

NERDAT (National Emergency Response Data Analysis Tool)

A Tool For Post-impact Response Decision Making

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Background

- OFDA introduced the Initial Damage Assessment (IDA) methodology to the Caribbean in early 2000
- In 2008, ODPEM in partnership with UNDP conceptualized NERDAT and facilitated its development
- UNDP came on board because of experiences with handling IDA data from teams that they assisted in deploying during Hurricane Dean

Initial Damage Assessment (IDA)

- Standard technique used to assess levels of damage to a building:
 - Carried out within the first 48 hours (2 days) after a disaster.
 - Provides further information about the level and extent of damage to buildings
 - IDA information is used to determine priority needs, assistance required and a preliminary estimate of the cost of damages in the country
 - There are four levels of damage ranging from Level 1 (no significant damage) to Level 4 (destroyed)

What is NERDAT

A tool designed to integrate and analyse **Initial damage Assessment Data** and **pre-impact data** and make an estimation/projection of needs. It is ideal for use in the early response stages, usually within the first 48 hours.

The tool integrates pre-impact data with assessment data to enable better response decision-making.

Pre-impact Data

PRE-IMPACT DATA	USE
<i>Average number of persons per household</i>	Estimate number of persons affected. Number of persons displaced and needs (Level 3 + Level 4 damage).
<i>Total Population in community</i>	Percentage of population displaced Magnitude of event
<i>Vulnerable Population</i>	Vulnerable population displaced and needs, shelter requirements
<i>Average size of houses in community & construction cost per sq. metre</i>	Estimated replacement and damage cost for houses affected Level 4 – 100% of replacement cost Level 3 – 50% of replacement cost
<i>Emergency Shelters and capacity</i>	Shelter capacity for displaced population

Pre-impact Data Entry Screen

The screenshot displays a web browser window with the following elements:

- Browser Address Bar:** Community Pre-Impact Assessment
- Browser Tabs:** Yahoo! Search
- Page Header:**
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 - DAMAGE ASSESSMENT APPLICATION**
- Navigation Menu:** Home | Pre-Impact | Assessment | Analysis | Reports | Help
- Section Title:** Community Pre-Impact Assessment
- Data Entry Fields:**

Parish Name:	SAINT ANDREW
Community Name:	HOPE RIVER
Year:	2009
Population:	6500
Total Number Of Houses:	1200
Average Household Size:	4.5
Dependent Population:	3500
Average Household Unit Size:	1200
Average Property Value:	
Emergency Shelters:	1200
- Buttons:** Cancel, Submit
- Footer:** Internet | Protected Mode: On



IDA Data Entry Screen

The screenshot shows a web browser window displaying the ODPEM Damage Assessment Application. The browser's address bar shows "Community Assessment" and the search bar contains "Yahoo! Search". The application interface includes a navigation menu with "Home", "Pre-Impact", "Assessment", "Analysis", "Reports", and "Help". The main content area is titled "Community Assessment" and contains a form with the following fields:

- 1. Parish: SAINT ANDREW
- 2. Community: HOPE RIVER
- 3. Assessor Name: Damian Graham
- 4. Date of Assessment: Day: 8, Month: DECEMBER, Year: 2009
- 5. Event: EARTHQUAKE (with a dropdown menu showing EARTHQUAKE, FIRE, FLOOD, and HURRICANE)
- 6. Date of Event Onset: Year: 1990
- 7. General Comments

Below the form, there is a section for "LEVEL 1" with a table for "Single-Storey Dwelling":

	Board	Concrete	Other
Single-Storey Dwelling:			

The browser's status bar at the bottom indicates "Internet | Protected Mode: On".



IDA Data Entry

Community Assessment

Search

4. Date of Assessment: Day: 8 Month: DECEMBER Year: 2009

5. Event: EARTHQUAKE

6. Date of Event Onset: Day: 7 Month: DECEMBER Year: 2009

7. General Comments

LEVEL 1

	Board	Concrete	Other
Single-Storey Dwelling:	55	22	
Multi-Storey Dwelling:	12	5	
Single-Storey Apartment:			
Multi-Storey Apartment:			
Other.:			

LEVEL 2

	Board	Concrete	Other
Single-Storey Dwelling:	18	10	
Multi-Storey Dwelling:	5	3	

Internet | Protected Mode: On

Uses Of NERDAT in Response

- Determine priority areas for response
- Guide Welfare and Relief Deployment
- Identify long and short term needs - water , sanitation, tarpaulins, food, comfort items medical material and supplies, search and rescue
- Projection of island wide impact on housing
- Identify areas which may need to be declared disaster areas
- Medium to long term reconstruction needs
- Estimate of medium term shelter needs

Benefits of NERDAT to NEOC

- Easy to Use in a crisis situation
- Can handle large volumes of data
- Web-based application increases accessibility to remote users at the municipalities
- Standardized and systematic process for response and prioritization of needs
- Quicker decisions (48 hr required turnaround time)
- Analysis of information at local, municipal and parish levels

Analysis

The screenshot shows a web browser window displaying the 'DAMAGE ASSESSMENT APPLICATION' interface. The browser's address bar shows 'Total Protection' and 'AVG Info'. The application header includes the ODPEM logo (Office of Disaster Preparedness & Emergency Management) and the title 'DAMAGE ASSESSMENT APPLICATION'. A navigation menu contains links for 'Home', 'Pre-Impact', 'Assessment', 'Analysis', 'Reports', and 'Help'. Below the navigation is a 'Menu' section with links to 'Expand All' and 'Contract All'. The main content area is organized into folders: 'Parish' and 'Community'. The 'Parish' folder contains links for 'Total Level Damage', 'Total Concrete Damage', 'Total Board Damage', 'Concrete Replacement Cost', and 'Board Replacement Cost'. The 'Community' folder contains links for 'Total Level of Damage', 'Total Level of Damage as a Percentage of Total Houses', 'Total Damage as Percentage of Total Houses', 'Total Displaced Persons', 'Estimated Vulnerable Population Displaced', 'Total Board Damage', 'Total Concrete Damage', and 'Board Replacement Cost'. The browser's status bar at the bottom indicates 'Internet | Protected Mode: On'.



Analysis

The screenshot displays the 'Damage by Community' application interface. At the top, there is a search bar with a search icon and a 'Total Protection' button. The main header features the ODPEM logo and the title 'DAMAGE ASSESSMENT APPLICATION'. Below the header is a navigation menu with links for Home, Pre-Impact, Assessment, Analysis, Reports, and Help. The main content area is titled 'Level of Damage by Community' and includes two dropdown menus for 'Parish' (set to SAINT ANDREW) and 'Community' (set to HOPE RIVER). Below these menus is a table with columns for CommunityID, Community Name, Date of Event, Event Type, Level1 Damage, Level2 Damage, Level3 Damage, and Level4 Damage. The table contains two rows of data for the Hope River community.

<u>CommunityID</u>	<u>Community Name</u>	<u>Date of Event</u>	<u>Event Type</u>	<u>Level1 Damage</u>	<u>Level2 Damage</u>	<u>Level3 Damage</u>	<u>Level4 Damage</u>
1014	HOPE RIVER	DECEMBER 7 2009	EARTHQUAKE	94	36	31	13
1014	HOPE RIVER	DECEMBER 8 2009	FLOOD	110	73	41	32

Scope and Opportunities

Currently IDA is used for assessing impact on dwellings for multiple hazards but can be adapted for use by other sectors.

Opportunities include:

- Integrating with GIS to spatially represent data
- Performing analysis based on damage impacts determined from satellite images
- Replicate within the region
- Use in scenario planning, land development, designing early warning systems, public education and awareness-raising and mitigation measures

Constraints

- Dependence on internet for remote users
- Access to current pre-impact data
- Limited number of trained IDA teams (currently teams are trained in most vulnerable communities)
- Geographical boundary of communities can skew analysis (absence of district boundaries)
- Cost for developing the tool
- Support staff at some municipal level to facilitate data input and analysis

Next Steps

- Completion of the tool
 - Complete the Needs analysis component of the tool
 - Develop the database to support the tool to minimize pre-impact data input
 - Include additional features which allows data to be used in pre-impact scenario planning
 - Fully integrate GIS with tool
- Define district boundaries within communities
- Promote use among CDEMA participating states



THANK YOU