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San Jose State University

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Haiti Earthquake January 2010

What Actions and Policies Can the Government of Haiti Implement to Improve Emergency Management Response

By
Steve Cohen

Research Paper Submitted in Partial Fulfillment of the Requirements for the Master of Arts Degree in Public Administration

Frances Edwards, Ph.D.
The Graduate School San Jose State University

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Introduction

In 2010, Haiti experienced a devastating earthquake that destroyed much of its capital city and the governmental offices that should have guided the response to the disaster. This research focuses on how Haiti can benefit from the Caribbean Disaster Management Agency's standards for disaster resilience as it works to recover from the earthquake. Unfortunately, Haiti has long been dependent on assistance from non-governmental organizations due to its extreme poverty; its recovery is complicated by the need to integrate disaster assistance and on-going economic and social assistance into its development of a more resilient society.

Social Situation

Haiti is one of the poorest countries in the world. There are many issues that the government and the people must overcome to become a strong country with a higher standard of living. Haiti has been unable to adequately provide for many of the basic needs of its citizens including education, health care, food, shelter, clothing and safety. The country's lack of a strong economic base has impeded its development.

Haiti's capital city of Port-au-Prince had a population of more than two million, while the infrastructure was designed to support a population of 100,000 (Dupuy 2004). Even before the earthquake, social services like schools, healthcare, electricity, potable water and sanitation were inadequate for the number of people in the area. Zoning and construction regulations were either not in existence or not enforced (Dupuy, 2004) Haiti, prior to the earthquake, had the highest level of poverty in the Americas. Its human development index (HDI) for 2001 was only 0.467 on a scale of 0 to 1. The HDI measures life expectancy, literacy, schooling and income. "Haiti was the only country in

the Americas to be listed in the low category of human development" (Reding 2004, p. 25). Only the wealthiest sectors of the population are able to obtain basic services.

The Non Government Agencies (NGO) has operated in the country as a primary provider of basic services for the majority of the population for several decades. The services of these organizations have been accepted by the government and are relied upon by the majority of the population who live in poverty. "Only about 28 percent of Haitians have access to health care, 50 percent have access to potable water, and 10 percent have electrical services. More NGOs per capita operate in Haiti than in any other country in the world, and they provide 70 percent of health care in rural areas and 80 percent of public services" (Dupuy 2010, p.1).

Corruption is the other issue that mars Haiti's ability to grow. Every year Transparency International publishes a Perceived Corruption Index (PCI) ranking countries on the basis of surveys taken among business persons, academic experts, and risk analysts. A score of 10 would represent no corruption. In 2010 Haiti scored a 2.2 out of 10, the lowest score registered in the Americas, making it number 146 out of 178 nations evaluated worldwide (Transparency International, 2010). The CPI ranks countries/territories based on: how corrupt their public sector is perceived to be, a combination of polls, drawing on corruption-related data collected by a variety of reputable institutions, and the views of observers from around the world including experts living and working in the countries/territories being evaluated.

Haiti, a name that means mountainous country, is derived from the language of the Taino Indians who inhabited the island before European colonization. After independence from France in 1804, the name was adopted by the military generals, many

of them former slaves, who expelled the French and took possession of the colony then known as Saint Domingue. In 2000, 95 percent of the population was of African descent, and the remaining 5 percent mulatto and white. Some wealthy citizens think of themselves as French, but most residents identify themselves as Haitian (Culture of Haiti, 2010).

There is a strong sense of nationalism in the country. This was depicted in the news clips that were generated after the earthquake which showed the citizens waving flags and determination to stay and rebuild. It was inspiring, considering that the country is one of the poorest countries in the world.

Using per capita income, Haiti is rated at 139 out of 224 countries before the 2010 earthquake and is now at 221 (CIA World Facts Book 2011). The unbalanced distribution of wealth is prevalent throughout Haiti. The country has a literacy rate of only 52.9%, with less than 2% of the gross domestic product spent on education (CIA World Facts Book 2011, p. 1) Eighty five percent of the schools are private and charge more than most Haitians can afford. Fifty percent of the children receive no education. A few receive limited access to some sort of educational experience through the NGOs (Fisher 2010)

Religion

Roman Catholicism is the official religion of Haiti, but voodoo may be considered the country's national religion. The majority of Haitians believes in and practices at least some aspects of voodoo. The Creole word *vodoun* refers to a kind of dance and in some areas to a category of spirits. Roman Catholics who are active voodooists say that they

"serve the spirits," but they do not consider that practice as something outside of Roman Catholicism (Reding, 2004, p.5).

Haitians also distinguish between the service of family spirits and the practice of magic and sorcery. The belief system of voodoo revolves around family spirits (often called *loua* or *mistè*) who are inherited through maternal and paternal lines. *Loua* protect their "children" from misfortune. In return, families must "feed" the *loua* through periodic rituals in which food, drink, and other gifts are offered to the spirits. Voodoo lacks a fixed theology and an organized hierarchy, unlike Roman Catholicism and Protestantism. Each specialist develops his or her own reputation for helping people (Country Studies-Haiti, 2011).

Figure 1

Population
9,719,932
note: estimates for this country explicitly take into account the effects of excess mortality due to AIDS; this can result in lower life expectancy, higher infant mortality, higher death rates, lower population growth rates, and changes in the distribution of population by age and sex than would otherwise be expected (July 2011 est.)

Age structure
0-14 years: 35.9% (male 1,748,677/female 1,742,199)
15-64 years: 60.1% (male 2,898,251/female 2,947,272)
65 years and over: 3.9% (male 170,584/female 212,949) (2011 est.)

Median age
total: 21.4 years
male: 21.1 years
female: 21.6 years (2011 est.)

Population growth rate

0.787%
note: the preliminary 2011 numbers differ significantly from those of 2010, which were strongly influenced by the demographic effect of the January 2010 earthquake; the latest figures more closely correspond to those of 2009 (2011 est.)

Birth rate
24.4 births/1,000 population (2011 est.)

Death rate
8.21 deaths/1,000 population
note: the preliminary 2011 numbers differ significantly from those of 2010, which were strongly influenced by the demographic effect of the January 2010 earthquake; the latest figures more closely correspond to those of 2009 (July 2011 est.)

Urbanization
urban population: 52% of total population (2010)
rate of urbanization: 3.9% annual rate of change (2010-15 est.)

Infant mortality rate
total: 54.02 deaths/1,000 live births
note: the preliminary 2011 numbers differ significantly from those of 2010, which were strongly influenced by the demographic effect of the January 2010 earthquake; the latest figures more closely correspond to those of 2009 (2011 est.)

HIV/AIDS - deaths
7,100 (2009 est.)

Major infectious diseases
degree of risk: high
food or waterborne diseases: bacterial and protozoal diarrhea, hepatitis A and E, and typhoid fever
vectorborne diseases: dengue fever and malaria
water contact disease: leptospirosis (2009)

Nationality
noun: Haitian(s)
adjective: Haitian

Ethnic groups
black 95%, mulatto and white 5%

Religions
Roman Catholic 80%, Protestant 16% (Baptist 10%, Pentecostal 4%, Adventist 1%,

other 1%), none 1%, other 3%
note: roughly half of the population practices voodoo

Languages
French (official), Creole (official)

Literacy
definition: age 15 and over can read and write
total population: 52.9%
male: 54.8%
female: 51.2% (2003 est.)

Education expenditures
1.4% of GDP (1991)

Haiti Demographic Table Profile 2011
Source: Index Mundi, http://www.indexmundi.com/haiti/demographics_profile.html

Government

Due to the earthquake in 2010, the national elections were postponed. Michel Martelly, known as Sweet Micky or Tet, won 68 percent of the vote in a runoff election on April 4, 2011 that he nearly did not qualify for. He defeated Mirlande Magnigant, a college professor and former first lady, who won 32 percent of the vote. She had cast herself as a mother figure to soothe Haiti's ills, in contrast to Martelly's image as a rebellious son bent on shaking up the establishment (Randall 2011). Martelly needs the confidence of the people to successfully continue the rebuilding of Haiti. This includes structurally, economically and social issues for this country that is in distress. He has been successful in many key areas. Violent crimes are at a ten-year low; there has been a start of long term and short term development projects; public order has been re-established; fiscal responsibility of the government, including more transparency, has

increased; businesses and political power have been decentralized to increase access and efficiency (Jean, 2011).

Martelly has to share power with a prime minister picked by Parliament, which is dominated by members of the former President Préval's party. Gary Corille was approved by the Parliament in 2011 after Martelly's first two nominees were rejected. He has worked with Martelly to end the existing lame duck governance. This shift has been vital in bringing billions of dollars pledged by foreign countries into Haiti to speed up the pace of reconstruction. Martelly and Corille have been proactive in building alliances with other nations. This has helped to increase funding from the international community including implementing a Disaster Management Program that is being offered by the CDMEA with funding from the International Community (Observateur, 2011).

Earthquake Facts

According to the United States Geological Survey (USGS) the earthquake hit Haiti on January 12, 2010 at 21:53 UTC. It registered a 7.0 on the Richter scale. The earthquake's epicenter was extremely shallow at only 8.1 miles below ground, which released the energy close to the surface and intensified the shaking. The increased level of destruction led to a high loss of life.

The earthquake epicenter was only 15 miles from Port-au-Prince and was the strongest earthquake to hit the area since 1770. "The 7.0-magnitude earthquake would be a strong, potentially destructive earthquake anywhere, but it is an unusually strong event for Haiti, with even more potential destructive impact because of the weak infrastructure of the impoverished nation" (Thompson, 2010, p.1). There were more than 40 aftershocks

measuring from 4.0 to 5.9 within two days of the earthquake with more expected to affect 3.5 million people (USGS 2010). The death toll from the earthquake is estimated at 230,000 people with another 300,572 injured. 1.5 million children were directly affected by the earthquake, approximately 720,000 of whom were between the ages of 6 and 12 (OCHA- Haiti Response 2010).

The mass destruction blocked roads, closed ports and caused the loss of air traffic control capability, closing the airport and thus making accessibility to the area almost impossible. The airport was also severely damaged. There was no communication system (Goldstein, 2010, p.1) Each aftershock created more damage and required a new damage assessment. Residents had neither pre-disaster education nor pre-disaster organization to cope with the impact of an earthquake, although many had significant experience managing the effects of hurricanes. (Lucas, 2010, p.1)

The majority of the population had limited economic means. Even before the earthquake, only 12.5% of the population had electricity, 4.5% of the population suffered from acute malnutrition, and 23.5% of the existing roads were paved (OCHA Haiti, p.1) Scarce resources of goods and services were used for survival and were not available for emergency preparedness.

According to the Department Protection Civile referenced in the Civil Air Patrol Education Cluster, at the peak of the displacement around 2.3 million people, including 302,000 children, left their homes. 1.5 million people, including an estimated 309,000 children, are now living in spontaneous settlements across the affected area . At their peak, over 1,300 spontaneous settlements were identified by the Camp Coordination and Camp Management Cluster (OCHA Haiti, 2010, p.2).

The destruction was as follows:

- Total damage: 7.8 billion U.S. dollars
- 188,383 homes collapsed or badly damaged
- 105, 000 homes were completely destroyed
- 4,992 schools were affected by the earthquake, representing 23% of all the schools in Haiti, including 3,978 that were destroyed or damaged
- 8 hospitals were totally destroyed
- 22 hospitals were seriously damaged

Source: Office of the Special Envoy for Haiti, 2010

This estimate does not include the inventory and cost of critical infrastructure losses, including roads, or losses to the private sector.

Post-earthquake health impacts build upon pre-earthquake public health deficiencies. Infectious disease and long-term health concerns are exacerbated by the medical and health impacts of the earthquake. Just over 50% of the population had been immunized against infectious diseases before the earthquake, well below the World Health Organization goal of 90%. According to figures from the Ministry of Public Health and Population, there are also approximately 4,000 amputees that need ongoing support, which is particularly devastating in a country where the majority of the population travels by foot or bicycle (Office of Haiti Special Coordinator, 2011).

Cholera is an outbreak caused by the lack of clean water and washing facilities. Clean water and soap will dramatically slow the disease from spreading. There was a Cholera outbreak in Haiti due to the lack of these two basic necessities. This was an additional strain on the health care providers with limited resources to deal with the daily health needs of the community and the issues from the earthquake. “Several agencies responding to the earthquake were quickly able to enhance health, water, sanitation and hygiene programs which were crucial to address cholera-related needs” (US State Department, 2011, p.9).

The property damage and cost of rebuilding Haiti is difficult to assess. There were few property records kept by the government, and many of those that did exist were destroyed with the government buildings in the earthquake. Presently the estimate is between $8 billion and $14 billion, making the Haiti earthquake one of the most expensive earthquakes ever recorded (Inter-Development American Bank, 2010, p.1). The International Crisis Group report on the Haiti earthquake in 2010 has estimated the reconstruction costs at $11.5 billion

Eighty percent of Port-au-Prince was destroyed, including the seats of all three branches of government, fifteen of the seventeen ministries, forty five percent of the police stations and a number of courts. While the police stations and a number of cathedrals and National Palace were symbolic, the loss of the Ministry of Public Works directly worsened conditions, as public employee's knowledgeable about damage assessment, debris management and building construction perished in the collapse. One hundred and eighty other government buildings were also lost, compounding the country's chronic institutional weakness. Thirty thousand commercial buildings suffered severe damage and/or collapsed and needed to be demolished (International Crisis Group, 2010).

Caribbean Disaster Management Agency

The Caribbean Disaster Management Agency (CDMA) is the regional disaster management body for the Caribbean. Their mission is "to provide leadership and service in partnership with community institutions and groups for attainment of a viable internationally competitive and sustainable community with improved quality of life for all" (CDEMA, 2010, p.1). With more than $5 billion in losses to the Caribbean in the last

two decades of the 20th Century (not including the Haiti earthquake), the agency has refocused its attention on Comprehensive Disaster Management, which is a new thrust for disaster management (CDEMA, 2010).

The Caribbean Disaster Emergency Management Agency (CDEMA) is part of the CDMA. The agency's focus is to "embrace the principles and practice of Comprehensive Disaster Management (CDM) which is an integrated and proactive approach to disaster management. CDM seeks to reduce the risk and loss associated with natural and technological hazards and the effects of climate change to enhance regional sustainable development" (CDEMA, 2010, p.8) Areas of emergency management that the CDEMA are focusing on are addressed in the Findings section of this report.

Barriers to the Relief Effort

Several factors pose barriers to bringing needed relief and starting long term development in Haiti. These are outlined in the Haiti Earthquake Action Plan Annex. They include corruption, public trust, transparency of government, and the ability of the government to support itself and obtain the resources it needs to develop and grow. Some of the critical issues are: reducing the country's unemployment rate, the lack of education to advance the people of Haiti into jobs beyond low-level manufacturing, the corruption of the government and the repression of the Haitian people; the practice of voodoo religion and the impact on the people to deal with more progressive societies, and the increase of population and migration to the city center, which has overwhelmed the infrastructure built to support one tenth of that population (Dupuy 2004).

The response to the earthquake in Haiti on January 12, 2010 was a challenge from many aspects, including the severity of the earthquake, political issues, social issues and lack of emergency preparation and resources. Beckett wrote from his experience:

> "the earthquake hit a dense urban area with three million people living in precarious conditions. The country had only a minimal and fragile infrastructure before the earthquake. After the earthquake even that was destroyed. The country has been decapitated, with all the symbolic representations of the state now in ruins. Capacity and preparedness are crucial aspects of good governance. There is an unintended consequence of the overwhelming focus on emergency today- the normalization of crisis" (Beckett 2010, p.1).

Literature Review

The earthquake that struck Haiti caused extensive damage and loss of life, especially compared to other earthquakes of similar strength and depth. Presently the estimate is between $8 billion and $14 billion, making the Haiti earthquake one of the most expensive earthquakes in modern times (Inter-Development American Bank, 2010, p.1). The response to the devastated area was championed by the United States but was an international effort. Search and rescue teams arrived from professional organizations from all around the globe (Rasmussen, 2010).

The extensive damage to the buildings, structures and infrastructure was the result of numerous issues that preceded the earthquake. The lack of building codes and their enforcement was a primary cause of the collapse of 70 % of the structures in the affected area. The corruption in the government, which allowed property owners to do their own

construction unchecked, left people in structures unsafe to be occupied, especially if there was a disaster as severe as the earthquake. "The previous Haitian government was built on corruption" (Magan, 2010, p.6). A corrupt government is one that operates on bribes, embezzling, has no transparency or accountability and has an ineffective legal system (Magan, 2010). These have been on-going issues in Haiti.

When a government is corrupt, even the basic policies and building codes are not followed, putting the population in jeopardy. Corruption is misusing an office for private gain or unofficial end. The benefit can be monetary or non-monetary (Balkaran, 2011). Looking at the political history of Haiti reveals a legacy of past leaders who have been compliant in corruption. This is one reason why the country has deteriorated (Politicol News, 2010).

Introduction

To make a determination on the preparedness and emergency crisis issues of Haiti is to use a well functioning and established organization as a comparison model. The Federal Emergency Management Agency (FEMA) is part of the United States Department of Homeland Security. The primary purpose of FEMA is to coordinate the response to a disaster that has occurred in the United States and that overwhelms the resources of local and state authorities (About FEMA, 2011) Cooperation and agreements that should be in place with neighboring countries in case of an emergency is an important part of the support, in case there is a disaster in Haiti.

International Partnerships

The Logistics Cluster is part of the Joint Operations Task Force. The United Nations Stabilization Mission in Haiti (MINUSTAH) is a partnership between the US Military, the Canadian Military and the United Nations Office for the Coordination of Humanitarian Affairs. They are an example of a joint operations effort to assist countries like Haiti in case of a disaster. The effectiveness of their combined military support is an example of the benefit of having cooperative agreements and plans in place before a disaster strikes to increase their effectiveness (reduced response time). They were an important resource in assisting Haiti (Logistics Cluster, 2010).

One Response assisted the responders for Haiti and is another example of the benefit of collaborative coordination. It is a website designed by Microsoft to "support the predictable exchange of information in emergencies at the country level" (One Response, 2010, p.1).

The International Association of Emergency Managers (IAEM) is a worldwide non-profit educational organization dedicated to promoting the Principles of Emergency Management. They 5000 represent professionals in the industry. They are a source of research on aspects of Emergency Management that relate to the challenges in Haiti.

These resources include publications such as, *Developing Cooperation from Different Government Entities; How the Human Element Affects Decision Making in a Crisis Environment - Lessons from Haiti: The Haiti Earthquake and the Open Source Technology Community: A Case Study of a New Model for Collaboration by Traditional and Non-Traditional Emergency Management Organizations; Haiti and Use of Augmented Response Technologies in Emergency Management* (About IAEM, 2011).

Developing relationships to enhance agreements of cooperation and mutual aid also include informal networks. The importance of these networks is outlined in the *Journal of Homeland Security and Emergency Management* publication "Analysis of Informal Networking in Emergency Management." Unofficial contacts are regarded as more important than official contacts, according to the report. (Peterson, Besserman, 2010). This is another area that needs to be addressed with the Haitian preparedness recommendations.

Building Construction

The extensive damage to the buildings, structures and infrastructure was the result of numerous issues that preceded the earthquake. The lack of substantial building codes and the limited enforcement of those that did exist was a primary cause of the collapse of 70 % of the structures in the affected area. The corruption in the government, which allowed property owners to do their own construction unchecked left people in structures unsafe to be occupied, especially if there was a disaster as severe as the earthquake.

"Poor construction practices, which are common in Haiti, are largely to blame for turning moderate earthquakes into major disasters" (Armatruda, 2011, p.1). The construction industry is considered to be the most corrupt segment of the global economy (Armatruda, 2011) The difference in building practices is evident in Haiti by comparing the large buildings constructed by international companies, most of which were not damaged.

In 2010 Haiti scored a 2.2 out of 10, the lowest score registered in the Americas, as number 146 out of 178 nations evaluated worldwide corruption (Transparency International, 2011). In 2003 they scored a 1.5 by the same organization (Reding, 2004).

“The previous Haiti government was built on corruption” (Magan, 2010, p.6) A corrupt government is one that operates on bribes; embezzling; has no transparency or accountability and an ineffective legal system (Magan, 2010). These have been on-going issues in Haiti.

When a government is corrupt even the basic policies and building codes are not followed, putting the population in jeopardy. Corruption is misusing an office for private gain or unofficial end. The benefit can be monetary or non-monetary (Balkaran, 2011). If you look at the political history of Haiti there is a history of past leaders who have been compliant in corruption. This is one reason why the country has deteriorated (Politicol News, 2010).

Infrastructure

The poverty and overpopulation in the central city of Port-au-Prince added to the intensity of the loss. Haiti was the only country in the Americas to be listed in the low category of human development (Reding, 2004). The infrastructure in the city, designed for 100,000 was supplying a population of 2 million people (Dupuy, 2004). Hospitals and other social service agencies were operating in overcrowded and understaffed conditions before the earthquake (Saunders, 2010). The lack of funds from the government left the services in disrepair, and no backup facilities available in case of an outage (Patrick, 2011, p.2).

Health Care

The phases of disaster management are mitigation, preparedness, response and recovery. Response and recovery are focused on saving lives during a disaster. When analyzing the issues with Haiti and the response effort that was put forth, the need for

public health care was an issue before and after the earthquake. Information concerning the focus of health care and crisis management in relation to Haiti has several sources. One source is the publication for Emergency Management Professionals. "Health care organizations are expanding their focus of disaster management, on the disruption of critical clinical and administrative functions which was also an issue in Haiti" (Ream, 2011, p.1) The United Nations office for the Coordination of Humanitarian Affairs also has updated information of the issues in Haiti which can be used to compare with information released by the government and other sources to verify accuracy. This includes the ministry of Public Health for Haiti (MSPP) that issues regular information updates.

Communication

Communication is a major issue in responding to a disaster. Haiti is an example of the impact of the loss of infrastructure, which would support communication, can be a major deterrent to a response and relief effort. The DERA is a world-wide network of disaster preparedness specialists, response and recovery teams, trainers, consultants, technical experts, researchers and project managers. They improve planning, communications and logistics, reducing risks and mitigating hazards, conducting community preparedness programs, and by sponsoring emergency response missions. (The DERA Mission Statement, 2011).

Communication was wiped out and even those with cell phones found the system to be damaged from the earthquake. Access was also restricted due to the damage to the small airport that services the area and the control tower, which was not useable (Dilanian, 2010). The Haitian airport is a single runway, only about 9,600 ft. Pre-

earthquake conditions allowed a maximum of only seven or eight aircraft on the ground (Trimble, 2010). Special Operations Command from the US contracted the purchase of 50,000 handheld radios for the Haitian people, immediately after the earthquake (America.gov, 2010, p.3). This was to help fill the communication gap. Although it was one-way communication, it helped to keep the people informed and directed them to emergency services.

Haiti Rewired is also a source for the communication needs and assessment of the country. They are focused on the long-term development of a reliable communications system and have been assessing what Haiti had, what they lost, and efforts to bring communication back to the country (Haiti Rewired, 2010).

Caribbean Disaster Emergency Management Agency

The Caribbean Disaster Emergency Management Agency (CDEMA), formally known as the Caribbean Disaster Emergency Response Agency (CDERA), is an organization with membership consisting of 16 participating states in the Caribbean. The CDEMA has an expanded mandate, a broader stakeholder base, and improved governance structure. They focus on all hazards involving all the different sectors of the society (CDEMA, 2010). Their focus on Caribbean Disaster Management (CDM) is to assist the states with preparedness, awareness, response and recovery strategies in case of a disaster (CDEMA, 2010)

The Haiti earthquake and the loss of life and devastation show the importance of the criteria established by the CDEMA. Analyzing the Haiti earthquake can show the importance and effectiveness of following the guidelines and recommendations of the CDEMA.

By analyzing the factors particular to Haiti the obstacles and barriers to implementing the CDEMA recommendations are clear. The poorer countries are the most susceptible to massive losses from a natural disaster and have the least ability to respond and rebuild when a natural disaster occurs.

Recovery

The Action Plan for National Recovery and Development of Haiti, published by the Government of the Republic of Haiti in 2010, contains a thorough assessment of the impact of the disaster and the needs that must be met. It includes territorial issues, economic factors, and social and housing issues. In evaluating the needs for the reconstruction of Haiti, the plan is a document that substantiates the situation in the country prior to the earthquake and addresses the gaps that need to be filled.

The Action Plan from the government can be compared to the Preparedness versus Reactiveness study from the *Journal of Homeland Security and Emergency Management* (Hense,K., Wyler, B., Kaufmann,G. 2010). This comparison shows the vision of the Haiti government in relation to the recommendations from other established emergency management entities.

The Vision and Roadmap for Haiti prepared by the private Sector Economic Forum takes a more democratic approach to the reconstruction. Comparing the document to the action plan developed by the government gives insight into issues and the pre-existing situation in Haiti, revealing why the impact of the earthquake was so severe.

The 48-page document addresses issues such as expanding the middle class, transparent management of state money, a partnership between the government, society and the public sector, and reducing city overcrowding. “We must recognize past mistakes

and accept January 12 was at once a natural disaster and a disaster caused by mankind" (Private Sector Economic Forum, 2010, p.iv) This statement is nothing like what has come from the government in taking responsibility for Haiti's situation. The changes this group recommends can be viewed as a test of the government's willingness to recognize the pre-existing situation and make dramatic changes to how the country operates. These changes would affect the preparedness and response for the next crisis.

This is also recommended in "Haiti: Stabilization and Reconstruction after the Quake", which is a report put together by the International Crisis Group three months after the earthquake. "The plan also seeks to increase Haitian ownership of reconstruction" (International Crisis Group, 2010, p.16) Reconstruction is directly related to preparedness from logistical issues to enactment and enforcement of building codes relative to the risk of natural disasters in the area.

USAid is part of the Office of US foreign Disaster Assistance. Their Fact sheet #9 posted on January 20, 2010 categorizes the different areas of need of Haiti and their response. They also describe the gap in what is presently available and the need. This includes emergency food assistance and food security, logistics, health, water sanitation and hygiene, population movement, shelter, and protection. The information in this document highlights how unprepared Haiti was for this disaster and the need to have a comprehensive emergency management plan in place.

Findings

The role of the CDMA and CDEMA in disaster response is critical to Haiti's immediate recovery and long-term survival. They are organizations that attempt to focus

the attention of all Caribbean nations on the need to be prepared for natural disasters, such as hurricanes that are seasonal, and earthquakes that are cyclical.

One area is risk reduction, which can be accomplished in several ways. Training disaster management personnel is the first step to building a network of qualified people to be proactive in emergency preparedness. They could also take the lead in case of a crisis. Development of model training courses and products, including audiovisual aids, would be used to train the trainers and inform communities, businesses and others about the importance of preparation and disaster awareness. Institutional strengthening for disaster management organizations keeps organizations informed and up to date on emergency management issues, training techniques and lessons learned from response and recovery efforts that are analyzed with other events. Model disaster legislation, for adaptation and adoption by participating states, is the political side of emergency management.

This would also include budget reduction issues affecting the organizations, and relief efforts associated with emergency response from the fragile global economy. The development of model policies and guidelines for use in emergency and contingency planning and response is very important, due to the need to keep uniformity among responders for effective leadership, organization and communication. These areas need to be standardized due to the various organizations participating in a disaster event.

The ability to be able to efficiently handle resource mobilization for strengthening disaster management programs in participating states is critical. Having policies for resource acquisition, delivery and distribution systems will determine the speed and effectiveness of the response. The affected community's first responders will be in need

of supplies and resources once an assessment of the event and the proper response is determined.

Improving emergency telecommunications and warning systems includes development of disaster information, communication systems, education, and public awareness. Communication is the first area to be addressed in a crisis event to reduce and prevent loss of life and loss of property. Efficient communication is the key to assessing the situation, determining the necessary response, requesting and allocating resources and delivering equipment, resources and supplies.

There are seven primary functions of the CDEMA. The first areas are functions related to the response to the event. Mobilizing and coordinating disaster relief is a function that is carried out starting with the first responders. This function carries through the event and continues well after the initial event has ended. It is part of emergency preparedness because it is necessary to have resources staged and supply lines established and ready to be implemented before an event occurs.

Mitigating or eliminating the immediate consequences of disasters in participating states is an area that needs to be addressed by CDEMA because an event or crisis can affect more than one geographic area. There is also the spillover effect from the immediate crisis area and cooperative response agreements from different jurisdictions which participating states rely on.

Providing immediate and coordinated response by means of emergency disaster relief to any affected participating state is related to the response agreements mentioned above. The quality of a response to an event is influenced by the speed and efficiency of the response. By having the CDEMA dedicated to emergency response, the16 Caribbean

states under their influence increases the effectiveness of the response. The Haiti quake has led to a re-evaluation of the preparedness and response to natural disasters in the area. CDEMA is the primary organization for disaster relief in the area and has made changes in response to criticisms from the Haiti quake response and recovery efforts, which will be further addressed in the conclusions portion of this paper.

Securing, coordinating and providing interested intergovernmental and nongovernmental organizations with reliable and comprehensive information on disasters affecting any participating state is critical. The communication and information level in case of a crisis directly impacts the effectiveness of the response in timeliness, coordination of trained personnel and acquisition of resources.

This includes the comprehensive response to the Haiti earthquake from the international community. The United States took the lead in the response, but there are questions as to the cooperation level with the Haitian government. This is an area that will be addressed in the analysis and conclusion section of this paper.

Support in the form of trained personnel, resources and equipment for a crisis is critical to begin the recovery cycle and effectively reduce the loss of life and property. Coordinating the establishment, enhancement and maintenance of adequate emergency disaster response capabilities among the participating states is a primary function of the CDEMA. This coordinating effort should also include the mechanism to activate the emergency response systems when crisis occurs. This activation would also include notification to the participating members, so if they are not already affected by the event then they know their neighboring states are and may be in need of additional services and

support. In the conclusion of my paper I will address the effectiveness of the response in regards to the support systems.

The first of two areas that are part of the recovery is encouraging the adoption of disaster loss reduction and mitigation policies and practices at the national and regional level. These policies include the prioritization of needs and how they will be met including food, water, shelter and safety. Policies need to be in place to allot for alternative shelter areas such as government buildings, schools, community centers and religious buildings. The conclusion of this paper will address the response as to the immediate needs of those affected by the earthquake and the long-term recovery and strategy for Haiti to recover and rebuild.

Food sources need to be established to ensure that in case of a crisis, the population will be fed and water will also be available. These needs could be met through agreements with local stores and distribution areas to open their inventory to authorized distributors in the event of a crisis.

Emergency shelter demands would be met by prioritizing those who need a place to live and those that are high risk such as children, pregnant women, and the elderly. The challenge to this is the extreme weather – strong tropical storms and hurricanes necessitate more permanent structures. Flooding and the lack of proper sewage treatment are also challenges for the area.

Safety for the general population, and women and children particularly, is challenging without the additional strain on the limited public sector security services. During a response, the recovery forces needed to ensure the public's safety are also needed for rescue, debris clearing and reconstruction projects.

Provisions for disaster response assistance are similar to the United States. The nation must determine that the situation is more than they can handle. They must put in a request for assistance to the CDEMA; the CDEMA will then coordinate the organization of qualified people specifically needed for the response. The CDEMA agreement states that there must be a mechanism as part of the Caribbean Disaster and Preparedness Project established and followed by the participating Caribbean states "in order to facilitate immediate and coordinated assistance to states participating therein in the event of a disaster" (CDEMA, 2010, p.2) The CDEMA outlines three levels of regional response in their operations and management website. The three levels are as follows:

Level #1:

Local incidents are handled within the emergency management operations of that state or jurisdiction. Records need to be kept on a regional basis.

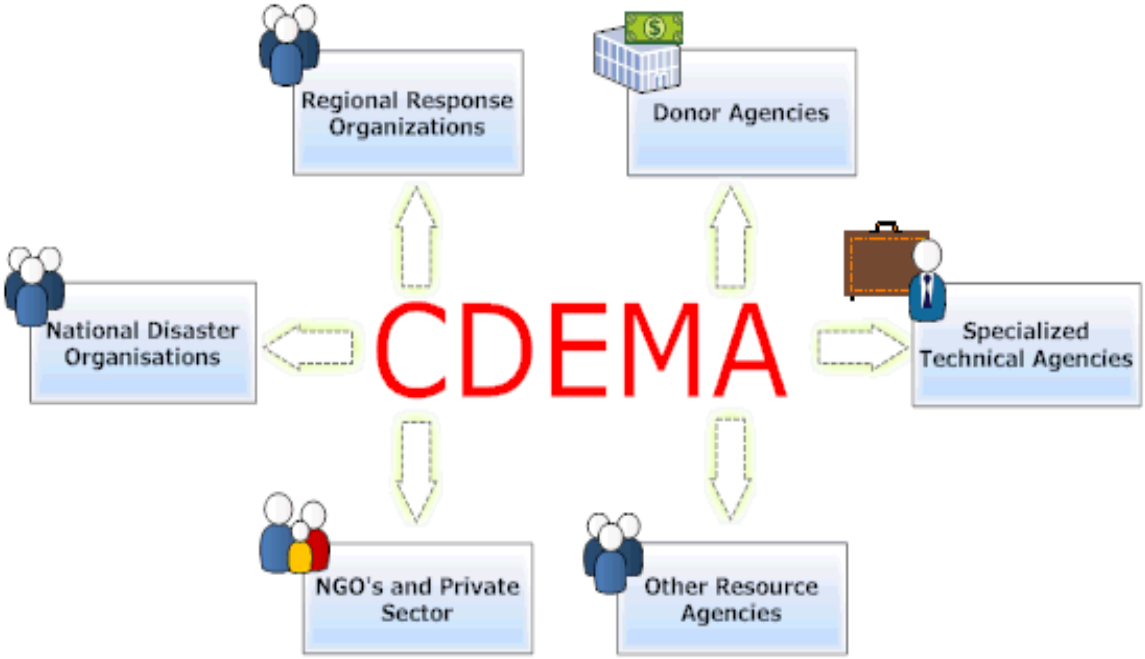
Level #2:

National disasters that is not overwhelming and handled by the national organization. Regional level participation will be limited to providing technical expertise or facilitating their access to specific resources

Level #3:

Regional Response Mechanism is activated due to the needs for an adequate response, such as the Caribbean Disaster Relief Unit (CDRU) (military forces within the Caribbean Community) and The Caribbean Community and Common Market (CARICOM) (15 Caribbean nations) for logistical support for the receipt and dispatch of relief supplies (CDEMA, 2010).

Figure 2



Collaborating with Other Organizations
Source: http://cdema.org

Assistance to Haiti includes:

International Response

The response to the Haitian disaster was global and included all the major countries and many smaller countries, including Cuba and Israel. There are also over 1,000 humanitarian organizations and representatives from 192 organizations, including UN agencies and Non Government Organizations.

Haiti also received debt relief from many countries, including Japan and the United States. The Debt Relief for Earthquake Recovery in Haiti Act (H.R. 4573), authored by Congresswoman Maxine Waters (D-CA), was signed into law by President Barack Obama at the White House. The bill, which would help relieve Haiti of hundreds of millions of dollars in debt owed to multilateral institutions, recently passed both chambers of Congress, and is now classified as Public Law No: 111-158 (Waters, 2010).

As of April 2011, $5.6 billion dollars has been pledged to assist Haiti in the recovery and reconstruction according to the Office of the Special Envoy to Haiti. As of March 2011, only 37.3% of the money has been disbursed.

The response from the international community was fast, once the basic extent of the damage was understood. Damage assessment was delayed due to the lack of accessibility to many parts of the affected areas of the country. National access was damaged by the closure of the ports and loss of air traffic control capability. In order to enable outside aid to arrive, access had to be created through external assistance.

Dilanian writes that “the air-traffic control tower was damaged and unsafe. A spot near the runway was set up in what would become an air-traffic control center. They went to talk to pilots on the ground. We told them, hey, we're Air Force combat controllers. We're taking over the airfield," Grove said. From a dirt patch, two young American sergeants began directing air traffic for one of the largest humanitarian operations in history” (Dilanian, 2010, p.1) “Elements of the U.S. Air Force 1st Special Operations Wing restored flight operations to the Port au Prince airport within 48 hours of the earthquake and facilitated 3,334 flights in the following 34 days, with as many as 162 flights in one day, more than ten times the pre-earthquake capacity at the airport” (White House Press Secretary, 2010, p.1).

The Deputy Chief of the mission, Deborah McCarthy, stated on January 24, 2010 in an interview with Free Sunday: Less than 30 percent of the arrivals into the Port-au-Prince airport have been military. All aircraft delivering aid are prioritized by the Government of Haiti in consultation with the UN Mission in Haiti, as well as the U.S. Government, based on the most pressing and up-to-date needs. In the first hours of the

disaster when there was no organization or scrutiny of flights to meet the priorities raised by the earthquake's aftermath.

Haitians were desperately trying to dig out possible survivors using their bare hands and rudimentary tools. The massive destruction required heavy equipment, with entire buildings collapsed on the occupants and debris making the streets and passageways impassable. Unfortunately, Haiti did not have a debris removal plan that could be executed using volunteers from the community. Debris management remained the major challenge for months after the earthquake.

"The quake left an astonishing amount of debris, including concrete and rebar from collapsed buildings, destroyed belongings and human remains. Twenty million to 25 million cubic yards of debris fill the streets, yards, sidewalks and canals of Port-au-Prince — enough to fill five Louisiana Superdomes" (Desroches, 2010, p.1) Debris removal has been slow to start in part because key policy decisions have not been made – for instance not all buildings categorized as being beyond repair can yet be demolished (Interim Haiti Recovery Commission, 2010).

Immediately following were medical teams to treat the wounded. They worked with the rescue teams as amputation procedures were done in the field for victims with trapped or crushed limbs. It is estimated that there will be 200,000 Haitians that have lost at least one of their limbs from the earthquake (, 2011). Following the medical teams were the field hospitals. These included hospitals set up on ships by the United States, two hospital planes flown in by Israel on a local soccer field, and numerous makeshift hospitals set up in Haiti by several other countries assisting the relief effort.

Clean water and water purification systems and tablets, food, clothing and makeshift shelter were some of the basic necessities needed by the survivors.

A release from the White House on January 21, 2010 summarized the response of the US government to the Haiti crisis: “The United States government has mobilized resources and people to aid in the relief effort. At the direction of president Obama, this is a whole-of-government effort, and USAID has the lead in this swift, aggressive and coordinated response. At the request of the Haitian government the U.S. continues to coordinate America’s relief effort with the United Nations and the international community.” (White House Press Secretary, 2010 p.1)

Secretary Napolitano, United States Secretary of Homeland Security, enacted humanitarian parole for certain Haitian orphans due to the disaster. “We remain focused on family reunification and must be vigilant not to separate children from relatives in Haiti who are still alive but displaced” (America.gov, 2010, p.1)

Haiti had several factors that undermined their ability to respond to an emergency, especially one of the magnitude of the earthquake that struck the area on January 12, 2010. “The challenge to the response was considerable and made more difficult by severe underlying vulnerabilities that existed in Haiti including systemic poverty, fragile governance, insecurity and a continual threat of natural disasters” (Patrick, 2011, p.2). There was also the lack of trust of the government by the people “who perceived it to be incapable of supplying essential services and affected by endemic corruption” (Haiti Earthquake PDNA-Action Plan, 2010, p.41). With the CDEMA guidelines recommending strengthening of disaster management organizations, success is based on cooperation and trust of the population.

The Earthquake Engineering Research Institute (EERI) was established in 1949. Their mission statement states that their “objective is to reduce earthquake risk by 1-advancing the science and practice of earthquake engineering, 2- improve understanding of the impact of earthquakes on the physical, social, economic, political and cultural environment and 3-advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes.” (EERI, 2006, p.1) CDEMA has made the information available from the EERI for their participating states, which includes Haiti. Haiti had access to the information but did not follow their recommendations, much of which came from lessons learned from studying the effects of previous earthquakes.

According to the experts, Haiti is still not prepared for a serious earthquake. "The lack of earthquake risk reduction is a major gap in Haiti’s development efforts, considering its vulnerability to major seismic events, according to a leading quake expert working with the United Nations Development Programme (UNDP) in the Caribbean country to help build its preparedness capacity” (Caribbean 360, 2011, p.2).

Brendt Deland, President of the Haitian Development Fund, said: “Haiti is a disaster; they do not have any kind of structure to deal with this. The hospital on any given day cannot handle the normal flow of patients, let alone the thousands presumably injured in the earthquake” (Saunders, 2010, p.1).

When comparing the Haiti earthquake to a similar earthquake in New Zealand, Structural engineering professor John Mande stated, “Haiti forgot about earthquake risk” (Tiffen, 2010, p.3). Mande also stated that frequent earthquakes in New Zealand meant the city was ready. “The last major earthquake in Port-au-Prince was in the mid-1700s; society forgot about the earthquake risk and was not prepared for it.” He also stated that

the new buildings have good quake designs, unlike absolutely no design in Haiti. Modern homes were generally timber-framed and flexed and absorbed earthquake energy, and commercial buildings were generally constructed with isolated foundations (Tiffen, 2010).

Due to the destruction of the palace and 70% of the government buildings, much of the leadership for the Haitian people had perished. There was no backup plan, which would have been developed by the CDEMA preparedness guidelines for protocol or communication. At the September 30, 2010 EERI workshop reviewing the Haiti earthquake, it was previously determined that Haiti needed to develop a system to "gather, manage, use and disseminate information within response networks and to the general public" (EERI, 2011, p.15).

The lack of use of technology is responsible for Haiti's inability to develop, restricting the pace of reconstruction and a hindrance to their ability to prepare and respond to an emergency. Many functions of the government are still done using paper and not computers or shared information devices. This restricted Haiti's ability to develop an emergency preparedness plan, access information available from organizations like the CDEMA and distribute this information to the population.

"The benefit of the network approach is that it allows for emergent groups and organizations, not originally part of the crisis response plan but affected by the crisis, to be integrated effectively into the crisis response" (Pechta, Brandenberg & Seeger, 2010, p.5) An example of this is the way they dealt with land ownership documentation. John Holmes, the U.N. emergency relief coordinator, said:

> "There wasn't a proper land registry system (before the earthquake) and this complicates the issue of the government taking land and allocating it for resettlement" (McIntyre, 2011, p.34). Government records, of who owned what property, were paper records in buildings demolished by the quake. The records were manual, not kept current, backups also in buildings demolished by the quake. Haiti has a high illiteracy rate, which allegedly can include government officials (McIntyre, 2011).

Most construction in Haiti was not completed following the recommendations of the expert agencies or enforced by the government. The lack of regulation caused structures to crumble and dramatically increased the loss of life. Construction methods that are recommended by the CDEMA through the EERI are developed for earthquakes, which are different than necessary construction methods for hurricanes, a more common natural disaster issue in Haiti. "During an earthquake your home will tend to shake, tip, rock and try to slide off its foundation. In addition, during a hurricane, high winds will also cause uplifting forces.

Geologists warned the government of the probability of a seismic eruption for years, but as with previous massive destructions and loss of lives caused by hurricanes and tropical storms, the government took no measures to prepare for that possibility (Dupuy, 2010) Building practices in Haiti took into account the forces of a hurricane but did not allow for the forces of an earthquake. Necessary building requirements would include: strapping the building to the foundation to avoid the structures from separating, adding shear wall to reinforce the walls from the shifting of an earthquake, and designing the foundation to move with the earth as it rolls and using reinforced concrete rather than

masonry and/or wood framing, which is more flexible and will give as the earth rolls from the earthquake.

"People are building without codes, without norms, without any knowledge", said Patrick Figaro, a local engineer. "Nobody is there to keep them from doing it. Inspectors exist only on books, making it easier for individuals to use less cement or rebar in their slabs" (Charles, 2010, p.1).

Training for Disaster Management Personnel is the first item on the CDEMA operations list. There were no trained personnel in Haiti or equipment for use in case of a crisis or major event. Those that survived were left with no organization and were desperately trying to dig out people trapped in the rubble using their hands and rudimentary tools.

Corruption has been a factor in the government's ability to follow the recommended practices by CDEMA in emergency preparedness. The allocation and stockpiling of resources leaves these supplies vulnerable for loss, due to theft from within the government agencies designated to manage supplies necessary for resource mobilization and part of the CDEMA guidelines. The government has noted the need to curtail corruption as part of the reconstruction strategy (Haiti earthquake PDNA-Action plan, 2010, p.40). The Fund for Peace rated Haiti 12th out of 177 countries in its Failed State Index (EERI Workshop, 2010, p.9).

Analysis and Conclusions

Preparation versus Reaction

Haiti was not prepared for a disaster of this magnitude from an earthquake. “Haiti is a society governed by the indifference to risk and risk prone practices, and therefore unaware of disaster preparedness” (EERI Workshop Report, 2010, p.9). The government and population were more used to hurricanes, which were destructive, but not as destructive as the earthquake of 2010. There were no extra provisions allotted for emergency use in case of a disaster and certainly no foresight as to dealing with a disaster of this magnitude. There were also no backup communication plan in case of a regional or national communication failure, and no specific plan or protocol in case the government or part of the government was affected. The results of the earthquake destroyed many of the government buildings containing the information for the limited resources to deal with a crisis.

Most of the staff also perished in the earthquake. With the palace destroyed, there was confusion as to who was in charge and where the central point of control would be to guide the rescue and response (Patrick, 2011) Haiti’s response was dependent on foreign governments, primarily the United States, to bring order to the chaotic scene after the earthquake. This includes taking control of the airport, with the unusable control tower and runways blocked by debris.

The citizens expect their government to be prepared for a disaster, but with Haiti this was not the case. There was no organized assessment team to determine what the damage was, what critical services needed to be restored, and in what priority. The

country's basic communication was destroyed and no back-up plan or system existed, even to get the cell phone system back online.

The citizens and NGOs already operating in the country used the minimal resources they had for their daily operations to assist those in their immediate area that were in crisis. It would be several days until there was an understanding of the size and scope of the disaster, and this came from the international community that was able to get "boots on the ground" and make a visual assessment of the damage from areas they could access.

There were no guidelines or systems in place to deal with a disaster of this magnitude that would have been developed as part of a preparedness effort. Whether there were any preliminary plans established by the government cannot be determined, due to the destruction of the government buildings and loss of life in the government sector. Reliance on technology is only partially effective when the system is functioning, because in Haiti technology is not available to the majority of the population and the ability to use the equipment is not commonplace.

One resource that is accessible for the Haitian government and used internationally is ProvIDES. ProvIDES is an interagency/international framework developed by the US Army and works with the Standardized Emergency Management System (SEMS) necessary for enhancing response to emergencies world-wide. It has three goals:

1. Develop a framework for emergency response managers that gives them access to resources for preparedness and response,

2. Training process and procedures used to optimize use of military resources for emergency response efforts;
3. Is web-accessible with easy access for public, private and government responders (Hense, Wyler, Kaufmann, 2010 p.10).

Preparedness in emergency management consists of several areas. The first priorities are to establish a chain of command and communication network in the event of a disaster. Communication is the primary challenge to an effective and speedy response to a disaster. Having a pre-determined organization chart of who is in charge and a complete description of their duties is imperative. The expertise must also be in place to handle the logistics issues and how these issues are to be dealt with. These two areas are vital to insure a rapid and efficiency of the response. Availability of specialized personnel to fill the positions would be decided immediately after the event, but the basic organization must be agreed upon and communicated in advance as to reduce confusion in the immediate aftermath of an incident.

With the heavy loss of life in the public sector, it could be assumed that several people designated as leaders of an emergency response would have been lost in the crisis. With an accessible plan in place and available from several sources, organization could have come to Haiti sooner and from within, rather than the international community.

Competent and reliable sources of information communicating with a command center, and the quality of the information, are dependent on the person communicating the information. This would come from advanced training and universal communication and descriptive terms. This also came from trained and experienced international

response teams. There is no documentation that this existed or was available by the Haitian government.

Resources should be available at key accessible locations throughout the country in case of a disaster. Basic necessities of potable water, food goods, temporary shelter facilities, medical supplies, communication devices, and transportation to move the resources to the areas where they are needed all comprise elements necessary for an efficient and productive response. The majority of supplies came from international aid and provisions allotted for daily activity in Haiti. There were no reports of provisions or supplies stockpiled in case of a disaster.

Building requirements and codes were limited, enforcement was unusual, and those in place were geared more towards hurricanes, where wind force is more of an issue than load disbursement and shifting issues. Property owners did their own construction. The physical designs and enforcement of those requirements are part of being pro-active in policy and procedures in the name of the public good. Building design and requirements developed to meet the potential for a worst-case scenario disaster should come from the government with input from local jurisdictions. Enforcement should be on a local level, but also must be done to be effective. By the level of destruction, construction materials and design was a major failure in Haiti.

On a smaller, personalized level, precautions would be taken in the living and working areas, all of which increase the rate of survival and limit loss of life and injuries. These include earthquake training and strapping down items that could fall over in case of a major earthquake.

Below are basic earthquake precautions:

Figure: 3

Anchor Large Equipment Properly
Anchor Tall Bookcases and File Cabinets
Anchor and Brace Propane Tanks and Gas Cylinders
Bolt Sill Plates to Foundation
Brace Cripple Walls
Install Latches on Drawers and Cabinet Doors
Mount Framed Pictures and Mirrors Securely
Restrain Desktop Computers and Appliances
Use Flexible Connections on Gas and Water Lines

Protect Your Property from an earthquake

Source: US Department of Homeland Security, FEMA

Emergency evacuation plans and drills in case of a disaster is a primary aspect of preparedness. Citizens that were able to assist had no tools or equipment to work with. Basic tools such as shovels picks and saws were not available until the international community supplied them (Dupuy, 2010 p.2)

Backup planning is a critical part of emergency preparedness. This includes everything from power outages, water and sewage system shutdowns, to internet interruptions. Advanced planning and trained personnel on the secondary systems is crucial during emergency situations. It removes the time loss of developing system recovery methods when they are needed and allows the limited resources available during rescue and recovery to be allocated to other areas.

Preparedness also consists of having a working relationship and agreement with neighboring jurisdictions in case of a large-scale event. With this agreement, jurisdictions will bring in their resources and expertise to assist in case of a disaster when the incident occurs. The response is immediate after assistance from the affected area is requested. It is beneficial for all parties because they are all susceptible to disasters whether they are natural or man-made.

Haiti left itself vulnerable to the effects of a major disaster. The weakness of the government, environmental exploitation, and the lack of a developed modern infrastructure were compounded by the lack of building codes, oversight, and enforcement of the codes that did exist. The lack of urban planning which led to the overpopulation of Port-au-Prince was a result of poor governance. (Int'l Crisis Group, 2010).

The CDEMA is the primary organization that has stepped in to bring the 16 member states together. It is interesting to note that they have changed their name from the CDRA, a regional organization, to CDEMA, a management organization. They changed their focus to the management of disasters rather than their pervious role that was more reactionary (CDEMA 2010). This was a direct result from the Haiti earthquake. The refocusing of the CDEMA after the January 12, 2010 Haiti earthquake brought about the Technical Advisory Committee which was formed to strengthen program development and implementation of the CDEMA.

Jeremy Collymore, CDEMA Executive Director, said that the meeting would consider the model legislation, organization structure and model Comprehensive Disaster Management policy. "The most catastrophic earthquake in this hemisphere in the last

seventy five years at least, occurred in one of our newest participating states: Haiti. The loss of more than 200,000 lives, displacement of more than one million persons and the devastation of the capital of the state clearly demonstrate why Disaster Risk Reduction must be a staple on our development and political agenda" (CDEMA 2010, p.4).

The three primary areas Collymore directed the organization to address are:

1. CDEMA will facilitate a wider base of stakeholders and increased engagement of the public and private sectors as well as all segments of civil society and the general population.
2. Forging strategic partnerships with a greater range of actors will support the programming process of CDM. These include development, environmental and financial planners, architects, engineers; transportation services financial sectors, insurance industries and educators.
3. Broadening the stakeholder base will also facilitate a more structured and effective collaboration among organizations with overlapping interests and ensure the provision of high quality technical assistance, with agencies taking the lead in their areas of expertise.

The directives that they are now pursuing represent the elements that were not in place when the Haiti earthquake struck. On May 30, 2010, a two-year campaign was launched to promote emergency preparedness and encourage governments and citizens to take measures to be prepared in case of an emergency or disaster. The campaign, called *My City is Getting Ready*, addresses the need for preparedness in case of a disaster or crisis.

"Over the next two years of the *My City is Getting Ready* Campaign, local government leaders around the world will be urged to invest more in disaster risk reduction" (CDEMA, 2010, p.8). This would include improving urban planning, infrastructure and building safety, reinforcing drainage systems to reduce flood, storm and health threats, installing early warning systems, conducting public preparedness drills, and adapting to the increasing impacts of climate change (CDEMA, 2010).

Making Cities Resilient: My City is Getting Ready is being coordinated by the UN Secretariat and calls on local governments and communities to strengthen readiness capacities of cities to reduce the risk from natural hazards impacts. The campaign targets urban and coastal cities and areas that, on a global scale, have a high population density and are most vulnerable to natural hazards and climate change. These same methods would be used for man-made disasters such as a terrorist attack or an oil spill.

The following five areas and project implementation will help Haiti be more prepared for the next disaster. The importance of these areas cannot be over emphasized. The vulnerability of Haiti is even greater now since the area has fewer necessities as before. The rebuilding is a slow and drawn out effort as the population has marked its first anniversary with the overwhelming tent cities still in existence and the lack of basic services years, if not decades, away.

1. Develop an efficient and effective Emergency Management Agency.

"In May 2005 the European Union and the Secretariat of the African Caribbean Pacific (ACP) Group of States established an ACP-EU Facility for Natural Disaster Management" (CDEMA 2011, p.5) The purpose of this organization is to provide added-

value at the sub-regional as well as intra-ACP levels. The European Commission has partnered with Caribbean Disaster Emergency Management Agency (CDEMA) to implement the Disaster Risks Management Sub-Regional Program under the ACP-EU Natural Disaster Facility (CDEMA 2011).

This project was designed for the Directors of National Disaster Offices within the CDEMA. It will give the participating states assistance in planning and building more resilient communities. Governments of these states will have improved capacity for making planning arrangements and improve their levels of preparedness in case of a disaster. This is critical for Haiti, who did not have a functioning risk-management policy. They did not implement emergency preparedness practices for their citizens, as described previously in this paper, due to the lack of readiness and equipment after the earthquake struck. There were no systems in place, which delayed the search and rescue efforts after the earthquake hit. The EU has made available €1.8 million for defined activities to be implemented under the Disaster Risks Management Sub-Regional Program in the Region over a two year period, ending November 14th, 2011.

2. Technical Assistance Program

Haiti was not prepared for a natural disaster in the area of resource management. They had no supplies warehoused in different areas ready for distribution. They also had no supply chain within the government or established with manufacturers in their country or with neighboring countries. They also had no relationship with potential suppliers in case of a critical need. The Australian Government has been giving Haiti financial support and established the Haiti Technical Assistance Program (HATP). This program will help

Haiti implement an emergency response system that uses the principles of Comprehensive Disaster Management (CDM).

"Haiti now has core staff trained in logistics and warehouse management, management of humanitarian relief supplies and emergency communications" (CDEMA, 2010, website). The project, which is supported through the HTPC workshops, has also provided CPD with software and support materials for implementation of all skills developed" (CDEMA, 2010)

Figure: 4

HATP Workshop in Haiti

Source: CDEMA, 2011

In August, the program hosted a logistics and warehouse management workshop. Top-level managerial staff and logistics personnel attended this workshop from the 10 major districts in Haiti. There were also two other training sessions. One was on the Logistical Support System (LLS), which is used to improve the management of humanitarian aid. The second was on the Humanitarian Supply Management System (SUMA). Both of these systems are "strengthening the national capacity to manage effectively the humanitarian supplies, bringing them to the affected people in an adequate

and convenient way" (Logistic Support System, 2011, p.1) They were developed as a joint effort of Latin American and Caribbean countries, with the technical cooperation of the Pan American Health Organization, and the Regional Office for the Americas of the World Health Organization (Logistic Support System, 2011).

The efficiency of delivering the resources and supplies needed after a disaster also comes from the relationships developed with the business community. "Face to face interactions can be emphasized as part of conferences, training courses and exercises." (Peterson, Besserman, 2010, p.21) The importance of networking to develop supply chains to support disaster response efforts cannot be overemphasized.

A good example of this was seen with Hurricane Katrina. The resources that were desperately needed were not being supplied by the government agencies. Wal-Mart stores already had a supply system in place, and the willingness of a government official to authorize the expenditure of items as the equipment desperately needed in New Orleans started to arrive.

3. Earthquake Readiness Protocols

Haiti had no plan in case of an earthquake. As a participating state of the CDEMA, they are now developing their own plan to be ready for another earthquake. "The high level of seismic activities in the region demands updated emergency plans." (CDEMA, 2010 p.4). Dr. Virginia Clerveaux is one of the senior program officers at HTAP. She feels that the country's preparedness can be further enhanced if the National Emergency Management Office (NEMO) undertakes serious public education campaigns among schools and community groups (CDEMA, 2010).

It will be Haiti's responsibility to lead an effort to educate the public on the plans they have made and practice the drills to keep their citizenry safe. Considering the loss of life and devastation the country experienced in January 2010, and still experiences now, the level of cooperation should be high. The implementation and practice of emergency plans in Japan have been credited with saving thousands of lives of those who had time to save themselves in previous earthquakes that have affected Japan.

4. Communication

As an active state with the CDEMA, Haiti now has a secondary communication system as part of their disaster management program. Communication was a major obstacle in the response effort for Haiti. There were no secondary means of communicating when the primary system was destroyed. This isolation meant the loss of valuable time in bringing in the first responders. It was also a continual problem during the ongoing rescue and cleanup.

According to Dr. Clerveaux, "…one of the most important factors in ensuring a successful response to any disaster or emergency is effective and timely communication between responders, decision-makers and the public" (CDEMA,2010 p.6) The workshops that were held in Haiti addressed communications preparedness in the urban environments and in the field. These included enhancing the DRM resource inventory and capacity of Haiti in emergency communications, while strengthening the Disaster Management personnel's ability to utilize available tools and communicate emergency information locally, regionally and internationally. Improving the utilization of web-based technology and the transmission of emergency information within the CDEMA

system was also noted as a priority. The training targets the national and local level of communication effectiveness and alternatives. It was sponsored by the Australian Agency for International Development (CDEMA, 2010).

5. Strengthening Response Coordination Methods

The lack of strong coordination methods has proven to be a weak link in the CDEMA system and a contributing factor to the slow response time for the Haiti earthquake. Strengthening the coordination methods will improve event management. At a meeting on March 21, 2011, Jeremy Collymore, Executive Director, CDEMA said "the units commonly referred to as Sub-Regional Focal Points (SRFP) are critical elements of the Regional Response Mechanism. They are central in the diversifying and up scaling of regional capability and capacity (CDEMA, 2011, p.7) the realization of the operational goals of the Sub Regional Focal Points has been constrained by limited understanding at the policy and decision making levels, inadequate resourcing, and the absence of shared protocols. Collymore noted the problem as being specific to the Haiti earthquake (CDEMA, 2011).

6. Enhancing Regional Contingency Plans

CDEMA has developed a Model Earthquake Contingency Plan (MECP) in an effort to have countries like Haiti develop a national plan. There was no plan in place when the earthquake hit Haiti. Rescue and response efforts were hampered because of the lack of preparedness in case of a disaster. Those survivors capable of helping in the rescue effort

had not tools or organization, limiting their abilities. This also slowed the rescue effort from the international community.

This will allow them to better manage all the different issues related to earthquakes events. It will also reduce their vulnerability when an earthquake occurs. In the workshops held January and February 2011 they "address the region's vulnerability to earthquakes under the umbrella of the Enhanced Comprehensive Disaster Management (CDM) Strategy and Framework" (CDEMA, 2010, p.9)

The directives of the CDEMA address the need for partnerships and stakeholders in a formal agreement to assist each other in case of a disaster. There is also the need for informal communication. This is a way to nurture relationships and build trust. "NIMS has focused on the formal organizational structure of incident management systems…networks fragment and fail because individuals fail to maintain close informal relationships with their informal contacts" (Peterson & Besserman, 2010, p.11).

Communication is developed before a disaster occurs on an informal level. Developing working relationships and trust among agencies enhances the effectiveness of the response by having a pre-established working relationship. This increases the willingness to share information between responders. "During a large scale crisis, the amount of information greatly increases and will flow within every responding organization; between organizations; from citizens to organizations and from organizations to citizens" (Quarantelli, 1997, p.10).

The CDEMA has organized two councils that meet regularly. Members that are ready to support nations in case of a disaster attend them. The communication and

dialogue between the participating states is what will make the organization (CDEMA) strong and effective.

The Comprehensive Disaster Management Coordination, Harmonization Council, and the Programming Consultation will stimulate dialogue, networking, information sharing and collaboration among CDM Partners. It will also provide an opportunity for wider CDM Partners to share information on ongoing and planned initiatives related to Comprehensive Disaster Management. They will also facilitate the review of partner programming interventions for Haiti (CDEMA, 2010).

With the implementation of the programs from the CDEMA, Haiti will have plans, procedures and policies in place in case of another disaster. The implementation is for the entire Caribbean area. This will give Haiti and the other countries the support they need in the form of assistance and resources.

The systems and guidelines that are being put into place are not new for developed countries that were able to make the safety and security of their citizens a priority. The resources and money were available to develop, implement, maintain and practice emergency management preparedness and techniques.

The earthquake that devastated Haiti had the result of bringing in outside support and resources. The Caribbean governments and the international community now understand that it is important to take an active role in assisting the less fortunate countries in emergency management. When a disaster strikes, it is a global issue, and we cannot leave countries in isolation when they are in a time of need.

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