appropriately secure communication
   - Generating clearly identifiable membership benefits.

2. Based on the flooding and landslide incidents of November 2014, and the case study discussion of the roles of various stakeholders, consider the roles and responsibilities of key stakeholders in disaster risk reduction (the table provides opportunities for discussion across the disaster management cycle as well).

| Function | Phase of disaster cycle (Timing) | | | |
|---|---|---|---|---|
| | Mitigation (Well before) | Preparedness (Before) | Emergency (During) | Rehabilitation (After) |
| **Deliberation** What should be done? | How were decisions made about what and who should be at risk?<br><br>Whose knowledge was considered and whose interests were represented? | Was the public consulted about diaster preparations?<br><br>How were decisions to give special powers to particular authorities made? | How were decisions made about what and who should be saved or protected first?<br><br>What special directives or resolutions were invoked? | How were decisions made about what is to be on the rehabilitation agenda?<br><br>Whose knowledge was considered and whose interests were represented? |
| **Coordination** Who is responsible? | What national basin-level policies, strategies or legislation were in place to reduce risks of disaster?<br><br>What structural measures were undertaken to reduce likelihood of severe flood events?<br><br>To what extent were las and regulations regarding land use in flood prone areas implemented? | How were responsibilities divided among authorities and the public?<br><br>Was an appropriate early warning system implemented?<br><br>Were public authorities well prepared? | How were specific policies targeting emergency operations implemented?<br><br>Were there gaps between stated responsibilties and performance of key actors?<br><br>Who was in charge? | Were the resources mobilized for recovery adequate?<br><br>Were they allocated and deployed effectively?<br><br>How was rehabilitation integrated into community, basin or national development? |

| Function | Phase of disaster cycle (Timing) | | | |
|---|---|---|---|---|
| | Mitigation (Well before) | Preparedness (Before) | Emergency (During) | Rehabilitation (After) |
| **Implementation** How was it done? | What measures were taken to improve coping and adaptive capacities of vulnerable groups? | Was the public well informed?<br><br>How were specific national or basin-level policies targeting diaster preparedness implemented? | How were emergency rescue and evacuation operations performed?<br><br>Were special efforts made to assist socially vulnerable groups?<br><br>Were there any measures taken to prevent looting? | Did the groups who most needed public assistance get it?<br><br>Who benefited from reconstruction projects?<br><br>Was insurance available and used and, if so how were claims processed?<br><br>Was the compensation process equitable and transparent? |
| **Evaluation** Was it done well? | How is the effectiveness of risk reduction measures assessed? | How is the adequacy of preparedness monitored? | How is the quality of emergency relief operations evaluated? | How is the effectiveness of the rehabilitation programs evaluated? |

3. Gender, Leadership and DRR:

In this case study, gender can be explored as a primary organizing principle for DRR from the community to national level. It therefore providesan essential lens through which to view the experience of disasters such as a hurricanes, flooding or landslides, as in the Barbados experience. Current gender sensitivity in disaster research can be explored not only from the vulnerability perspective but also importantly from the perspective of the leadership capacity of women in DRR and in experiencing disaster.

Sample Activities:

1. Understanding gender stereotypes and leadership in disaster contexts

The exercise is a brief experiment demonstrating how gender stereotypes can affect leadership perceptions in the event of high uncertainty such as disaster preparation. Use this exercise to set the stage for class/ workshop discussion. The sequence below can also be repeated with several pairs of students.

- Read the case study, in particular the roles played by Parish Councils during the rainfall and landslide events on Barbados. Also read and understand the district emergency organisation protocol, which suggests how communities are to respond in coordination with the Office of Disaster Management in disaster events.
- Choose a male and a female volunteer from the class. Arbitrarily determine one of the pair as the “influencer” and the other as the “influencee”.
- The influencer has three minutes to persuade the influencee on how their Parish Council should take actions before and during the events. The influencee’s role is to respond in 2-3 minutes, purposefully resisting the influencer’s directives (even if that comes down to just saying no).
- Have the class break up into small groups for a 3-5 minute discussion of their perceptions of the influencer (i.e., leader); how would you describe him/her? Have the class as a whole share as many descriptive terms as possible.
- Summarise with 3-5 minutes of focused discussion around the differences in how these people were described.

Focus discussion around three core questions:

- Were differences due to real differences in behaviour, or were they influenced by gender stereotypes? How can you tell?
- What is the role of gender stereotypes in leader perceptions? That is, do you think stereotypes affect who we tend to see as the person in control (i.e., the leader)? Why or why not?
- Why are leadership perceptions important at all? Why do we need to “see” someone as a leader? Can perceptions influence our behaviors as followers?

4. Socio-Cultural Planning for DRR:

Through this case, readers can explore not only the governance, management and technical dimensions of DRR but also the dynamics from a particular socio-cultural setting. Disasters are often approached in a purely technical and physical manner. However, people's behaviour in the face of natural hazards and disasters is influenced by several factors: environmental, historical, economic, political – and also socio-cultural. Socio-cultural attitudes are particularly important as they can influence readiness to adopt, modify, or reject safety measures offered through outside assistance. Socio-cultural matters should always be taken into account in disaster risk reduction.

Sample Questions:

1. How do socio-cultural factors increase or reduce community vulnerability to natural hazards?
   Note: Disaster risk reduction practitioners often overlook or misread these factors, thereby creating new challenges and additional financial and social costs. Trust, and differences in language, worldview, and perception and assessment of risks are extremely important issues.
2. How do natural hazards contribute to reinforcing or increasing existing inequities and vulnerabilities?
   Note: The most vulnerable (women, children, the elderly and disabled, indigenous or ethnic minority groups, recent migrants and illegal migrants) suffer the most in disasters. They are living at risk mainly due to lack of access to resources and lack of choices, rather than lack of knowledge.
3. Can current DRR systems understanding and accounting for socio-cultural differences? Can this be improved with investment of time and dialogue? Few individuals or institutions have been willing to make this commitment.
4. In a context of rapid change and complex interactions between 'local' and 'global' scales, some local knowledge and practices used to contribute to disaster risk reduction are eroding In this case and in your own contexts, can you identify some of these traditional DRR practices that might be eroding?

Note: They include local environmental knowledge and community memories carried in stories of dangers and past events. Some are becoming less relevant, but much that would be helpful is being lost when it is most needed.

## THE EKACDM INITIATIVE

**The Enhancing Knowledge and Application of Comprehensive Disaster Management, EKACDM) Initiative** is a five year project which was implemented in the Caribbean region from September 2013 to December 2018 by the Disaster Risk Reduction Centre, the Institute for Sustainable Development, the University of the West Indies.This Initiative seeks to establish an effective mechanism and programme to promote an integrated approach to Comprehensive Disaster Management knowledge in the Caribbean region, to fast track the implementation of the CARICOM Enhanced Comprehensive Disaster Management (CDM) Strategy and Frameworks (2007 - 2012 and 2014 - 2024).

The ultimate outcome of the EKACDM Initiative is to reduce the impact of natural and technological hazards and the effects of climate change on men, women and children in the Caribbean region. It seeks to position the region with greater knowledge and practical solutions to strengthen climate adaptation, and other sustainable practices that will make the region more resilient and sustainable.

For further information:

http://www.uwi.edu/EKACDM/index.aspx
http://uwi.edu/drrc/
http://www.uwi.edu/isd/