



SUSTAINABLE DEVELOPMENT UNIT ■ LATIN AMERICA AND THE CARIBBEAN

Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes

Jamaica

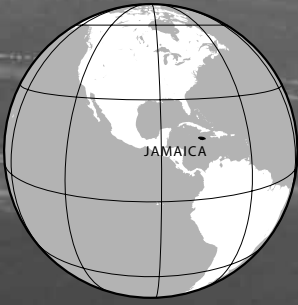


THE WORLD BANK



GFDRR

Global Facility for Disaster Reduction and Recovery



**COUNTRIES AT RELATIVELY
HIGH ECONOMIC RISK
FROM MULTIPLE HAZARDS**

(Top 75 Based on GDP
with 2 or more hazards)^a

1. El Salvador

2. JAMAICA

3. Dominican Republic

4. Guatemala

8. Costa Rica

9. Colombia

13. Trinidad and Tobago

14. Antigua and Barbuda

15. Barbados

17. Ecuador

18. Mexico

19. Dominica

20. Nicaragua

21. Chile

33. Haiti

^a Dilley et al. (2005). Table 7.2.

Tropical storms and floods join the hurricanes among the disasters that have had the greatest impact in Jamaica.

Natural Disasters from 1980 - 2008^b

Affected People

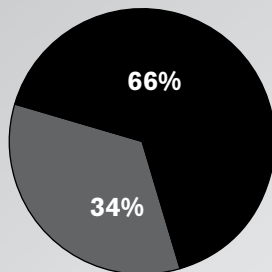
Disaster	Date	Affected (Number of People)
Storm	1988	810,000
Flood	1991	551,340
Storm	2004	350,000
Flood	1986	40,000
Storm	2007	33,188
Storm	1980	30,009
Flood	1987	26,000
Flood	2002	25,000
Storm	2005	8,000
Flood	2006	5,000

Economic Damages

Disaster	Date	Cost (US\$ x 1,000)
Storm	1988	1,000,000
Storm	2004	595,000
Storm	2004	300,000
Storm	2007	300,000
Flood	1986	76,000
Storm	2008	66,198
Storm	1980	64,000
Storm	2001	55,487
Flood	1987	31,000
Flood	1991	30,000

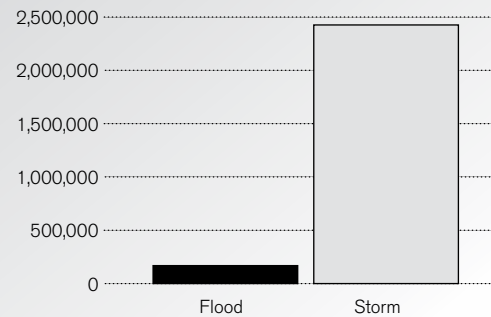
Statistics by Disaster Type^b

Population Affected by Disaster Type

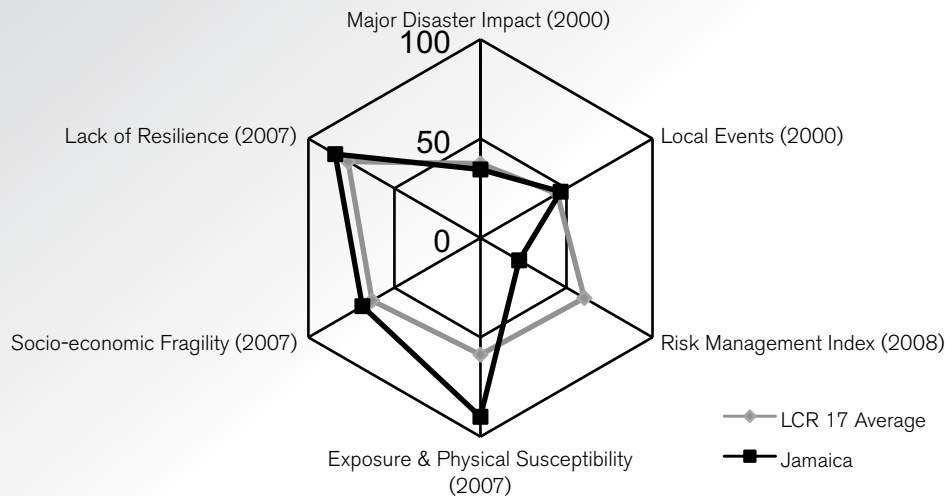


■ Storm ■ Flood

Economic Damages / Disaster Type (1000s US\$)



Relative Vulnerability and Risk Indicators^c



^b UN (2009). <http://www.preventionweb.net/english/countries/statistics/?cid=86>. Source data from EM-DAT. Data displayed does not imply national endorsement.

^c Relative Vulnerability and risk Indicators are adapted from IADB-IDEA-ERN (2009). Values are normalized on scale of 0 – 100 and presented against the average for 17 LCR countries. Major disaster Impact taken from disaster deficit Index: the ratio of economic losses which a country could suffer during a Maximum Considered event and its economic resilience. Local events taken from Local disaster Index: the propensity of a country to experience recurrent, small-scale disasters and their cumulative impact on local development. risk Management Index is presented as the negative (i.e. 0 = optimal, 100 = incipient) of IADB's risk Management Index: measures a country's risk management capability in (i) risk identification, (ii) risk reduction, (iii) disaster management, and (iv) financial protection. resilience, Fragility and exposure are taken from the component indices of Prevalent Vulnerability Index. Date for local event data depends on information available for each country. Data, and the respective LCR 17 average, from 2000 is used for Dominican Republic, El Salvador, Guatemala, Jamaica and Nicaragua. Data, and the respective LCR 17 average, from 2006-08 is used for Bolivia, Colombia, Costa Rica, Ecuador, Panama and Peru. All LCR 17 averages are calculated based on available data.

DISASTER RISK PROFILE

Jamaica has the second highest economic risk exposure to two or more hazards, according to the 2008 update of the Natural Disaster Hotspot study² by the World Bank. In addition to the exposure of 96.3% of the national population, 94.9% of the national territory and 96.3% of the GDP to two or more hazards, vulnerability in Jamaica is also influenced by the debt burden, health status, climate change, weak building code enforcement and other factors.

Major Natural Hazards

Due to its geographical location and geotectonic characteristics, Jamaica is exposed to a variety of natural hazards, including hydrometeorological (it is located in “hurricane alley”) and geophysical.

Jamaica, along with the Cayman Islands to the West and Haiti, the Dominican Republic, Puerto Rico and the Antilles to the East, is located in one of the most seismically active regions in the hemisphere, situated on the boundary of the Caribbean Plate to the South, and the Gonave Microplate.³

Natural disaster data from Jamaica published on the Prevention website⁴ indicates 27 natural disaster events for the period 1980 to 2008, with total economic damages estimated at US\$2.599 billion. Economic damage by disaster type was reported as follows: storms accounted for US\$2.425 billion and floods for US\$168.44 million. The number of people killed was reported as 210, with 52 percent of the deaths caused by storms, 46 percent by floods, and the remaining 1 percent caused by epidemics.

Storms and Floods

Hurricanes that have marked Jamaica’s history and development include: Charlie in 1951, which killed 154, affected 20,000 people and caused US\$56 million in damages; Flora in 1963, which killed 11 and caused US\$11.52 million in losses; Allen in 1980 was responsible for 6 deaths, affected 30,000 people and a total of US\$64 million in damages; Kate in 1985 killed 7 people and caused losses of US\$5.2 million; and Gilbert in 1988, which claimed 49 lives, affected 810,000 people, and became the most expensive natural disaster in Jamaica’s history with damages amounting to US\$1 billion.⁵ In 2004, two hurricanes - Charley on August 10 and Ivan on September 10 - passed south of Jamaica with waves along the coast from 2 to 8 meters high. Ivan’s rains caused flooding of soils saturated by Charley, with floods claiming 17 lives, affecting 369,685 people, damaging 14% of the housing stock. The overall damages were estimated by ECLAC at US\$580 million.⁶ More recently, the extent of the damages caused by Hurricane Dean in August of 2007, which could not be covered by the Caribbean Catastrophe Risk Insurance Facility (CCRIF), prompted discussions to develop a flood-based parametric, especially for agriculture.⁷

Tropical storms and floods join the hurricanes among the disasters that have had the greatest impact in Jamaica. More than 120 Jamaican rivers flow from the mountains to the coast⁸, resulting in numerous low-lying and flood-prone areas. Accounts of flooding in documents from as early as 1837 are available for the areas of Portland and St. Mary. Additional episodes in 1937, 1940, 1943 and 2001 indicate an ever-present probability of recurrence of

² GFDRR (2008).

³ Manaker et al. (2008). See also Mann et al. (1995).

⁴ PreventionWeb (2010e).

⁵ OAS Department of Regional Development and Environment (1991). See also Tomblin (1979) and USAID/OFDA (1989).

⁶ ECLAC, UNDP and the Planning Institute of Jamaica (PIOJ) (2004).

⁷ Jackson (p.c.).

⁸ HFA-Pedia (2003).

similar events. Hurricane Michelle caused widespread flooding and landslides in 2001.⁹ Storms reported in 2004, 2007 and 2008 killed 27 and affected over 388,000 people. Likewise, floods in 1991 and 1996 killed 69 and affected a total of 591,340 people.¹⁰ Floods throughout Western Jamaica in June of 1979 prompted the establishment in July of 1980 of what is today known as the Office of Disaster Preparedness and Emergency Management (ODPEM), a permanent disaster management organization responsible for coordination and monitoring of the response to adverse natural events as well as educating the nation on all aspects of disaster management.

Landslides

In Jamaica, landslides are often associated with periods of extreme precipitation. A total of nine days of rains associated with a low extending across the Caribbean from Nicaragua joined by the Hurricane Michelle weather system pummeled Jamaica from October 28 to November 5 of 2001. Over 1,000mm of rain were reported in stations primarily in northeastern Jamaica, in the Blue Mountain range area, on October 28 and 29. The rains claimed five lives, and affected 11,976 people. 500 homes were destroyed and another 305 were damaged. More than 800 persons were evacuated and 350 were housed in shelters. At least 2,000 were isolated due to the flooding, which caused extensive road damage. More than 40,000 were affected due to loss of electricity, collapse of waste disposal systems, and broken water mains resulting in limited or no access to potable water supplies. A total of 440 roads were damaged island-wide. The worst-affected areas by flash floods and landslides were the Spanish and Swift River watersheds where severe erosion destroyed the

approaches of three major highway bridges. In the interior of the parish of Portland, the worst-hit areas were Bybrook, Ann's Delight, Claverty Cottage, Clifton Hill, Swift River, Bloomfield, Chelsea, Shrewsbury, and Fruitful Vale. Another landslide deposited approximately 200,000 cubic meters of material in Bybrook. The community of Swift River also received a landslide which carried 240,000 cubic meters into the village. The total losses were estimated at J\$2,521 million, representing 0.8% of the 2000 GDP and 23.4% of agricultural exports in 2000.¹¹

Earthquakes and Tsunamis

Jamaica has a long history of destructive earthquakes and owes part of its current geology to past volcanic eruptions. The main fault which affects Jamaica is the 950 km-long Enriquillo-Plantain Garden Fault, a left-lateral strike-slip fault which accommodates about 1/3 of the relative motion between the Caribbean and North American plates. This fault cuts through Jamaica in an East-West orientation, dividing it into the North and South halves of the country. It continues east toward Haiti, where it caused the historic and tragic magnitude-7 earthquake of January 12, 2010, which was strongly felt in Jamaica. The largest recorded earthquakes in Jamaica's history include the June 7, 1692 earthquake which killed 1/4 of the population of Port Royal in southern Jamaica, when the city fell into the ocean due to liquefaction. Another was the estimated 6.5-magnitude event on January 14, 1907, which killed 1,000 people and damaged or destroyed 85% of the buildings in the capital city of Kingston. In terms of ongoing seismic hazard, Jamaica has a number of active faults with the capacity for a 7.5 event without prior warning.¹²

⁹ ECLAC Caribbean Development and Cooperation Committee (2001).

¹⁰ PreventionWeb (2010f).

¹¹ ECLAC Caribbean Development and Cooperation Committee (2001).

¹² Manaker et al. (2008) and edit of this section by Dr. Eric Calais. August 2010.

Tsunamis have been reported in Jamaica since the 1780 “irruption” in Savanna-la-Mar, which killed 300 people.¹³

Volcanoes

The country has over half a dozen volcanoes, none of which are active. However, the past volcanic activity yielded fertile lands for agriculture as well as bauxite and gold mining. Additionally, there are active traces of past volcanic activity such as sulfuric and thermal wells; several are promoted for eco-tourism and health purposes. Jamaica has several rugged mountain ranges, with the highest point, the Blue Mountain Peak, soaring over 2,256 meters (7,402 feet). About sixty percent of the island's bedrock is white limestone; twenty-five percent is volcanic and cretaceous, ten percent alluvial and five percent yellow limestone.¹⁴

Exposure and Vulnerability

In addition to the exposure of 96.3% of the national population, 94.9% of the national territory and 96.3% of the GDP to two or more hazards, vulnerability in Jamaica is also linked to poverty. The Human Development Index (HDI) for Jamaica is 0.766, which gives the country a rank of 100th out of 182 countries with data. The Human Poverty Index (HPI-1) focuses on the proportion of people below certain threshold. The HPI-1 value of 10.9% for Jamaica ranks it 51st among 135 countries for which the index has been calculated.¹⁵

Vulnerability to floods, storms, hurricanes and earthquakes, coupled with land degradation, unplanned urban growth in areas unsuitable for development, and weak enforcement of building codes and zoning regulations are the main drivers of most of the current vulnerability in Jamaica.

Climate Change and Global Warming

Jamaica has recently been cited as one of six Caribbean countries in the world's top 40 climate “hot spots” by the Germanwatch Global Climate Change Risk Index (CRI) 2009.¹⁶ The country was ranked 34th out of 150 countries based on an analysis of weather events between 1998 and 2007. Two factors were cited: the impact of global warming on rising sea levels which increase the risk of storm surges, and secondly the increase in the strength of hurricanes. The 2010 Climate Risk Index is based on figures from 2008 and is also an analysis of the worldwide data collection on losses caused by weather-related events during 1998–2008. In 2008, Jamaica was ranked 13th with losses of 0.79% GDP, and it ranked 55th for the decade with GDP losses of 0.96%.¹⁷

Climate Change models¹⁸ have predicted that Jamaica will undergo a warming and drying trend and is expected to endure more frequent heat waves and droughts, rainfalls with increased intensity, and rising sea levels, as predicted for the rest of the Caribbean, consistent with the projected global median.¹⁹ It is known that inter-annual climate variability of either the Pacific or Atlantic explains a significant amount of the total variance

¹³ Fay and Lander (2003).

¹⁴ HFA-Pedia (2003).

¹⁵ UNDP (2009b).

¹⁶ Abeng News Magazine (2008).

¹⁷ Harmeling (2009). Table 5.

¹⁸ Hadley Centre Coupled Model, Version 2 (HADCM2), as reported in Mulligan (2003). Same modeling data as used by the Intergovernmental Panel on Climate Change (IPCC).

¹⁹ Chen et al. (2008).

in rainfall in the Caribbean and Central America.²⁰ Probable climate change impacts in Jamaica include higher temperatures, higher storm intensities and, possibly, more frequent El Niño-Southern Oscillation (ENSO)²¹ events, exacerbating existing health, social and economic challenges affecting Jamaica.

Changes in sea surface temperature as a result of climate variability could increase the intensity of cyclones and heighten storm surges, which in turn will cause more damaging flood conditions in coastal zones and low-lying areas. According to the World Bank study, “Sea Level Rise and Storm Surges”,²² the impact of sea level rise and intensified storm surges in Latin America and the Caribbean will be highest in Jamaica – noting an increase of 56.8% - with 28.49% of the coastal population exposed and potential losses of coastal GDP projected to exceed 26.62%. Furthermore, the inundation risk in Jamaica from storm surges will cover 36.55% of the coastal wetlands.

Jamaica’s first National Communication on Climate Change (NCCC)²³ was released in 2000. It cites the cost estimated by the IPCC, in 1990, to protect the relevant sections of Jamaica’s 1,022km of coastline from a one-meter sea level rise to be US\$462 million. This is equivalent to a cost of US\$197 per person or an annual cost that is 19% of GNP.

DISASTER RISK MANAGEMENT FRAMEWORK²⁴

The management of ex-ante and some ex-post emergency planning issues is overseen primarily by the Office of Disaster Preparedness and Emergency Management (ODPEM). ODPEM’s

mandate covers more than disaster response, and includes preparedness, response, mitigation, prevention and recovery. Each parish has a Parish Disaster Committee including Government, private sector, and NGO representatives. The national system of subcommittees is mirrored at the parish level. Below the parish level, some communities also have disaster committees called Zonal Committees, which link with the Parish Disaster Committees. There are a number of functional plans for evacuation, communication, mass casualty events, aircraft accidents, pandemics, pest infestations, etc. Of these, the primary plan is the National Disaster Plan, which is a comprehensive document setting out mitigation, preparedness, response and recovery procedures for a variety of hazards, both natural and man-induced.

Jamaica’s ODPEM is responsible for coordinating the response to national threats and emergencies, with coordination being carried out from the National Emergency Operations Centre (NEOC). Under the post-impact conditions, ODPEM coordinates the relief efforts with the input of the international community. There are standing procedures which govern rehabilitation of critical services. For example, hospitals receive priority attention for road clearance and reconnection of power and water supplies after any disaster. Shelters are also given a high priority. Originally known as the Office of Disaster Preparedness and Emergency Relief Coordination (ODIPERC) established in July 1980, the name was changed to the Office of Disaster Preparedness and Emergency Management (ODPEM) in 1993. ODPEM is a statutory body created under the provisions of Section 15 of the Disaster Preparedness and Emergency Management Act. Operating out of the Ministry of Land and Environment, ODPEM is overseen by a Board of Management. The Board of

²⁰ Giannini et al. (2002).

²¹ El Niño-Southern Oscillation; commonly referred to as simply El Niño, a global coupled ocean-atmosphere phenomenon.

²² Dasgupta et al. (2009).

²³ HFA-Pedia (2003).

²⁴ UN ISDR (2010b).

Management appoints the Director General, who leads a staff divided into the following divisions: Corporate Services, Preparedness and Emergency Operations, Mitigation, Planning and Research and Projects Implementation, Development and Monitoring Unit. ODPEM is committed to taking pro-active and timely measures to prevent or reduce the impact of hazards on Jamaica, its people, natural resources and economy through its staff, the use of appropriate technology and collaborative efforts with national, regional and international agencies.

All actors and organizations involved in national disaster management efforts are jointly referred to as National Emergency Management Organization. It consists of the National Disaster Committee, the National Disaster Executive, the Office of Disaster Preparedness and Emergency Management (ODPEM), private sector representatives, and several regional and local organizations, non-governmental organizations and volunteers. The National Disaster Committee is responsible for policy issues.

Jamaica's National Disaster Committee (NDC) was established by the Disaster Preparedness Act of 1993.²⁵ The NDC is an interagency body chaired by the Prime Minister of Jamaica and comprised of various ministers, permanent functionaries and agency heads. Under the leadership of the current Prime Minister, the NDC meets quarterly, as do the subcommittees. The NDC is the main coordinating body for disasters affecting the country. The Prime Minister, as Chairman, is the overall manager of the nation's preparedness, mitigation, recovery, and rehabilitation efforts. A Proclamation is made by the Governor-General to declare that a state of public emergency exists.²⁶ The committee's executive directs and formulates policies while the Deputy Chairman executes policies, advises and

assists the Chairman. He or she is also responsible for coordinating counter-disaster measures and liaising with international agencies. There are a number of agencies that form the National Disaster Committee and work alongside the ODPEM to fulfill its mandate. These agencies are placed on committees to maximize their effectiveness.

Jamaica's NDC Committees and their roles are described as follows:

- Administration Finance & Planning Committee: equipping response agencies, staffing, funding of emergency activities, EOC – Emergency Operation Centre
- Damage Assessment – Recovery & Rehabilitation Committee: damage assessment, coordinating restoration, evaluation planning
- Emergency Operation Communication Transport: rescue evaluation, law enforcement, establishing and maintaining communication links, coordinating transport
- Health Planning - Emergency Health Care: health care
- Public Information and Education: disseminating information, conducting training exercises
- Welfare Shelter – Relief Clearance: shelter relief, coordinating clearance of relief supplies

Jamaica has a disaster response matrix that articulates efforts from the national to the parish level. The National Emergency Response clearly outlines the range of agencies and private sector organizations with which the organization collaborates in disaster events. The matrix is designed primarily for use by the decision-makers during emergency operations at the national level (NEOC) and parish level (PEOC). These include the National Emergency Operations Centre (NEOC) operated by ODPEM, the Parish Emergency Operation Centre (PEOC)

²⁵ OAS-DSD (1993).

²⁶ OAS-DSD (1962).

operated by PDC (Parish Disaster Committee), and the heads of agencies who will commit manpower and other resources to preparedness and timeliness of response. The agencies also find it a useful reminder of their role and functions during emergency incidents.

Jamaica has documented policies, plans and procedures at national and parish levels to facilitate a consistent approach to response.

Further, simulation exercises and real events have provided opportunities for testing and improvement of the system. The present governance structures therefore allow risk management to be incorporated at local levels, with Parish Councils being given more technical tools, such as hazard maps and risk analyses to guide them in their decision-making.

The promulgation of Jamaica's National Hazard Mitigation Policy represents a significant achievement for the country and a tool for promoting DRM.²⁷

The Disaster Preparedness Act has been in force since 1993. While it has provided the legal framework for disaster management in the country, it is generally felt that the provisions are not sufficient to deal with the shift in focus from disaster management to disaster risk management. Efforts at drafting a new Act have started, and if passed, will repeal the existing act and provide a strengthened framework for DRM in the country.²⁸ Hazard mapping for floods, landslides and earthquakes has been done and flood risk mapping is taking place.

Jamaica has various initiatives on disaster risk information management systems and national public awareness programmes.

Disaster management is a part of various curricula and training programs that are available at the undergraduate and post-graduate level. The University of the West Indies has elaborate research and training programs on various areas related to disaster reduction. The mass

media and well-known personalities are involved in public awareness campaigns, with specific weeks dedicated to earthquake awareness and disaster risk management in schools and businesses, and a specific month dedicated to disaster preparedness. Several civil society initiatives have taken shape during recent years, showing an increase not only in public awareness but also in public participation in disaster reduction.

Jamaica's integrated risk management system encourages data and information exchange among agencies as well as decision-makers.

In the past, the appreciation by the technical agencies of Government of the importance of risk reduction had not been matched at the policy and political level. More recently, however, and particularly after hurricane Ivan in 2004, there has been a marked increase in the acceptance of issues related to vulnerability reduction and mitigation. As an example, the Planning Institute of Jamaica has included risk reduction in its medium-term development strategy plan, and Cabinet has agreed to various suggestions for reducing coastal vulnerability.

Jamaica has successfully integrated the public, private, technical, scientific and voluntary sectors as well as the local Government authorities and communities into its disaster risk management structure, and therefore represents a good example of an integrated approach to risk management.

The inclusion of mitigation in the national medium-term development plan also indicates that there is a real effort to integrate risk reduction into national development.

Jamaica has adopted the recommendations of the strategic objectives and priority actions of the "Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters." ODPEM is the national platform's focal point.

²⁷ ODPEM (2009a).

²⁸ Ibid.

Jamaica is active in several regional and international forums for Disaster Risk Management, including participating in the Caribbean Disaster and Emergency Management Agency (CDEMA) and the United Nations International Strategy for Disaster Reduction (UN ISDR). Jamaica is Party to the United Nations framework Convention on Climate Change and the Kyoto Protocol.

ACTIVITIES UNDER THE HYOGO FRAMEWORK FOR ACTION

The Government of Jamaica's 2009 report, Jamaica: National progress report on the implementation of the Hyogo Framework for Action 2007-2009²⁹, highlights the country's accomplishments and challenges toward achieving the goals set forth in each of the five HFA priorities as follows:

Hyogo Framework for Action (HFA) Priority #1: Policy, institutional capacity and consensus building for disaster risk management

The National Hazard Risk Reduction policy has not been disseminated on a wide scale and currently there is no implementation or action plan in place. The strategy and the action plan need to be developed. The current Disaster Preparedness and Emergency Management Act needs revisions to make it more applicable to changing disaster risk management practices. It currently does not recognize some of the elements of risk management and does not address critical issues such as evacuation, no-build zones and sanctions for breaches of the Act.

²⁹ Ibid.

Jamaica reports that substantial achievements were attained, but with recognized limitations in key aspects such as financial resources and/or operational capacities. The promulgation of the hazard mitigation policy represents a significant achievement for the country and a tool for promoting DRM.

Over the next 3-5 years policies, plans and guidelines should be developed to facilitate the integration of DRM into sustainable development. This will be supported by ongoing awareness and advocacy among institutions and the wider public; incorporation of hazard information into development approval process at the national level and local level; and preparation of guidelines for development initiatives in high-risk areas. Specific action points for the government included:

- Fast-tracking the review and enactment of the new Act and repealing the old Act of 1993;
- Vetting the Hazard Risk Reduction policy in fiscal year 2008/09; and
- Advocating the implementation of a National Hazard and Risk Mapping Program.

HFA Priority #2: Disaster risk assessment and monitoring

The resources to undertake sector-specific risk assessments are limited. Priorities for the national disaster office and sectors sometimes differ, so achieving buy-in for implementation can be difficult. There is little ownership of Disaster Management Responsibility at the sector levels. There is an absence of DRM planning and budget; sufficient annual budgetary allocations to the National Disaster Response Fund; and a Risk Mitigation Strategy and Action Plan. There is considerable turnover of internal and external stakeholders.

Institutional commitment was attained, but achievements are neither comprehensive nor substantial. However, extensive work has been accomplished in the establishment of Early Warning Systems for floods and hurricanes as well as for earthquakes through the installation of a National Seismograph Network. Jamaica became a signatory of the Regional Tsunami Warning system. There is a deliberate effort at collecting and making hazard and vulnerability data available. This is usually through damage assessment reports, a national disaster catalogue and annual incident reports and hazard maps prepared by the respective technical agencies. So far, no risk assessments have been undertaken for key sectors, but efforts are currently underway to achieve this in the agriculture and tourism sectors.

The current strategic plan focuses on the agriculture and tourism sectors. The entire project is expected to include risk assessments and mitigation plans. The housing sector will be focused on later in the planning period. Project funding is being recommended for the tourism sector to overcome the funding challenge. The line ministries will make provisions for DRM in the Annual Budget and Strategic Plan. The orientation and training needed at all levels to facilitate support for these efforts will be supported.

HFA Priority #3: Use of knowledge, innovation, and education to build a culture of safety and resilience at all levels

Jamaica observes that the primary challenge to tapping into as many markets as possible is financial. Ongoing dialogue is maintained with media houses, special interest groups and donor agencies for partnerships to make the goal more achievable. Another challenge is that some educational facilities do not have the capacity to

implement the necessary activities to make their institutions more resistant to the likely impact of disasters. Additionally, DRM mainstreaming is slow in many instances simply because it is dependent on personalities and not legislation.

Jamaica reports that substantial achievements were attained, with recognized limitations, in key aspects such as financial resources and/or operational capacities. There has been significant success in the area of dissemination of disaster preparedness information to a wide cross-section of the Jamaican population. The ODPEM continues to use all available media to disseminate information to the wider population. The Organization's website and sub-site serve as a source point of information gathering for individuals and institutions. Major stakeholders such as the Ministry of Education and school administration have been actively involved in promulgating the message of disaster preparedness, thus increasing awareness. A recently concluded UNICEF project has trained more than three hundred principals, teachers and caregivers from approximately one hundred schools and child care institutions in building schools' resilience to disasters.

Jamaica is making recommendations for some of the knowledge-sharing services to be available free of cost or sponsored largely by the corporate entities. The ODPEM envisions being able to carry information to the visually impaired, the hearing impaired and other special populations without being restricted by budgetary constraints through the development of cooperative partnerships with other private and public sector entities. There will be a greater emphasis on budgetary allocation at the local level as well as for partnership-building with donor agencies and the private sector, to improve information dissemination and raise the level of preparedness. ODPEM will support the push for the inclusion of DRM within the School Curriculum at all levels.

HFA Priority #4: Reduction of the underlying risk factors (reduction of exposure and vulnerability and increase of resilience)

While the link has been made between disasters and environmental protection, there needs to be greater collaboration among agencies, especially as it relates to monitoring and enforcement of legislation regarding the development process, sharing of data, and public education strategies. There isn't a dedicated budget to reduce the vulnerability of populations most at risk. Budgetary allocations lean more towards addressing poverty alleviation strategies through the Government's Public assistance program rather than adopting a socio-cultural approach to reducing risk. There is little or no mainstreaming of DRM principles into the National Macro-Economic Planning Policy. No comprehensive recovery program exists.

There are too many formal settlements in vulnerable areas. Comprehensive management of human settlements is limited due to the outdated nature of numerous development orders and the deficiency in the institutional capacity of monitoring agencies to enforce existing legislations. The capacity of the Local Planning Authorities is limited as it relates to conducting vulnerability/risk assessments. Assessing development applications is not a core function of the National Environment and Planning Agency, which has limited human, technical and financial resources. The volume of applications is quite large and beyond the capacity of the organization, especially as regards the 90-day approval process timeframe.

Jamaica reports that substantial achievements were attained, with recognized limitations, in key aspects, such as financial resources and/or operational capacities. Jamaica has made significant strides in Environmental Management with the establishment of the National Resource Conservation Act (1991); the formulation of a single

agency (National Environment and Planning Agency) in 2001 with sole responsibility for addressing environmental issues; and implementation of projects such as "Ridge to Reef", which looks specifically at land use and natural resource management of targeted watershed areas and its effects on marine environment. The country has also examined the whole conceptual framework for the adaptation to climate change. Mainstreaming DRM into development planning, targeting two critical sectors (Agriculture and Tourism) has been an integral component of the work program of the National Disaster Office.

A framework has been developed to minimize risk to vulnerable populations directly and indirectly impacted by disasters. This forms part of the national development plan led by the Planning Institute of Jamaica (PIOJ). The Government of Jamaica, through the Ministry of Labour and Social Security (MLSS), has implemented several programs to address the needs of vulnerable populations who are affected by disasters. Programs include the Program for Advancement through Health and Education (PATH), and Rehabilitation Programs providing compassionate grants and rehabilitation grants. Rehabilitation grants were not issued to families living in very high-risk areas such as coastal habitats until they could provide evidence of the ability to relocate to safer locations. This was supported by No-Build Orders by the local authority. There are other programs operated by NGOs such as the Red Cross, Food for the Poor, Salvation Army and ADRA that provide assistance to vulnerable persons (housing, skills training, healthcare, food assistance, and clothing). There is also a National Shelter and Welfare Action Plan developed by the National Disaster Office in conjunction with the National Shelter and Welfare Committee, which clearly outlines the roles and responsibilities of the welfare agencies. A squatter management unit has also been implemented with the mandate of coordinating the national response to existing and emerging informal settlements. A draft Homeless Policy (conceptual framework to become Green Paper) has also been developed.

The achievements to date in the form of policy and legislation include building codes, the Town & Country Planning Act, the Local Improvements Act, the Parish Council's Act, the NRCA Act, and the Development Approval process. The country's frequent experience with hazards prompted the requirement of an Environmental Impact Assessment for medium- to large-scale projects or those that are undertaken in environmentally sensitive areas.

Jamaica plans to strive to strengthen linkages among agencies and increase enforcement capabilities; review the National Plan for Shelter and Welfare and Emergency Relief Clearance; develop a National Resettlement Policy; allocate a budget to the National Disaster Office and other agencies with lead responsibility in risk mitigation; mainstream DRM into all sectors of the national economy; continue building the capacity of local authorities in DRM; bolster the technical/human resource capacity of the National Disaster Office to deal effectively with DRM; strengthen legislation related to DRM to include development penalties as well as associated sanctions; draft and adopt a post-disaster rebuilding policy; promote a greater focus on DRM in development planning; provide training and tools to the Local Planning Authorities required to undertake hazard and vulnerability assessments; and create a document which provides guidelines for developments in high-risk areas which can be used in the project design stages of development.

HFA Priority #5: Disaster preparedness, recovery and reconstruction at national, regional, and local levels

The Local Authorities lack the adequate capacity to administer its disaster management responsibility. Not enough drills and simulation exercises are conducted across all administrative levels. Parish Disaster Coordinators are employed by Parish Councils and as such are not obligated in any way to report to the National Disaster Office.

Economic constraints serve as a hindrance to keep the National Disaster Fund adequately resourced.

There isn't a Subnational Risk Transfer Fund in place outside of the anemic National Disaster Fund. Budgetary diversions and the sourcing of loans and grants are sometimes used to respond to large-scale events. The Caribbean Catastrophic Risk Insurance Facility (CCRIF) only provides emergency cover following catastrophic wind-driven or earthquake events and is not triggered by all parameters. The Government of Jamaica has been unable to access the CCRIF despite experiencing over US\$1.5 billion in losses over the last four years due mainly to precipitation.

Jamaica reports that substantial achievements were attained, with recognized limitations, in key aspects such as financial resources and/or operational capacities. A National Disaster Plan exists and is comprised of various sub-plans: the National Earthquake Response Plan; the National Fire Management Plan; the National Oil Spill Plan; the National Media Plan; and the National Transport Plan. In addition, parish plans are in place. There is an institutional three-tier matrix comprising the national, local and community levels. After-Action Reports are conducted for major incidents. Damage Assessment Reports are prepared for each major incident (Initial Reports and Detailed ECLAC Reports).

The National Disaster Office employs Regional Coordinators who provide technical expertise to four regions, including the review of plans and conducting simulation exercises to test response capabilities of aspects of parish and municipal plans. Additionally, individual Local Planning Authorities also employ Parish Disaster Coordinators to carry out the Disaster Management Mandate of the Parish Councils. Plans exist to evacuate persons from vulnerable communities. Reporting mechanisms are established through the National Disaster Committee (NDC).

National capacity exists for the assessment of national readiness to face adverse natural events.

National plans and sub-plans are in place to guide the management, response and coordination of hazards.

Contingency plans are a component of the approval process for large-scale developments.

Agencies, institutions, and the private sector are all encouraged to develop contingency plans. Training and drills are also carried out within these institutions. The National Disaster Office provides guidance in the preparation of Emergency Response Plans for businesses and institutions. Contingency mechanisms also exist with regional and international partners

A comprehensive response mechanism is in place and is used at every disaster event. This includes standard operation procedures for every hazard and the execution of components of the disaster program through the synergies and work of the national subcommittees and the sector committees (Tourism and Agriculture). Information and lessons learned are shared. The information produced is communicated through reports from all sectors after a disaster event. The ECLAC methodology is also a tool used in reporting losses.

There is a National Disaster Fund, with significant limitations. Jamaica is a subscriber to the Caribbean Catastrophic Risk Insurance Facility (CCRIF), which provides emergency cover in the event of a catastrophic event.

Together the responsible Jamaican authorities and stakeholders strive to institute at least one national simulation exercise annually; institutionalize a framework for monitoring the compliance of disaster management plans; adequately capitalize the National Disaster Fund; promote a culture of risk transfer (insurance) to individuals and companies, as part of the overall Risk Reduction Strategy; improve coordination among agencies on data collection in post-disaster situations at national and parish levels; and establish baseline information for all sectors.

ADDITIONAL OBSERVATIONS

Although disaster management in Jamaica is over 28 years in existence, government policy on economic and spatial development still does not reflect full understanding of the issues, nor does it reflect a clear connection between economic development and disaster risk management.

There is a need for clear guidelines for the integration of DRM in sustainable development, policies and plans, especially in key economic sectors. Integration of DRM into project development is also an area of focus as it relates to national development.

At the institutional level, capacity, particularly that of local governance systems, remains the broad area of challenge. However, some other areas of challenge include proper identification of hazards and elements at risk. With this accomplished, a more comprehensive approach can be administered to address mitigation (both structural and non-structural) and risk transfer. This will also support the strengthening of national and local preparedness programs and early warning systems. Action items include identifying critical priorities for capacity building through some critical areas such as legislation, hazard identification, and unmapped areas. It is also envisaged that there will be a sustained capacity-building program in the area of DRM for all local planning authorities, institutions and communities.

Given the consistent lack of human, financial and technical resources, the Jamaican authorities and ODPEM leverage capacities and collaborations domestically and internationally across disciplines and sectors to address ongoing needs and priorities. The Government of Jamaica has been unable to qualify for an insurance payout from the CCRIF despite experiencing over US\$1.5 billion in losses, due mainly to precipitation, landslides and storm surge caused by events which

impacted the island in 2007 and 2008.³⁰ Despite this, the Government, through the Ministry of Agriculture and the Ministry of Finance, has urged the CCRIF to

consider the development of a flood-based parametric specifically for the agricultural sector.

KEY DONOR ENGAGEMENTS³¹

Existing Projects with Donors and International Financial Institutions	Funding Agency / International Partners	Allocated Budget and Period (US\$)	HFA Activity Area(s)
Participatory Community Development and Monitoring to improve the lives of vulnerable populations	CIDA (J\$42 million) and IADB (J\$12.5 million)	J\$54.5 million 2009-2011	3
Enhancing Emergency Storage Capacity and Distribution Capabilities	USAID	24,000 2008-2011	5
Expanding the ODPEM Dedicated Emergency Telecommunications Network and early warning capabilities	IADB (64,500) and Government of Jamaica (8,300)	72,800 2008-2011	2
Knowledge and Awareness Building	UNICEF	J\$2 million 2008-2011	3
Mainstreaming Disaster Risk Management into the Agricultural and Tourism Sectors	CDEMA and FAO*	J\$2.75 million	4
Community Mitigation – Developing Community Risk Management Programs	IADB (111,500) and Government of Jamaica (16,800)	128,300	4
Incorporate hazard information into the Development approval process at the national and Parish Levels	Partially through IADB and WB	208,000 2009-2011	5
Enhance the Damage Assessment Process	CIDA and USAID*	*J\$2.8 million (est.) 2008-2011	5
Enhance the utilization ICTs in Disaster Risk Management	CDEMA	J\$5.2 million	2

* Amount unavailable

³⁰ Ibid.

³¹ ODPEM (2009b).



Global Facility for Disaster Reduction and Recovery

1818 H Street, NW
Washington, DC 20433, USA

Telephone: 202-458-0268
E-mail: drm@worldbank.org
Facsimile: 202-522-3227



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