



**CDEMA**  
The Caribbean Disaster  
Emergency Management Agency

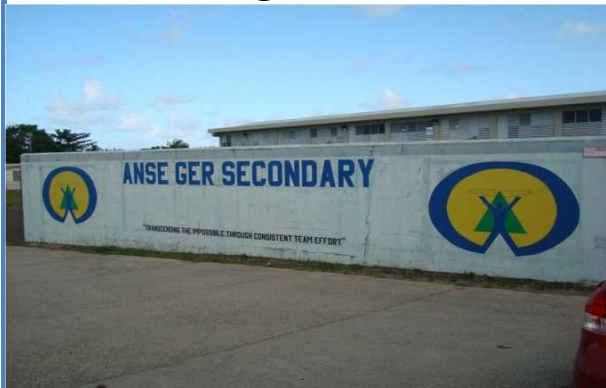


# **CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction: Final Report on Implementation of Activities Covered by LOA #1:**

*Emergency Response Support to 3 CARICOM States to  
Impacts of the 2010 Hurricane Season*

**&**

*“Living School” Activities in 6 CARICOM States*



## PROJECT PROFILE

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**PROJECT TITLE:** CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction

**LOA AMOUNT:** USD\$199,850.00

**PROJECT SPONSOR:** The Government of the Federative Republic of Brazil

**IMPLEMENTATION PERIOD:** Nine (9) months, commencing February 2011

**EXECUTING AGENCY:** Food and Agriculture Agency of the United Nations (FAO)

**IMPLEMENTING AGENCIES:** Caribbean Disaster Emergency Management Agency

**DATE OF FIRST DISBURSEMENT:** March 3, 2011

**DISBURSEMENTS TO CDEMA TO DATE UNDER LOA #1:** USD\$160,000.00

**FUNDS EXPENDED BY CDEMA TO DATE UNDER LOA #1:** USD \$ 159,696.62

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## SUMMARY OF PROJECT OUTPUTS

The first Letter of Agreement between the Caribbean Disaster Emergency Management Agency (CDEMA) and the Food and Agriculture Organisation of the United Nations (FAO) for implementation of activities under the CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction (DRR) was signed in February 2011. The LOA was designed to provide financial support to two main activities:

- i) Rehabilitation of rural livelihoods and capacity building in DRR for farmers in Belize, Saint Lucia and St. Vincent and the Grenadines who were adversely affected during the 2010 Hurricane season; and
- ii) Upgrading of school facilities and capacity building in DRR for education stakeholders in Barbados, Belize, St. Kitts/Nevis, Saint Lucia, St. Vincent and the Grenadines, and the Virgin Islands.

The activities covered by the LOA were successfully implemented between March 2011 and June 2012. Key outputs were as follows:

### **Rehabilitation of rural livelihoods and capacity building in DRR in 3 CARICOM States**

- Fifty (50) farmers across thirty-seven (37) communities in Saint Lucia received production support packages valued at US\$500.00 through the provision of plastic sheets to cover the greenhouse structures. This facilitated the restoration of production for the 2011 crop season and impacted approximately two hundred (200) persons.
- Fifty (50) farmers from eighteen (18) communities in St. Vincent and the Grenadines received support in the form of agriculture supplies (fertilisers and pesticides) which assisted them in revitalizing their livelihoods impacted by Hurricane Tomas. Approximately two hundred (200) persons were impacted.
- Articulation of agricultural disaster risk management needs at the community level as identified/perceived by stakeholders, and identification of good practices within beneficiary states and from other CDEMA-PS that can reduce losses in the agricultural sector.
- Drafting of a Community Based Agricultural Disaster Risk Management (CBADRM) plan within the beneficiary states that can be replicated in agricultural communities throughout CDEMA-PS

### **Upgrading of school facilities and capacity building in DRR for education stakeholders**

- Retrofitting of one (1) school in each of six (6) beneficiary states (Barbados, Belize, St. Kitts/Nevis, Saint Lucia, St. Vincent and the Grenadines, and the Virgin Islands).
  - Development of a Model Disaster Risk Management Knowledge Management Toolkit for 5-16 year old children which is aimed at making suitable materials available to
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students and teachers which can be used to raise the level of awareness and preparedness for disasters.

- Conduct of one-day capacity building interventions with education stakeholders in each of the beneficiary states (Barbados, Belize, Saint Lucia, St. Kitts/Nevis, St. Vincent and the Grenadines, and the Virgin Islands to provide orientation to the Knowledge Management Toolkit, and training in the national adaptation of the Disaster Jeopardy Game.
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**CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction:**  
**Final Report on Implementation of Activities Covered by LOA #1**

## **1.0 INTRODUCTION**

This document constitutes the Final Report on implementation of activities covered by the first Letter of Agreement (LOA) between the Caribbean Disaster Emergency Management Agency (CDEMA) and the Food and Agricultural Organisation of the United Nations (FAO) under the CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction (DRR). The Cooperation Programme is being sponsored by the Government of the Federative Republic of Brazil.

Leaders of the Caribbean Community (CARICOM) met in Brazil on April 26, 2010 for the first ever CARICOM-Brazil Summit, aimed at fostering a closer collaboration and cooperation between Brazil and CARICOM; strengthening their historical and cultural bonds; and developing opportunities for the deepening of their relationship. One of the outcomes of the summit was the Declaration of Brasilia, which recognizes a commitment of the Government of the Federative Republic of Brazil to establish a Brazilian fund for CDEMA to enhance regional coordination of humanitarian actions. Such actions are intended to mitigate and respond to social, man-made and natural disasters as well as to assist with reconstruction efforts in CARICOM Member States.

In upholding this commitment, the Government of Brazil in October 2010 made an initial contribution of US\$562,600.00 to CDEMA to be disbursed through the FAO under the initiative “Latin America and the Caribbean Against Hunger 2025.” In July 2011, the Government of Brazil made an additional contribution of US \$437,500.00 to CDEMA as part of its humanitarian cooperation with CARICOM countries to assist in the fostering of disaster managements projects in the Caribbean during the current hurricane season.

The objectives of the overall Cooperation Programme are:

- a) The strengthening of humanitarian assistance initiatives;
- b) Fostering best practices for the reduction of risks related to disasters;
- c) Mitigating and responding to social, man-made and natural disasters; and
- d) Assisting with reconstruction efforts in CARICOM Member States.”

The Cooperation Programme draws on the experience of Brazil by emphasizing technical cooperation geared towards the reduction of risk and the achievement of sustainability in the rural sector of CARICOM States.

General results of the activities targeted under the cooperation programme between Brazil and CARICOM include:

- i) Enhanced drought monitoring and management;
- ii) Implementation of technical exchanges between Brazil and CARICOM of tools and expertise related to food security;
- iii) Support for rapid deployment to CARICOM states for emergency events affecting the agriculture sector;
- iv) Improved management of disaster risks for domestic farmers in Haiti and other CARICOM countries;
- v) Development and implementation of a schools safety programme relating to disaster risk reduction and climate change adaptation; and
- vi) Support to tertiary student education in disaster risk reduction and climate change adaptation.

CDEMA, as the lead agency within CARICOM with responsibility for disaster management, is the executing agency for the Cooperation Programme. CDEMA is therefore responsible for the organisation and conduct of the various programme components. CDEMA also has an implementing partner in the Caribbean Institute for Meteorology and Hydrology (CIMH) which is responsible for managing the implementation of some of the project components.

Disbursement of funds to CDEMA for implementation of project initiatives under the Cooperation Programme occurs through two primary mechanisms:

- i) Letters of Agreement (LOA) signed between CDEMA and the FAO, or between the CIMH and the FAO;
- ii) Direct disbursement by the FAO, particularly in relation to the equipment purchase and travel.

Overall administration of the project is being undertaken by the FAO out of its Chile office, and includes granting of final approval of Letters of Agreement and Project Reports, as well as disbursement of funds.

Day to day project management and monitoring is delegated to the FAO, Barbados country office. This includes ongoing liaising with the CDEMA CU and receipt, review and provision of initial feedback on reports submitted.



### **3.0 ACTIVITIES COVERED UNDER LOA 1**

The first LOA was signed between CDEMA and the FAO in February 2011. This LOA provided for the disbursement of US \$199,980.00 to CDEMA for project implementation. This LOA covers the provision of Emergency Response support to three (3) CDEMA Participating States (PS) affected by hurricanes during the 2010 hurricane season, and the implementation of ‘Living Schools’ activities in an initial seven (7) CDEMA PS.

The specific activities covered by the LOA were:

- 1) Support to Emergency response/recovery activities in St. Vincent and the Grenadines, Saint Lucia impacted by Hurricane Tomas and Belize impacted by Hurricane Richard with emphasis being given to restoration of rural livelihoods;
- 2) Capacity building intervention for farmers in the beneficiary states involving the identification of good practices with respect to DRM in the agricultural sector, and the development of a Community Based Agriculture Disaster Risk Management (CBADRM) plan.
- 3) Development of a Disaster Risk Management/Food & Nutritional Security Knowledge Management Toolkit for 5-16 year old children;
- 4) Implementation of Living School priority activities in six (6) states (Barbados, Belize, St. Kitts/Nevis, Saint Lucia, Saint Vincent and the Grenadines) focusing on appropriate retrofitting of schools that will allow them to effectively serve as places of emergency refuge in the event of a disaster;
- 5) Undertaking of capacity building interventions in three (3) states (Barbados, Saint Lucia, St. Vincent and the Grenadines) focusing on providing an orientation to the Model Knowledge Management Toolkit;
- 6) Development of a Model School Health and Safety Policy, Assessment Criteria with Annual Certification Requirements and Database in the Virgin Islands.

### **4.0 PROJECT IMPLEMENTATION**

In the implementation of the activities under this LOA, CDEMA collaborated closely with the National Disaster Offices (NDOs) of the beneficiary states, which in turn functioned as liaisons with other relevant national level stakeholders, particularly the Ministries of Agriculture and other stakeholders in the agriculture sector for activity 1 and 2, as indicated in section 3.0 above, and with the Ministries of Education and other education sector stakeholders for activities 3, 4 and 5.

The NDOs were key to the successful implementation of the project activities, as it was through this mechanism that the project was able to secure the buy-in and participation of the sector stakeholders.

CDEMA engaged the services of a Consultant to undertake the capacity building interventions related to the support to farmers adversely affected during the 2010 hurricane season, as well as that for the education stakeholders. The Consultant was also responsible for the preparation of the Knowledge Management Toolkit through a consultative process with stakeholders.

## **5.0 RESULTS ACHIEVED**

### **5.1 *Support to Emergency Response/Recovery activities in Belize, Saint Lucia, and St. Vincent and the Grenadines which were Affected During the 2010 Hurricane Season***

This activity sought to provide production and capacity building support to three (3) states impacted during the 2010 hurricane season: Belize which was impacted by Hurricane Richard, and St. Vincent and the Grenadines and Saint Lucia which were impacted by Hurricane Tomas.

#### **5.1.1 *Belize***

On October 24<sup>th</sup>, 2010 Hurricane Richard, the seventeenth named storm of the season, with sustained winds of 90 mph made landfall 20 miles south of Belize City on a westerly track moving at 13 mph in the region of Northern Lagoon. Belize sustained significant damage from Hurricane Richard, on the order of US\$20M. The main impact from Hurricane Richard was its intense winds and storm surge activity which devastated the entire coast of Belize especially communities of Gales point Manatee, Hattievilke, Belize City, Belmopan and surrounding areas, La Democracia and Mile 8 Community.

The Government of Belize, through the national disaster office, requested a reallocation of the funds earmarked for this activity to the Living Schools component as the emergency response to the agriculture sector was adequately resourced by other entities. Discussions were had with the FAO focal point and concurrence was given for the reallocation.

#### **5.1.2 *Saint Lucia***

During the period October 29<sup>th</sup>, 2010 to November 1<sup>st</sup>, 2010 a strong tropical wave developed into Tropical Storm Tomas the nineteenth named storm of the season. With winds of approximately 65 miles per hour moving in a West North West direction towards Northern Windward islands, Tropical Storm Tomas subsequently developed into Category 1 Hurricane Tomas. On October 29<sup>th</sup>, 2010, Hurricane Tomas with maximum sustained winds of approximately 90-95 miles per hour and higher gusts made landfall, causing devastation across the island of St. Vincent. On October 30<sup>th</sup>, Hurricane Tomas made landfall on Saint Lucia, causing major destruction to infrastructure and agriculture.

In Saint Lucia, the passage of Hurricane Tomas left a trail of disaster, particularly farmers involved in protected agriculture (greenhouses). The farmers and their greenhouses were unprepared for the extent of the impact, thereby resulting in significant losses being incurred.

The funding made available by under the CARICOM/Brazil/FAO Cooperation programme supported **fifty (50) farmers across thirty-seven (37) communities in Saint Lucia (Box 1) through the provision of plastic sheets to cover the greenhouse structures.** This facilitated the restoration of production for the 2011 crop season. A total of US \$500 was allocated to each farmer for a total disbursement of US \$25,000.00 which estimated direct impact on 200 persons.

<b>Box 1</b> <b>Fifty (50) farmers from 37 communities in 8 regions in <u>Saint Lucia</u> received production support packages valued at US \$500</b>
<b>Seven (7) farmers from five (5) communities in Region 1</b> <ul style="list-style-type: none"><li>• Beausejour Gros Islet, Morne Giraud , La Borne and Marisule</li></ul>
<b>Seven (7) farmers from four (4) communities in Region 2</b> <ul style="list-style-type: none"><li>• Garrand , Chasin/Fond Assau , Cocoa and Babonneau</li></ul>
<b>Three (3) farmers from two (2) communities in Region 3</b> <ul style="list-style-type: none"><li>• La Resource and Bois D'or</li></ul>
<b>Four (4) farmers from three (3) communities in Region 4</b> Mon Repos, Augier and Ravine Noel
<b>Six (6) farmers from five (5) communities in Region 5</b> <ul style="list-style-type: none"><li>• Darban, Saltibus, Victoria, Augier and Black Bay</li></ul>
<b>Fourteen (14) farmers from eleven (11) communities in Region 6</b> <ul style="list-style-type: none"><li>• Canaries, Motete, Belle Plain, Myers Bridge, La Fargue, Bois Den /Soufriere, Belle Fond, Fond St. Jacques, Victoria and Delcer</li></ul>
<b>Six (6) farmers from four (4) communities in Region 7</b> <ul style="list-style-type: none"><li>• Barre Denis, Millet, Vanard and Roseau</li></ul>
<b>Three (3) farmers from three (3) communities in Region 8</b> <ul style="list-style-type: none"><li>• Deglos, Marc/Bocage and Ravine Poisson</li></ul>

### 5.1.3 St. Vincent and the Grenadines

The impact of Hurricane Tomas on St. Vincent and the Grenadines was most significant on the agricultural sector which incurred EC\$35 million damage in losses. Despite the assistance provided to farmers by the Government of St Vincent and the Grenadines, some farmers did not receive sufficient support to enable them to earn an income from agriculture, or to return to some level of normalcy following the hurricane.

**As a result of this project intervention, fifty (50) farmers from eighteen (18) communities (Box 2) received support in the form of agriculture supplies and/or services which assisted them in revitalizing their livelihoods impacted by Hurricane Tomas. An approximate population of two hundred (200) persons benefited from the support.**

The fifty (50) farmers were selected from those who reported damage as a result of the hurricane to the Ministry of Agriculture and whose damage was subsequently assessed. The assistance focussed on the provision of US\$500.00 to each farmer to purchase fertilizers, seedlings, planting materials etc.

<b>Box 2</b> <b>List of 18 communities in</b> <b><u>St Vincent and the Grenadines</u> that received</b> <b>production support packages valued at US \$500.00</b>	
South Rivers-Cane Hole Mahoe Perseverance North Union Ferguson Malata Valley Langley Park Hoghole Congo Valley	Gracefield Jarvis Savannah Byrea Valley Dickson Mt. Jennings Valley Morne Garu O'Briens valley Locas

### 5.2 Emergency Response Capacity Building Intervention in 3 CARICOM States

The second component of this activity involved a capacity building intervention for rural stakeholders in the beneficiary states in the form of a workshop. Outputs of this intervention in the beneficiary states are shown in Box 3.

Caribbean small-scale farmers operating in an environment of scarce resources have traditionally used a variety of good practices for mitigating the impact of hydro-meteorological hazards such as hurricanes and linked hazards such as landslides. The capacity building intervention sought to identify and share good practices for mitigation of hydro-meteorological hazards. These good practices were identified and documented in an FAO-sponsored project entitled *‘Assistance to Improve Local Agricultural Emergency Preparedness in Caribbean Countries Highly Prone to Hurricane Related Disasters’*, which was conducted by Dr. Balfour Spence in four Caribbean countries in 2007. Stakeholders participating in the capacity building interventions reviewed and updated these good practices within the context of their own states and discussed recommendations and strategies for implementation.

The identification of these good practices was then used to inform the development of a community-based agricultural disaster risk management (CBADRM) plan with facilitation and oversight from the Consultant.

To expedite workshop time allocated to development of CDADRM plans and to facilitate standardization of the planning process a draft template was developed by the Consultant for use at the workshops.

**BOX 3: Outcomes of Emergency Response Capacity Building Intervention**

- 1) Articulation of agricultural disaster risk management (ADRM) needs at the community level as identified/perceived by stakeholders.
- 2) Identification of good practices within beneficiary states and from other CDEMA-PS that can reduce losses in the agricultural sector.
- 3) Facilitation of discussions among stakeholders on how good practices identified can be enhanced and promoted among farmers.
- 4) Outlining of a draft CBADRM plan that can be replicated in agricultural communities throughout CDEMA-PS, and provision of workshop participants with the basic considerations, tools and organization skills necessary for the development of the plan.

### **5.2.1 Belize**

The workshop in Belize was attended by thirty (30) participants from the Stann Creek, Belize and Cayo Districts, representing the Ministry of Agriculture Extension Division, the Farmers' Association and the National Emergency Management Organisation (NEMO). The participants identified and presented a number of good practices for the mitigation of impact from hydro-meteorological hazards and used these to inform development of a CBADRM for a flood-prone community. The plan focused on livestock loss reduction when grazing lands become inundated by flood-water. The draft plan will be reviewed by the National Disaster Office and Ministry of agriculture, with the intention of replicating this capacity-building exercise in other communities in Belize. The project therefore facilitated the key ingredients to drive continued local input and cooperation in its finalization.



***Belize Workshop Participants during Agricultural Good Practice Presentation by Dr. Balfour Spence***

### **5.2.2 Saint Lucia**

The thirty (30) workshop participants in Saint Lucia represented various agencies, including the Ministry of Agriculture and Fisheries, the Extension Division, the Ministry of Sustainable Development, Science & Technology, the St Lucia Fisher Folks Cooperative, the Easter Farmers, the Water Resources Management, the Saint Lucia Pig Farmers Cooperative, the Castries Fishermen's Cooperative, and the National Emergency Management Organization (NEMO).

The good practices developed by the workshop participants focused primarily on flood, landslides and hurricanes (strong winds). Agricultural decision-makers among the participants indicated their intention to propose the promotion of these good practices as part of the work programs of Extension Districts in Saint Lucia.

The CBADRM template was used to develop a plan for the *Fond St. Jacques* community. The experience of this process and product is targeted by the Ministry of Agriculture for replication in other communities.

### **5.2.3 St. Vincent and the Grenadines**

The workshop in St. Vincent and the Grenadines generated a number of good practices that are appropriate for multi-hazard loss reduction, especially in relation to hydro-meteorological hazards. The thirty (30) participants of the workshop represented various agencies, including the National Emergency Management Organisation (NEMO), the Ministry of Agriculture, the Extension Division, the Department of Forestry, and the Fisheries Department. The participants used the template provided to develop a CBDRM plan for the North Windward region of the island and expressed interest in developing other regional/community plans.



***St Vincent & the Grenadines: Workshop Participants***

### **5.3 ‘Living Schools’ Identified and Retrofitted in Selected Communities in the CDEMA Participating States**

The specific focus of this intervention was for model schools to be selected within an initial six (6) of the CDEMA PS to undergo appropriate retrofitting and/or acquisition of facilities and equipment that will allow them to effectively serve as places of emergency refuge in the event of a disaster.

The schools were identified, through the collaboration of national emergency management organisations (NEMOs) in the PS and Ministries of Education. These interventions directly improved conditions at six (6) schools and will impact more than eleven thousand, five hundred (11,500) community members, by making available improved shelter conditions.

#### Box 4: Outcomes of the “Living Schools” Retrofitting Intervention

- 1) **Belize:** Retrofitting of the Middlesex Primary School in the Stann Creek District which functions as an emergency shelter for a community of approximately 800 persons
- 2) **Saint Lucia:** Construction of 2 shower units at the Anse Ger Secondary School which functions as an emergency shelter for the rural community of Desrisseaux with population of approximately 327 persons.
- 3) **St. Vincent and the Grenadines:** Enhancement of the Lowman’s Leeward Primary School with a shelter capacity of 250 persons, through construction of a 1000 gallon water tank and 4 shower units.
- 4) **St. Kitts/Nevis:** The Industrial Site Pre-School in Basseterre benefitted from general retrofitting works to directly improve its shelter capability for the surrounding environs with population of approximately 4,500 persons.
- 5) **Barbados:** The Charles F. Broome Primary School and the Lawrence T. Gay Primary school benefitted from general retrofitting works to improve their shelter capability [how many potential shelterees?].
- 6) **Virgin Islands:** Development of a Model School Health and Safety Policy, Assessment Criteria with Annual Certification Requirements and Database.

#### 5.3.1 Belize

In Belize, the *Maskall Primary School* in the Belize District and *Middlesex Primary School* in the Stann Creek District were selected to benefit from this initiative. These schools are located in rural communities with populations of approximately 850 and 650 respectively. Both communities were hard hit during the 2010 hurricane season, as well as previous times. During these events, residents of these villages lost homes, possessions and livestock and were cut off from main communication and transportation. Having a safe shelter will contribute significantly to their well being and safety in the event of a disaster.

Both schools had damaged structures that were in dire need repair and/or retrofitting to make them suitable for use in emergencies. They also had toilet facilities that were separated from the main structures thus posing severe limitations to use by shelterees during crisis times.

The project has supported retrofitting works at the Middlesex Primary School, including the installation/ repairs of toilets, plumbing works, securing of windows and repairs to doors, windows, roofs and other structures. The works also included the incorporation of access to



toilets inside the building which will lend to improved convenience during use of the facility as a shelter, as well as, reduce the contamination of waters and thereby reduce associated diseases.

Estimates for materials and labour have been obtained for the works to be undertaken at the Maskall Primary School. These will include repairs to the roofing, windows and doors, toilets, and electrical wiring. Completion of the works at the Maskall Primary School is dependent upon the receipt by CDEMA of the final payment on the LOA.

### **5.3.2 Saint Lucia**

The capacity of *Anse Ger Secondary School*, which is located in the rural community of Desrisseaux, quarter of Micoud on the east coast of the Saint Lucia, as an emergency shelter for one hundred and sixty (160) persons was enhanced through the construction of two (2) showers at the school. Micoud has an estimated total population of 16,284, of which three hundred and twenty-seven (327) persons reside in the community of Anse Ger.



**New showers constructed at Anse Ger Secondary School in Saint Lucia**

Anse Ger Secondary School was built to accommodate a student population of five hundred and twenty-five (525) students between the ages of 11-16 years. The current school's enrollment is 482 students. Students who attend the Anse Ger Secondary School are mainly from the community and its immediate environs. The school is a designated emergency shelter which can accommodate one hundred and sixty (160) shelterees.

The funds allocated to Saint Lucia under the Living School component of the CARICOM/Brazil/FAO Cooperation on Disaster Risk Reduction were used to construct two (2) new single showers which improved the school's capability as

### **5.3.3 St. Vincent and the Grenadines**

The *Lowmans Leeward Primary School* which is used as an emergency shelter for persons living in the areas of Campden Park and Lowmans in St Vincent and the Grenadines was selected to pilot this initiative. The school has a capacity to host 200-250 persons seeking shelter during the passage of a natural disaster and a capacity of 100 persons for temporary housing.

Prior to the intervention, the physical structure of the building was in relatively good condition. The intervention enhanced the facilities by the construction of four (4) shower units and the construction of a 1000 gallon water tank installed as part of the rain water harvesting system.



**Four (4) shower units constructed at the Lowmans Primary School in St. Vincent and the Grenadines**



**1000 gallon water tank installed at the Lowmans Primary School in St. Vincent and the Grenadines**

#### **5.3.4 St. Kitts-Nevis**

The *Industrial Site Pre-School* in Basseterre, St Kitts-Nevis, which was identified as the school to pilot this initiative, has a current roll of 150 children and can provide shelter for 75 persons. The school has benefited from general retrofitting works to improve the school's ability to provide adequate shelter during a disaster, including the repairs to the roof of the roof, replacement of windows, and the construction of a soak pit to improve drainage. The community in the environs of the school is approximately 4,500 persons who will benefit from the upgrades carried out.

#### **5.3.5 Barbados**

In Barbados two (2) schools were selected to pilot the initiative through the installation of water storage facilities at the *Charles F. Broome Primary School*, which has a student population of six hundred and fifteen (615), and wheelchair access points at the *Lawrence T. Gay Primary School*, which has a student population of five hundred and ninety (590).

The two schools have a shelter capacity of two hundred (200) persons and are located in the most densely populated parish of St Michael. The general retrofitting works undertaken at these schools have directly improved shelter capability as well as improved conditions for the approximately twelve hundred (1200) students in these schools on a daily basis.

### **5.3.6 The Virgin Islands**

The Government of the Virgin Islands is pursuing a move away from using schools as emergency shelters towards the construction of purpose built community centres. The funds allocated for support to the Virgin Islands under the 'Living Schools' component were used to support the development of a Model School Health and Safety Policy, Assessment Criteria with Annual Certification Requirements and Database. The project complemented other resources dedicated by the Virgin Islands to this exercise.

The Policy establishes minimum (structural and non-structural) standards for school safety, design, construction and maintenance. An additional component to the Policy is the development of a Safety Assessment Criteria with accompanying Guidelines. It is expected to guide a regularly scheduled assessment of all educational institutions (public and private from pre-primary to tertiary level) to obtain certification with respect to their location, design, construction, retrofitting, environment, play grounds, evacuation and disaster planning procedures etc. A database is will be designed to accompany the Assessment Criteria which would allow for capturing, analysing and monitoring the data collected.

The Assessment Criteria and Database (ACD) has served as a useful value-added component to the Living Schools concept. The annual Assessment Criteria, certification process and use of the DRM/Food & Nutritional Security Knowledge Management Toolkit will be used to establish measurable standards that each school will be expected to maintain. It is proposed that this piloting exercise will inform the articulation of a Model ACD which will be adapted at a national level under the programme of activities defined for a second tranche of funding provided by the Government of Brazil to CARICOM.

### **5.4 Development of a Model Disaster Risk Management Knowledge Management Toolkit for 5-16 year old children**

Under this component, a Model Knowledge Management Toolkit was developed through the services of a Consultant. It utilized a highly consultative process that involved various national and regional stakeholders representing Ministries of Education, Environmental Health Division, Public Works and National Disaster Offices. The purpose of this toolkit is to make suitable materials available to students and teachers which can be used to raise the level of awareness and preparedness for disasters.

The Consultant undertook consultation missions to Barbados, Belize, St. Kitts/Nevis, Saint Lucia, St. Vincent and the Grenadines and the Virgin Islands to meet with the officials of the National Disaster Offices as well as education stakeholders. The process attracted high level political interest and has seen the involvement of two Ministers of Education from two (2) of the

Participating States. This is a signal of the level of interest and commitment that is being generated by this activity at the national level.

Review of disaster risk management initiatives among CDEMA-PS in conjunction with the consultative missions revealed that several relevant initiatives were ongoing or in various stages of development at the national and regional levels. The Model Toolkit was therefore developed to take into consideration existing materials that are available for harvesting as well as those being developed or proposed in accordance with the priorities of beneficiary states. For ease of review, the contents of the Toolkit (Appendix A) are categorized according to the type of material, information on source, learning outcome, appropriate age cohort and method for unlocking the material are provided in a tabular format.

Categorizations of learning methodologies comprising the Toolkit include games, videos, activities, workbooks, storybooks and related resource, and other proposed learning methodologies. In cases where the resources are web-based, hyperlinks are provided to the source.

The Toolkit also provides attribute information in relation to the content resources. Such information includes:

- i. Source of the resource (including websites and hyperlinks where relevant);
- ii. Age cohort for which the resource is appropriate;
- iii. Expected learning outcomes from the resource;
- iv. A brief description of the resource to help educators determine appropriateness;
- v. Additional comments

**Box 5: Outcomes of the Development of the Model Knowledge Management Toolkit**

- 1) Engagement of education stakeholders in 6 Participating States in discussions on key learning outcomes and methodologies for addressing disaster management knowledge gaps in the 5 to 15 years age group.
- 2) Compilation of a medley of visual/applied knowledge transmission resources which may be adapted at the national level.
- 3) Attraction of high level political interest in the beneficiary states on addressing disaster management knowledge gaps in the school population.

The Toolkit should be perceived as a process rather than an end in itself. As such, a mechanism for incorporation of new resources and learning methodologies is integral to the sustainability and relevance of the resource, thus ensuring the currency of the initiative. By the same token, a monitoring and evaluation framework is necessary to measure the impact of the intervention and its relevance to disaster risk management agenda.

### **5.5 Undertaking of Living School Capacity Building Interventions in Six (6) CDEMA PS**

Under this component, the Consultant on the project conducted one-day capacity building interventions related to the Living Schools initiative in each of the beneficiary states (Barbados, Belize, Saint Lucia, St. Kitts/Nevis, St. Vincent and the Grenadines, and the Virgin Islands). Each workshop included twelve (12) participants from each of the states, including representatives of the national disaster offices, model schools, and Ministries of Education.

The capacity building interventions involved the orientation of education stakeholders in the beneficiary states to the resources of the Model Knowledge Management Toolkit which was developed under the Consultancy as described in 4.3 above. While workshop participants were exposed to all resources in the Toolkit, the **Disaster Jeopardy Game** developed by Drs. Balfour Spence and Virginia Clerveaux was selected for the training focus of the workshop. The selection of this game was based on its capacity to engage participants through interaction and competition.



**Participants of the Living Schools Capacity Building Workshop in Barbados**



Participants of the Living Schools Capacity Building Workshop in the Virgin Islands

A finished version of the *Disaster Jeopardy Game* consisting of selected categories and questions related to disaster risk management was presented to participants. Examples of categories and questions from that presentation are indicated in Figure 1 below.


Figure 1: Examples of categories and questions in Disaster Jeopardy

DO'S DON'TS	SVG DISASTERS	Do's & Don't	Educators
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>
<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>
<u>400</u>	<u>400</u>	<u>400</u>	<u>400</u>
<u>500</u>	<u>500</u>	<u>500</u>	<u>500</u>

a. What is a pet dog?

What items should you take to the emergency shelter?

- a. A pet dog
- b. Your medication
- c. Can stuff
- d. Important documents.



Disaster jeopardy  
Game

Participants were grouped and each group tasked with developing two (2) disaster risk management-related categories for the game along with five (5) statements for each category. These questions would then be used to populate a blank template of the game and would form the basis for competition between groups of participants.

The *Disaster Jeopardy Game* is established on a *PowerPoint* platform. In order to train participants in the manipulation of the game, a template was provided for input of the questions developed earlier. Guidance was provided in the input, editing and retrieval process. Once the input process was completed participants were trained in playing the game. Given that the game targets children, educators can determine the flexibility of rules.

The potential of the Disaster Jeopardy Game for promotion of disaster risk management in schools has been recognized and embraced by relevant stakeholder in beneficiary states. Stakeholders have unanimously expressed the desire to implement and expand use of the game along with other resources of the Knowledge Management Toolkit for disaster risk reduction-related teaching as well as to apply it to other subjects in their academic curriculum.



**BOX 6: Outcomes of Living Schools Capacity Building Intervention**

- 1) Educators, disaster risk managers and other stakeholder in six (6) beneficiary states oriented to the use of the Knowledge Management Toolkit.
- 2) Some education stakeholders have accessed resources for hazard/disaster related subjects using the Knowledge Management Toolkit.
- 3) Educators, disaster risk managers and other stakeholder in six (6) beneficiary states trained in the adaptation of the basic template of Disaster Jeopardy Game for implementation in schools.
- 4) Collaborative effort initiated by education stakeholders in the beneficiary states to develop a question bank for use in Disaster Jeopardy competitions. St Lucia has completed development of such a question bank and is in the advanced stages of organizing a national competition.
- 5) Some educators have indicated their intention to use the Disaster Jeopardy game concept for the teaching of other subject areas in schools.
- 6) Media coverage of workshops placed the initiative in national spotlights.

## 6.0 STATEMENT OF EXPENDITURES

A statement of expenditures on the project is provided in 6.1, 6.2 and 6.3 below. The closure of all project activities is dependent upon the receipt of the final payment on the LOA, which is due upon approval of this report. A certified financial audit of the project will be provided, funded by the project, upon closure of all project activities.

### 6.1 Emergency Response Support to 3 CARICOM States

Items	Budgeted/USD	Expended/USD	*Committed/USD	Balance/USD
Needs Assessment	\$3,600.00	\$3,867.17	\$0.00	-\$267.17
Support to Communities				
Production support	<sup>1</sup> \$50,000.00	\$43,720.49	\$6,000.00	\$279.51
Capacity building in DRM production practices	\$22,500.00	\$16,642.14	\$3,937.50	\$1,920.36
Travel	\$3,300.00	\$3,494.48	\$0.00	-\$194.48
Operating Costs	\$3,000.00	\$2,345.28	\$650.00	\$4.73
<b>TOTAL</b>	<b>\$82,400.00</b>	<b>\$70,069.56</b>	<b>\$10,587.50</b>	<b>\$1,742.97</b>

### 6.2 Living Schools Activities in 6 CARICOM States

Items	Budgeted/USD	Expended/USD	*Committed/USD	Balance/USD
Needs Assessment	\$6,000.00	\$5,910.88	\$0.00	\$89.12
Capacity building	\$15,000.00	\$11,258.58	\$3,375.00	\$366.42
Upgrading of schools	\$85,000.00	\$63,249.88	\$21,750.12	\$0.00
Travel	\$4,950.00	\$4,474.47	\$0.00	\$475.53
Operating Costs	\$4,500.00	\$4,733.25	\$0.00	-\$233.25
<b>TOTAL</b>	<b>\$115,450.00</b>	<b>\$89,627.06</b>	<b>\$25,125.12</b>	<b>\$697.83</b>

### 6.3 Certified Financial Audit

Items	Budgeted/USD	Expended/USD	*Committed/USD	Balance/USD
Certified Financial Audit	\$2,000.00	\$0.00	\$2,000.00	\$0.00

\*Committed refers to expenditures for which contracts have been initiated.

<b>Certification:</b>	
I hereby certify that the amounts shown above as having been incurred and funded through CDEMA in support of the approved activity, that is, the first Letter of Agreement under the CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction	
Signed:	
Title	Finance Manager
Date	June 25, 2012

<sup>1</sup> \$25,000 for production support in Belize was reallocated on the request of that state to school retrofitting



## **CARICOM/Brazil/FAO Cooperation Programme on Disaster Risk Reduction**

### **Model Knowledge Management Toolkit for Building Capacity in Disaster Risk Management among the School-Aged Population (5 to 15 years)**

**Submitted by:**  
Balfour Spence, PhD

October, 2011

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## **Executive Summary**

The Government of the Federative Republic of Brazil and the Caribbean Disaster Emergency Management Agency (CDEMA) signed an Agreement in October 2010 for provision of financial support to the CDEMA Participating States (PS) for disaster risk reduction (DRR) initiatives. An initiative within this agreement is the development of model 'Living Schools' in CDEMA PS based on a concept developed in Brazil. The concept enhances the role of schools as critical disaster risk management facilities within communities and seeks to ensure that they are endowed with the capacities and capabilities to serve as spaces of personal as well as livelihood security during emergencies.

The first phase of the project focused on development of a Model Knowledge Management Toolkit to prepare teachers, school-aged children (5-15 years old) and local communities with basic notions of DRM and enhance disaster preparedness through awareness promotion.

Implementation of appropriate aspects of the Toolkit will occur in six model schools drawn from the six (6) Participating States of St Vincent, St Lucia, Barbados, St Kitts, British Virgin Islands and Belize. In recognition that differences in capacities and resource access across Participating States would result in differences in Toolkit priorities, a consultative mission to beneficiary states was undertaken at the start of the project. To identify existing initiatives on which the intervention could build and determine country-specific priorities for the toolkit.

The mission revealed that beneficiary states have undertaken a variety of initiatives that are pertinent to the Living School Initiative and with the intervention could build significant synergies. In addition, priorities with regard to contents of the Toolkit were as varied as the number of states and provided an inform basis for the intervention. However, most of the priorities identified would require an implementation time-frame that is beyond that allocated for implementation of this project. As the proposal is that the States be provided with the resources to implement their prioritized activity while the second phase of this project would focus on evaluating a generic component of the toolkit in all the states.

## **1.0 Project Background**

The Government of the Federative Republic of Brazil and the Caribbean Disaster Emergency Management Agency (CDEMA) signed an Agreement in October 2010 for provision of financial support to the CDEMA Participating States (PS) for disaster risk reduction (DRR) initiatives.

One of the initiatives within this agreement is the development of model 'Living Schools' in CDEMA PS based on a concept developed in Brazil. The concept enhances the role of schools as critical disaster risk management facilities within communities and seeks to ensure that they are endowed with the capacities and capabilities to serve as spaces of personal as well as livelihood security during emergencies.

### **1.1 Rationale for the Project**

The basic premise of the project is that formalization of the role of schools as places of refuge for communities and their livelihood activities must involve a capacity-building process that will allow schools to effectively discharge this mandate and thereby contribute to national and regional disaster risk reduction.

## **2.0 Project Objectives**

The overarching objective of the project is to enhance the capacity of CDEMA PS for national and community-level disaster risk reduction using schools as a platform for knowledge-management interventions, using Brazil's Living School concept. Specifically, the project will involve:

- i) ***Development of a Model Knowledge Management Toolkit*** to prepare teachers, school-aged children (5-15 years old) and local communities with basic notions of DRM and enhance disaster preparedness through awareness promotion. A model approach to the toolkit allows schools to modify and implement within the context of their local environment.
- ii) ***Undertaking Capacity-Building Exercise*** through adaptation and implementation of the Model Toolkit in 6 Model Schools in CDEMA PS.

### 3.0 Expected Project Outcome

Successful achievement of project objectives will generate the following outcomes:

**Outcome 1:** Disaster risk management awareness is enhanced through capitalization on the value-added of awareness promotion among school children and the pivotal role of schools as catalysts for community development.

**Outcome 2:** Present and future capacities for disaster risk reduction is enhanced through demonstrative/applied interventions in schools.

### 4.0 Project Implementation Methodology

Methodological approaches for achieving the expected outcomes of the project are informed by the project objectives:

#### 4.1 Toolkit Development

Development of the toolkit will be an iterative process involving:

- i. *Review of Living-Schools concept* and its relevance to enhancement of disaster risk reduction in CDEMA PS.
- ii. Identification and review of Living Schools-related initiatives in CDEMA PS in order to determine existing platforms and potential synergies for the proposed intervention.
- iii. *Needs assessment for development of model toolkit* taking into consideration suitability of learning methodologies for knowledge transfer based on factors such as age specificity. The age range (5-15 years) of target population necessitates an age-specific tailored approach to the toolkit, likely involving a two-tiered approach for effective promotion of DRM awareness. The needs assessment process will inform key learning outcomes for the target population, within the context of disaster risk management, food and nutritional security and the refuge functions of schools. Need will be established through a one-day consultation meeting with stakeholders in target states as well as the CDEMA-CU. Stakeholders will include NDMOs, education decision-makers, and agricultural agencies among others.
- iv. *Compilation of a medley of visual/applied knowledge transmission resources* that will comprise the toolkit. Resources will include movies, games and documentaries that highlight the general principles of DRR and school safety. Additionally, a school gardens

concept will be utilized for demonstration of DRR methodologies that are pertinent not only livelihood sustainability in rural communities but encapsulates elements of food and nutritional security especially for school in rural farming communities. Some countries such as Jamaica are in the early stages of establishing school gardens programs within the context of national food security and could provide a basic template and platform for knowledge transmission.

#### ***4.2 Capacity-building Exercise in Six Model Schools***

Implementation of appropriate aspects of the Toolkit will occur in six model schools. The selected schools reflected a comprehensive cross-section of social and physical environments in order to represent variations in DRR challenges and potential solutions. Consistent with anticipated differences in learning requirements and methodologies, the selected schools will also reflect the primary level of education (5-12 years old) as well as the lower level of secondary education (12-15). The six selected school will be drawn from the six (6) Participating States of St Vincent, St Lucia, Barbados, St Kitts, British Virgin Islands and Belize. Adaptation/implementation of the Toolkit in selected schools will be achieved through:

- i. Consultation with Education Officers/school management to determine appropriate aspect of Toolkit to be applied in respective schools.
- ii. Design and implementation of two-day capacity building intervention for each model school.
- iii. Prepare a Report highlighting the outcomes and lessons learnt from each intervention. This Report will be a key tool in informing adaptation and implementation of the Model Toolkit throughout CDEMA-PS

### **5.0 Approach to Development of Model Knowledge Management Toolkit**

Development of the Model Knowledge management Toolkit was facilitated through:

- i. Review of initiatives that are relevant to the living school concept
- ii. Stakeholder consultation in beneficiary states

#### ***5.1 Review of Existing Initiatives***

Material relevant to the objectives of the Living Schools concept were identified and reviewed from the websites of:

- i. National Disaster Offices within the Caribbean region
- ii. International disaster risk management agencies
- iii. Hazard/disaster-related learning resources for children
- iv. [www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm](http://www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm)



## 5.2 Stakeholder Consultations

A consultative mission to five (5) of the six (6) Participating States that have been targeted as beneficiaries of this project was undertaken in order to identify and discuss past, current and planned initiatives that are consistent with the Living School concept . The consulted states, schedule and resource personnel engaged are summarized in Table 1.

**Table 1: Consultation Mission Schedule for Development of Knowledge Management Toolkit**

<b>Date</b>	<b>State</b>	<b>Representatives Consulted</b>
August 11, 2011	St Vincent & The Grenadines	PS –Education Principal – Lowmans School Representative –MOE Representatives - NEMO
August 12, 2011	Barbados	CDEMA- Education Internal Focal Point UNICEF Deputy NDC - DEM
August 15, 2011	St Lucia	NDC – NEMO Representatives – MOE
August 16, 2011	St Kitts-Nevis	Hon Minister – Education Dep. NDC –NEMA Representatives – MOE Director – Early Childhood Education
August 17, 2011	Virgin Islands	Representatives from the : Department of Disaster Management, Royal Virgin Islands Police Force, Virgin Islands Fire and Rescue, Ministry and Department of Education and Culture, Public Works Department and Social Development

## **6.0 Introduction**

The Model Knowledge Management Toolkit targets school-aged (5 to 15 years old) children within the CDEMA-PS and seeks to build capacity in basic concepts of disaster risk management, food and nutritional security, and school safety through activities designed to transmit that knowledge, such as school gardens, plays, videos, movies and games. The purpose is to provide educators with a menu of suitable material which can be used to raise the level of hazard/disaster awareness and preparedness of students. Review of disaster risk management initiatives among CDEMA-PS in conjunction with the consultative mission revealed that several relevant initiatives are in vogue or in various stages of development at the national and regional levels. The toolkit therefore takes into consideration existing material that are available for harvesting as well as those being developed or proposed in accordance with the priorities of beneficiary states. For ease of review, the contents of the Toolkit are categorized according to the type of material and to facilitate utility, information on source, learning outcome, appropriate age cohort and method for unlocking the material are provided in a tabular format. Categorizations of learning methodologies comprising the Toolkit include games, videos, activities, workbooks, storybooks and related resource, and other proposed learning methodologies.

A summary of appropriate games is summarized in Table 2.

**Table 2: Toolkit Games**

Name of Game	Source	Proposed Age Cohort (yrs)	Learning Outcome	Brief Description	Comments
<p><u>Existing</u></p> <p>1. <i>Natural Disaster Jeopardy Game</i></p> <p>2. <i>Disaster Awareness Game</i></p>	<p>Consultant will develop and provide Powerpoint template of the game</p> <p>Dr Virginia Clerveaux/Dr Balfour Spence</p>	<p>All</p> <p>All</p>	<p>i ) Students will learn about natural disasters in the Caribbean</p> <p>II) Students will learn how to reduce impacts from disasters</p> <p>i)Students will learn basic principles of DRM and consequences of inappropriate decision making</p> <p>Students will learn</p>	<p>Interactive game of chance modeled on the popular TV game, Jeopardy</p> <p>Board-game designed to promote and measure disaster awareness among children especially in multicultural societies.</p>	<p>Template for the game will be presented at a capacity-building workshop where educators will be trained to modify the game to suit different age cohorts.</p> <p>The game is copyright and has been tested among schoolchildren in the Caribbean. Its use will require discussions with the owners of the game</p> <p>The game is appropriate for all</p>

Name of Game	Source	Proposed Age Cohort (yrs)	Learning Outcome	Brief Description	Comments
<p>3. <i>Riskland</i></p> <p><u><i>Developing/Proposed</i></u></p> <p>4. <i>Digital Imagination Game</i></p>	<p><a href="http://www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm">www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm</a></p>	<p>6-15</p>	<p>about what they can do to reduce disaster impacts at school and in their communities</p> <p>High school-age students would learn about disaster risk using a competitive and interactive platform</p>	<p>The board-game Riskland is part of an educational kit produced jointly by UN/ISDR and UNICEF to teach children how they can reduce disaster risk</p> <p>Proposed online game with multiple players with potential for adaptation to social media platforms.</p>	<p>age cohorts and other contents of the educational kit are available from the website.</p> <p>Ongoing dialogue with graphic design firm on development of the game. Strong potential for corporate sponsorship if design is taken beyond conceptual stage.</p>

Name of Game	Source	Proposed Age Cohort (yrs)	Learning Outcome	Brief Description	Comments
	NEMO – St Lucia (conceptual stage of development)	11-16			

**6.1 Resource Needs for Games**

- Computer (with PowerPoint program)
- Multimedia projector
- Internet connection



Title of Video	Source	Proposed Age Cohort (yrs)	Learning Outcome	Brief Description	Comments
<p>3. <i>Making Roofs Hurricane Safe</i></p>	<p><a href="http://www.odpem.org.jm">www.odpem.org.jm</a></p>	<p>All</p>	<p>Students will learn the consequences of unsafe roof construction and simple measure for improving the safety of roofs</p>	<p>roof while a disaster risk manager explains simple measures for improving safety of roofs</p>	<p>audience but consistent with the notion that children are important catalysts for the transfer of risk information to parents, the video addresses safety of the household within the context of children safety.</p>
<p>4. <i>Wide range of natural hazard and disaster</i></p>			<p>Students will learn the cause and impact of different types of hazards</p>	<p>Collage of short videos ranging from 2-10 minutes provide basic introduction to a variety of hazards that are relevant to the Caribbean</p>	<p>The videos provide basic explanations and examples of different kinds of natural hazards which can stimulate interest of students.</p> <p>Teachers will be able to select videos of volcano and their impacts from a wide range</p>

Title of Video	Source	Proposed Age Cohort (yrs)	Learning Outcome	Brief Description	Comments
<p><i>videos</i></p> <p>5. <i>Volcano videos (including Montserrat)</i></p>	<p><a href="http://video.nationalgeographic.com/video/player">http://video.nationalgeographic.com/video/player</a></p>	<p>All</p>	<p>Students will learn the causes and impact of volcanic eruption</p>	<p>volcanic eruptions and how they affect people and the environment</p> <p>Short video (5.5 min) summarizing international, national and community disaster risk and prevention strategy using game technique</p>	<p>of locations across the globe</p> <p>Game is based on the principle of disaster awareness promotion among children as investment in future risk reduction</p>
<p>6. <i>Riskland Video</i></p>	<p><a href="http://dsc.discovery.com/videos/volcano-video/">http://dsc.discovery.com/videos/volcano-video/</a></p>	<p>All</p>	<p>Students will learn about issues related to global and local disaster risk</p>		



Title of Video	Source	Proposed Age Cohort (yrs)	Learning Outcome	Brief Description	Comments
	<a href="http://www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm">www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm</a>	All			
<p><b><i>Proposed Videos</i></b></p> <p>1. <i>Hazard-specific Videos</i></p> <p>2. <i>Video on Electricity as a hazard</i></p>	<p>Conceptual phase</p> <p>Conceptual Phase</p>	<p>All</p> <p>All</p>	<p>Students would learn about hazard that are most prevalent in their communities</p> <p>Students would learn about the various ways in which electricity could be a hazard if not managed appropriately</p>	<p>N.A.</p> <p>N.A.</p>	<p>N.A.</p> <p>N.A.</p>

### 6.2 Resource Needs for Videos

- Computer
- Multimedia projector
- Internet connection



**Table 4: Activities, Books and related Material Appropriate for Promotion of Disaster Awareness and Prevention in Schools.**

Material	Source	Age Cohort	Learning Outcomes	Brief Description	Comments
<p><b><u>Existing Material</u></b></p> <p>1. <i>Disaster Preparedness Activity – Floods</i></p> <p>2. <i>Disaster Preparedness Activity – Shake Rattle and Roll</i></p> <p>3. <i>Disaster Preparedness Activity – Alex and Jasmine</i></p>	<p><a href="http://www.bviddm.com">www.bviddm.com</a></p> <p><a href="http://www.bviddm.com">www.bviddm.com</a></p>	<p>8-10</p> <p>12-15</p>	<p>Students will learn about the causes and consequences of riverine and coastal flooding</p> <p>Students will learn about earthquakes causes and preparedness</p> <p>Students will learn about different types of</p>	<p>Illustrated activity book for promotion of awareness on flooding. Contains interactive activities such as puzzles, maze etc.</p> <p>Illustrated activity book with simple experiments, quizzes and activities for earthquake preparedness</p> <p>Illustrated disaster preparedness book for young children . Include activities such as joining dots and colouring</p>	<p>Series of hands on activities with illustrations reinforces lesson</p>

<b>Material</b>	<b>Source</b>	<b>Age Cohort</b>	<b>Learning Outcomes</b>	<b>Brief Description</b>	<b>Comments</b>
4. <i>Geological Hazard Activity Handbook</i>	<a href="http://www.bviddm.com">www.bviddm.com</a>	5-7	hazards/disaster that can affect their communities  Students will learn about geological hazards and how their impact can be mitigated	Highly illustrated booklet with wide range of activities on different hazards  The story of a young African boy called Safari who learns about why landslides occur, and what can be done to prevent them	Can be used at the kindergarten level as well  Interactive
5. <i>Safari's Encounter with a Landslide</i>	<a href="http://www.bviddm.com">www.bviddm.com</a>	6-10	Students will learn about the landslide hazard and how its impact can be mitigated	Booklet on volcanoes published by UNISDR for 2002 World Disaster Reduction Campaign	May be appropriate for younger children
6. <i>Volcano Daily</i>	<a href="http://www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm">www.unisdr.org/2004/campaign/pa-camp04-riskland-eng.htm</a>	7-10	Students will learn how to reduce risk associated with volcanoes		

<b>Material</b>	<b>Source</b>	<b>Age Cohort</b>	<b>Learning Outcomes</b>	<b>Brief Description</b>	<b>Comments</b>
	<a href="http://www.unisdr.org/eng/public_aware/world_camp/2002/pa-camp02-volcanodaily-eng.htm">http://www.unisdr.org/eng/public_aware/world_camp/2002/pa-camp02-volcanodaily-eng.htm</a>	8-10			N.A.
<b><u>Proposed Material</u></b>					
1. <i>NEMO ABCDRM Workbook</i>	NEMO (St Lucia)	K-1	Young children will be introduced to hazards affecting their communities	Preparation of booklet is in preliminary stage but requires resource for completion	N.A.

### **6.3 Resource Needs for Activities, Books and Related Materials**

- Computer (with PowerPoint program)
- Multimedia projector
- Internet connection



Proposed Learning Methodology	Expected Learning Outcome	Comment
<p><i>3.Development of teaching aids for DRM -mascots, puppets, charts, posters, toys</i></p>	<ul style="list-style-type: none"> <li>i. Younger children will learn about disaster risk management through visualization.</li> <li>ii. Younger children will learn about DRM through role play</li> </ul>	<p>that by demonstrating good agricultural principles in relation to nutrition, the school can serve as a catalyst for agricultural promotion.</p> <p>Mascots and puppets representing popular cartoon characters can be used to teach various principles of DRM such as safe evacuation. Teachers or community member could play the role of mascots in demonstration proper evacuation.</p> <p>Charts, posters and toys can be used to provide appropriate visualization ofr DRM lessons</p>

#### **6.4 Implementation Resource Needs**

Use of drama as a tool for promoting DRM will require basic resources for image capture/recording and multi-media display. The following general resources are therefore proposed:

- i. Multi-media Projector and with mountable screen
- ii. Digital camera/audio recording system (Camcorder)
- iii. Computer

These resources will allow display of harvested material as well as image capture, recording and display of developed material such as plays, songs etc. Storage of digitally captured material will allow the school storage for future use and thereby help sustain the output of the intervention. Transfer of these resources to other schools is also facilitated in this way.

In relation to development of school gardens, teachers can be assisted by personnel from agricultural ministries through MOUs. Other required input would include basic tilling equipment, composters for demonstration of good environmental stewardship and planting materials (seedlings).

Use of mascots and puppets will require outlay of production material.