



## **SUMMARY OF IMPACT OF HURRICANE "SANDY" ON CDEMA PARTICIPATING STATES**

**Response Actions, Recovery and Rehabilitation Needs**  
*Report Prepared by the*  
**Coordinating Unit of the Caribbean Disaster Emergency Management Agency**  
**(CDEMA)**  
**November 09, 2012**

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### **1.0 THE EVENT**

Hurricane Sandy impacted three (3) CDEMA Participating States during the period Tuesday, October 23 to Saturday, October 27, 2012. On Monday, October 22 at 10 a.m. the system was upgraded from Tropical Depression #18 to Tropical Storm Sandy. This was followed by a subsequent upgrade to a Category 1 Hurricane on Wednesday, October 24 at 10 a.m. Rapid strengthening of the weather system resulted in a third upgrade on Thursday, October 25 to a Category 2 Hurricane.

During the passage of Sandy, Jamaica sustained winds of up to 80 mph while Bahamas reported winds of up to 85 mph. Haiti was not significantly impacted by winds however, there were reports of heavy rainfall (approximately 500 mm) carried by the system's outer bands.

### **1.1 Participating States Affected**

The following CDEMA Participating States activated their response systems:

- Jamaica
- Bahamas
- Haiti

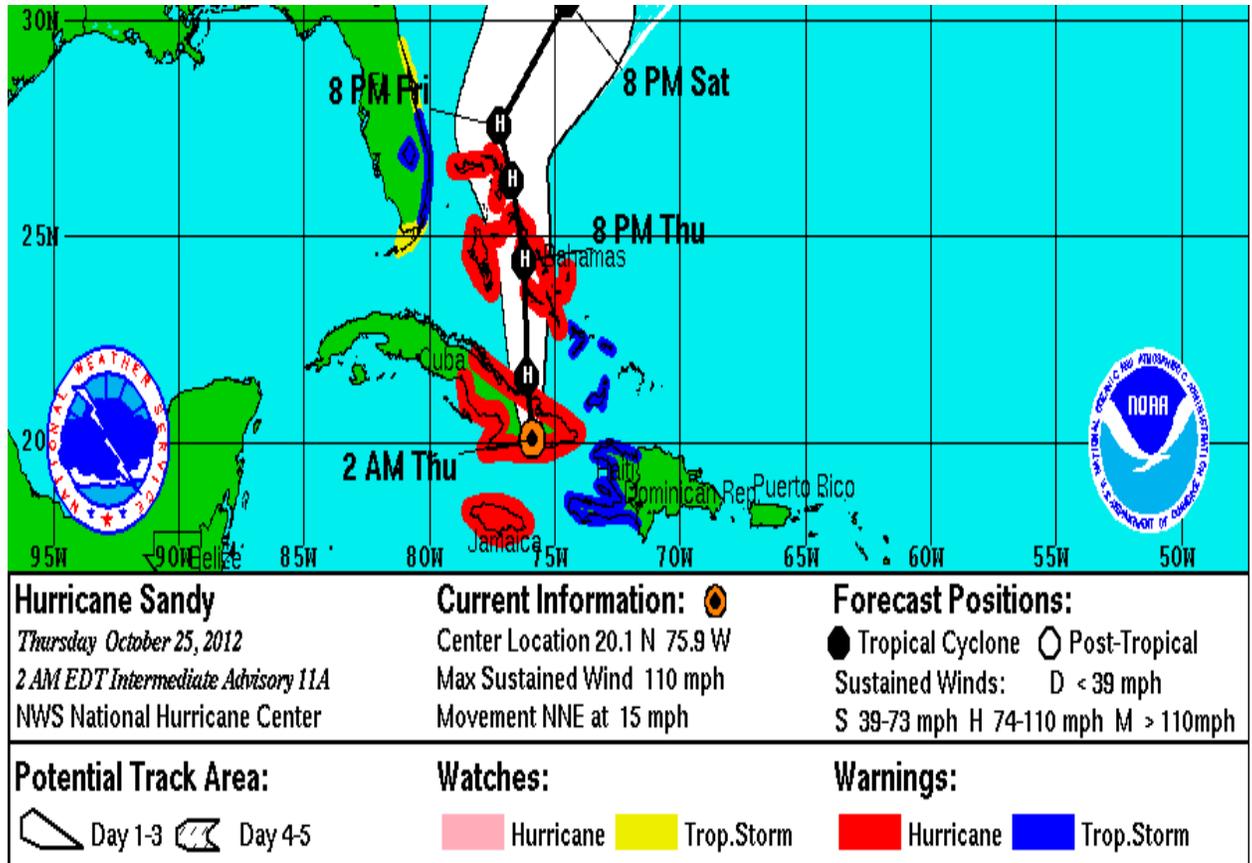
Jamaica was significantly affected by high winds and storm surges; the effects of which were concentrated in the eastern region of the island. Few communities were affected by flash flooding.

Bahamas reported some strong gusts, storm surges and several areas were significantly affected by flooding including: Queen's Cove, Golden Rock Creek, Fishing Hole Road,

communities in north and central Abaco and Sandy Point community in South Abaco, the Landrail Point areas, Major's Cay, Colonel Hill, Middle Street, Fair Field, Salina Point, the Glass Window Bridge, Governor's Harbour Airport and Rock Sound Airport.

Heavy rains in Haiti resulted in severe flooding in the West, South and Grande Anse Departments. Approximately 72 of the country's 140 communities were affected by the passage of Sandy.

**Path of Hurricane Sandy**



Source: National Hurricane Centre  
[http://www.nhc.noaa.gov/archive/2012/graphics/al18/loop\\_5W.shtml](http://www.nhc.noaa.gov/archive/2012/graphics/al18/loop_5W.shtml)

**2.0 REGIONAL RESPONSE ACTIONS**

Hurricane Sandy's response actions were generally handled at the national level. It must be noted however that in Haiti the Government's response efforts were also supported by members of the international community.

Whilst there was some adverse impact on CDEMA Participating States, damage was not at the national level but was concentrated in some geographic areas. In that context regional support for the event was as follows:

2.1. CDEMA Coordinating Unit maintained contact with National Disaster Coordinators of

the affected states before and after the impact of Hurricane Sandy.

- 2.2. The Caribbean Institute of Meteorology and Hydrology (CIMH) provided "Weather hazard Briefings" for the CDEMA Coordinating Unit and updates were also received from the Dewetra-Caribe platform summarizing observations and forecasts for Sandy.
- 2.3. One (1) Information Note and three (3) Situation Reports have been issued on the event to date.
- 2.4. CDEMA has also liaised with countries to ascertain any emerging needs not being met through national actions and which may require some support and interface with countries and partners to support those needs.
- 2.5. The following pledges have been received:
  - i. A total sum of US \$110,000 for the affected countries through the CARICOM/Brazil Cooperation Programme
  - ii. A total of US \$200,000 for each of the affected countries through the Emergency Relief Grant – Caribbean Development Bank (CDB)

### **3.0 SUMMARY OF DAMAGE (Details provided in Appendix 1)**

Sandy caused the deaths of two (2) persons in Bahamas and fifty four (54) persons in Haiti. One (1) death was reported in Jamaica as a result of the hurricane's passage.

In the Bahamas, initial assessments show that many houses throughout the islands lost some shingle from their roofs, however, a number of communities suffered from severe flooding as a result of tidal surges. Many farms throughout the islands suffered losses as a result of the sea surge and salt water. Additionally, a number of fishing vessels were destroyed as they were washed ashore from their moorings.

In Haiti, the impact of the storm resulted in three consecutive days of heavy rain which caused severe flooding, damaging and destroying homes and public infrastructure. The storm damaged or destroyed 33,760 houses leaving 2,298 people without homes. Hundreds of public buildings and facilities were destroyed including potable water networks, cholera treatment facilities, hospitals and schools. In addition, roads and bridges were destroyed or badly damaged; river banks collapsed. Authorities fear new cholera outbreaks in the coming weeks and months as a result. The Government of Haiti declared a state of emergency on October 30, 2012. Critical funding requirements are estimated at US\$39 million.

Jamaica's main impact from the system was due to wind and storm surges and was mainly concentrated in the eastern region. An estimated 4000 persons were directly impacted. 80mph hour winds resulted in downed power lines and utility poles, fires to utility lines and blown transformers, consequently, 70% of JPS' customers were without power. The National Water Commission (NWC) informed that 460 water supply systems

were affected by the passage of Hurricane Sandy. At least three (3) health facilities suffered major wind damage and will require extensive repairs.

A total estimate of losses as a result of the passage of Hurricane Sandy, across all sectors, was reported as J\$5 Billion/US\$55,145,000. The greatest losses were recorded in the Agriculture Sector (J\$1.5 Billion/ US\$16,541,700), Infrastructure (J\$ 1.5 billion/US\$ 16,529,430); Housing (J\$840 Million/US\$9,263,352 estimated), Local Government Services – including infirmaries minor water supplies and debris management (J\$ 850M/US\$ 9,366,595.40), Education Sector (J\$170Million/ US\$1,875,763) and Health (J\$159.5Million/US\$1,759,907).

#### 4.0 NEEDS

**The following outlines the initial needs emerging based on reports from the affected States.**

SUMMARY OF NEEDS OF CDEMA STATES – HURRICANE SANDY – OCTOBER 2012	
Country	Needs
Jamaica	<p><u>Social Needs</u> <i>The following are imdiat Humanitarian Needs:</i></p> <ol style="list-style-type: none"> <li>1. Fuel for transportation</li> <li>2. Food</li> <li>3. Water</li> <li>4. Temporary housing</li> <li>5. Roof cover</li> <li>6. Housing and re-roofing</li> <li>7. Livelihood support</li> <li>8. Repairs to Infirmaries</li> <li>9. Debris management</li> <li>10. Immediate support for farmers who suffered crop loss</li> </ol> <p><u>Health Sector</u></p> <ol style="list-style-type: none"> <li>1. Water supply and temporary roof cover for damaged Hospitals and Health Centres.</li> <li>2. Possibility of dengue eradication programme</li> </ol> <p><u>Education Sector</u></p> <ol style="list-style-type: none"> <li>1. Repairs to school infrastructure is an immediate priority as over 61 schools were damaged.</li> </ol>

**SUMMARY OF NEEDS OF CDEMA STATES – HURRICANE SANDY – OCTOBER 2012**

<b>Country</b>	<b>Needs</b>
Bahamas	<p><u>Emergency Relief Supplies</u></p> <ol style="list-style-type: none"> <li>1. Roofing materials for emergency shelters, community buildings and temporary shelters.</li> <li>2. Fuel and provisions of transportation for emergency relief supplies. This is as a result of the geography of the Bahamas archipelago and the need for the movement of supplies over the large expanse of the island chain as well as on the ground.</li> </ol> <p><u>Technical Assistance</u></p> <ol style="list-style-type: none"> <li>1. Technical assistance for damage and needs assessment and rehabilitation efforts,</li> <li>2. Technical assistance to conduct studies into the following:               <ol style="list-style-type: none"> <li>a. Alleviation of flooding at the Fishing Hole Road in Freeport,</li> <li>b. The cause of and solution to the flooding at Queen Cove Community,</li> <li>c. The Governors Harbour with the aim to mitigate against flooding in the harbor which adversely affects the local community,</li> <li>d. Examine ways in which the flooding in many of the communities noted above can be made less severe,</li> <li>e. The structural integrity of the Glass Window Bridge.</li> </ol> </li> </ol>
Haiti	<p><u>Food Security &amp; Nutrition</u></p> <ol style="list-style-type: none"> <li>1. Distribution of High Energy Biscuits (HEB) and food kits,</li> <li>2. Dry rations,</li> <li>3. Agricultural materials (seeds, tools and small-scale livestock),</li> <li>4. Nutritional preventive support to treat moderate acute malnutrition among children ages 6-59 months, pregnant and lactating women as well as TB and ART patients.</li> </ol> <p><u>Shelter</u></p> <ol style="list-style-type: none"> <li>1. Cash grants for reconstruction and/or rent,</li> <li>2. Hygiene and kitchen kits</li> <li>3. Tarpaulin</li> <li>4. Mosquito nets</li> </ol> <p><u>Health</u></p> <ol style="list-style-type: none"> <li>1. Support for the reconstruction of 22 damaged cholera treatment centres,</li> <li>2. Support for cholera treatment facilities Medical materials for about 10,000 cholera cases,</li> <li>3. Emergency response supplies (Jerry Cans, Hygiene kits)</li> </ol> <p><u>Education</u></p> <ol style="list-style-type: none"> <li>1. Rehabilitation of 100 damaged or destroyed schools with tin sheets, tarpaulins</li> <li>2. Light semi-structured temporary "learning spaces".</li> </ol> <p><u>Water</u></p> <p><u>Potable Water</u>      2. Protection/Restoration of drinking water sources</p>

**APPENDIX 1 – COUNTRY DAMAGE ASSESSMENT SUMMARIES: HURRICANE SANDY October 23-27, 2012**

<b>SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – OCTOBER 2012</b>				
<b>THE COMMONWEALTH OF THE BAHAMAS</b>				
<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$USM</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>GENERAL</b>	Tidal surge, flooding and wind resulted in coastal erosion, damage to housing stock (primarily roof damage), losses to farmers and fisheries sector		Roofing materials Temporary Shelters Replacement of structures to safe conditions Fuel and transportation Technical Assistance Teams for damage and needs assessments and rehabilitation efforts	1. Requesting emergency response support from CDB For Emergency Relief Supplies and Externally conducted Damage Assessments 2. Technical Assistance required for conducting studies into: (i) Mitigation against flooding in Fishing Hole Road, Queen Cove and Governors Harbour (ii) Structural integrity of Glass Window Bridge (Eleuthera)
<b>Affected Population</b>	600 persons were in shelters throughout the islands			
<b>Casualties</b>	2 deaths			
<b>SOCIAL SECTORS</b>				

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – OCTOBER 2012  
THE COMMONWEALTH OF THE BAHAMAS**

Type / Sector	Summary of Damage	Estimated Relief/Rehabilitation Costs \$USM	Relief /Recovery and Rehabilitation Needs	Additional Information /Remarks
<b>Housing</b>	<p><b>Damage report for 13 Islands –</b> Information on actual numbers not provided to date</p> <p><b>Roof damage</b> – Primarily loss of shingles Minor repairs required but some houses require major repairs</p> <p><b>Flooding</b> – many homes impacted by flood waters</p>	Not identified to date	Not identified to date	
<b>Health</b>	Local clinics damaged – (Eleuthera)	Not identified to date	Not identified to date	
<b>Education and Culture</b>	Schools damaged -(Eleuthera)	Not identified to date	Not identified to date	
<b>Public Buildings &amp; Churches</b>	Police stations other government buildings Structural Damage (Information on actual numbers not provided)			
<b>PRODUCTIVE SECTORS</b>				
	<p><b>Crops</b> Considerable loss due to salt water, salt air and wind damage</p>			
	<b>Fisheries</b>			

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THE COMMONWEALTH OF THE BAHAMAS**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$USM</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
	Fishing Dock Destroyed (West-end Grand Bahama) Fishing vessels damaged or destroyed			
<b>Tourism</b>	No information provided to date			
<b>Commerce</b>	No information provided to date			
<b>Manufacturing</b>	No information provided to date			
<b>INFRASTRUCTURE</b>				
<b>Water</b>				
<b>Electricity</b>	Downed electrical poles and power lines	Not identified to date	Not identified to date	
<b>Telecommunications</b>	No information provided to date			
<b>Public Works (Roads, Bridges etc.)</b>	<b>Coastal Roads</b> Greatly impacted by coastal erosion and sea surges, seaweed deposits, sand  <b>Bridge</b> Glass Window Bridge (Eleuthera)	Not identified to date	Not identified to date	
<b>Air and Sea Ports</b>	<b>Airports –(Grand Bahama, Eleuthera, Long Island, Esuma)</b> 5 Airports - Extensive flooding, Debris damage	Not identified to date	Not identified to date	

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THE COMMONWEALTH OF THE BAHAMAS**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$USM</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
	<b>Docks</b> (Great Inagua, Mayaguana, ) Damaged/destroyed, boulders, debris damage			
<b>Environment</b>	Coastal erosion	Not identified to date	Not identified to date	

Source: NEMA Report

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 1, 2012  
HAITI**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>GENERAL</b>	72 out of 140 Communities in the South, West and Grand Anse Departments severely impacted. 1.5 million people at risk of food insecurity due to loss of agricultural land, crops and livelihoods in at least 60 of the communities.	39,000,000. 00		Immediate interventions to address critical needs in food security, agriculture, shelter, health and potable water of approximately 1.6 million people
<b>Affected Population</b>	1.6 million people affected. 2% of children under five affected by severe/acute malnutrition 2,949 people in 18 Shelters 2,298 without access to alternative shelter solutions 5,298 displaced populations in camps now homeless			18 shelters opened as of November 1, 2012. There were 136 shelters opened with up to 20,000 people.
<b>Casualties</b>	54 Deaths 21 Missing 20 Injured			As of November 1, 2012
<b>SOCIAL SECTORS</b>				
<b>Housing</b>	6,274 houses destroyed 21,427 houses damaged	10, 832,851.00		Funding for CCM/Shelter

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 1, 2012  
HAITI**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>Health</b>	<b>Buildings</b> 22 Cholera Treatment Facilities destroyed	600,000.00	Immediate rehabilitation of damaged cholera facilities  Prepositioning of medical stock to treat 10,000 potential victims  Potable water  Hygiene kits	
<b>Education and Culture</b>	50 schools destroyed 100 schools damaged	500,000.00		
<b>Public Buildings &amp; Churches</b>	Critical public buildings severely damaged			-
<b>PRODUCTIVE SECTORS</b>				
<b>Agriculture</b>	At least 60 of 140 communities impacted – Agricultural land and crops destroyed	23,700,000.00		Total value of losses is estimated at 104 million USD in agricultural, fishing and pastoral sectors
<b>Tourism</b>	No information provided to date			
<b>Commerce</b>	No information provided to date			

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 1, 2012  
HAITI**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>Manufacturing</b>	No information provided to date			
<b>INFRASTRUCTURE</b>				
<b>General</b>				No major damage to main infrastructure such as ports, airports, fuel storage facilities and electricity
<b>Water</b>	30 potable water supply systems damaged		Protection/Restoration of drinking water sources	
<b>Electricity</b>	No information provided to date			
<b>Telecommunications</b>	No information provided to date			
<b>Public Works (Roads, Bridges etc.)</b>	Key road infrastructure and bridges damaged/destroyed		Repair of main vital roads	
<b>Air and Sea Ports</b>	No information provided to date			
<b>Environment</b>	No information provided to date			

Source: Haiti: Emergency appeal Hurricane Sandy 2012. UN OCHA, 2 November, 2012

[http://www.fao.org/fileadmin/templates/tc/tce/pdf/Emergency\\_Appeal\\_Hurricane\\_Sandy\\_Haiti.pdf](http://www.fao.org/fileadmin/templates/tc/tce/pdf/Emergency_Appeal_Hurricane_Sandy_Haiti.pdf) (Accessed November 9, 2012)

Système National De Gestion Des Risques Et Des Desastres (SNGRD). Direction De La Protection Civile. Centre D'opération D'urgence National. Rapport De Situation #8

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 2, 2012  
JAMAICA**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>GENERAL</b>	The main impact was due to wind and storm surge damage mainly concentrated in the eastern region. Not many communities impacted by flooding.	55,145,000.00	<b>Immediate needs:</b> <ul style="list-style-type: none"> <li>• Fuel for transportation</li> <li>• Food</li> <li>• Water</li> <li>• Temporary housing and roof cover</li> <li>• Support for Farmers</li> </ul> <b>Short to medium term:</b> <ul style="list-style-type: none"> <li>• Housing, re-roofing</li> <li>• Livelihood support</li> <li>• Repairs to Infirmaries</li> <li>• Debris management</li> <li>• Support for farmers</li> </ul>	Greatest losses reported in Agriculture Sector (J\$1.5 billion US\$16,541,700 and Infrastructure (J\$1.5 billion).
<b>Affected Population</b>	4,000 persons directly impacted Approx 2000 persons in 67 shelters during storm. 29 persons in three (3) shelters one week after passage of Storm			

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 2, 2012  
JAMAICA**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>Casualties</b>	1 Death			
<b>SOCIAL SECTORS</b>				
<b>Housing</b>	295 – Totally destroyed 1,400 – Severely damaged 1,550 – Minor damage	9,263,352.00	Housing and re-roofing	
<b>Health</b>	43 Health facilities ( including 13 Hospitals and 26 Health Centres) 3 health facilities -major wind damage – extensive repairs required	1,759,907.00	<ul style="list-style-type: none"> <li>• Water supply</li> <li>• Temporary roof cover for damaged hospitals and health centres</li> <li>• Repairs to hospital</li> <li>• Vector control supplies (Dengue eradication)</li> </ul>	
<b>Education and Culture</b>	61 Schools damaged	1,875,763.00		
<b>Public Buildings &amp; Churches</b>	<ul style="list-style-type: none"> <li>• 11 Child Care Facilities (including 5 private Children’s Home and Place of Safety)</li> <li>• Court Facilities and infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• 120,269.51</li> <li>• 772,373.00</li> </ul>		
<b>PRODUCTIVE SECTORS</b>				
<b>Agriculture</b>	2,930 Hectares of crops (including banana)	16,541,700		

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 2, 2012  
JAMAICA**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitation Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
	1,500 farmers Irrigation systems			
<b>Tourism</b>	No information provided to date			
<b>Commerce</b>	No information provided to date			
<b>Manufacturing</b>	No information provided to date			
<b>INFRASTRUCTURE</b>				
<b>General</b>		16,541,700.00		
<b>Water</b>	460 Water supply systems damaged	10,000,000.00		Infrastructure and related damages
<b>Electricity</b>	Downed power lines and utility poles Blown transformers Fires to utility lines			
<b>Telecommunications</b>	No information provided to date			
	No information provided to date			
<b>Public Works (Roads, Bridges etc.)</b>	No information provided to date			
<b>Air and Sea Ports</b>	No information provided to date			

**SUMMARY OF DAMAGE TO CDEMA STATES – HURRICANE SANDY – AS OF NOVEMBER 2, 2012  
JAMAICA**

<b>Type / Sector</b>	<b>Summary of Damage</b>	<b>Estimated Relief/Rehabilitati on Costs \$US</b>	<b>Relief /Recovery and Rehabilitation Needs</b>	<b>Additional Information /Remarks</b>
<b>Environment</b>	No information provided to date			

**Source: ODPEM Event Report**