

## **BUILDING NATIONAL EARTHQUAKE RESILIENCE IN T&T**

As the Governments and Peoples of Türkiye and the Syrian Arab Republic continue to face the herculean task of returning their societies to normalcy, while facing the prospect of ‘building back better’ after the recent series of devastating earthquakes, the ODPM extends our condolences to these two (2) nations.

Following the occurrence of these earthquakes, this office has observed the appearance of a few articles, which while purporting to inform the public about the state of earthquake preparedness in Trinidad and Tobago, could erroneously leave one with the impression that nothing or very little is being done to strengthen preparedness for a major earthquake. Nothing could be further from the truth and the recent articles have been advanced, despite a number of public information releases in the recent past, about national earthquake preparedness by the ODPM and other agencies. These releases articulated various initiatives that are being undertaken to build national resilience to earthquakes and other hazards that we face.

In light of the above, the ODPM feels duty bound, despite the passage of time, to update these writers but moreso the citizenry, of some of the work that has been and continues to be undertaken, particularly to prepare our society for a severe earthquake. However, recognising the limitations of time and space, this article will only highlight 14 of the more recent ongoing activities that are being undertaken. These activities can be divided into pre, during and post-earthquake initiatives.

Before going into these details though and in the spirit of the recently concluded Carnival, let us remind readers of two (2) of the ODPM’s popular ‘road marches’. First, preparing for, responding to and recovering from any devastating earthquake or other hazards, require a whole-of-society approach; no single institution can do it alone. Second, as Trinidad and Tobago’s risks are multi-hazard in nature, the ODPM takes a multi-dimensional approach to disaster risk reduction and management, and therefore cannot focus solely on any single hazard.

### **PRE-EARTHQUAKE PREPAREDNESS**

#### ***1. PREPARE TT Project***

The ODPM’s contemporary work in earthquake preparedness intensified after the August 2018 6.9 magnitude earthquake. Taking a multi-pronged approach, the agency with support from USAID, partnered with Miyamoto International to commence a project titled **PREPARE TT**. Miyamoto is a world-renowned, structural engineering firm that is proficient in strengthening earthquake resilience globally. This project benefitted from technical inputs by various local expert agencies such as the UWI Seismic Research Centre, the Ministry of Works and Transport, the Board of Engineers of T&T, and the Civil Engineering Section of the Association of Professional Engineers of T&T, among many others.

Using Port of Spain as a pilot study, the project set out to better understand the risk associated with a major earthquake striking the capital city. Armed with that data, it then extrapolated what may occur should a similar event take place in other regions of T&T and the actions that would become necessary. Employing complex modelling methodologies, an in-depth assessment was conducted that identified potential areas of damage and loss. Among its various outputs, the multi-agency

team that participated in the study updated the National Earthquake Plan and now, various preparedness activities are being implemented by state and non-state entities.

## *2. Making Cities Resilient Initiative*

To complement the Port of Spain earthquake project, in 2022, the ODPM in partnership with the Tobago Emergency Management Agency (TEMA) and with support from the United Nations Office for Disaster Risk Reduction (UNDRR), commenced a project to assess Tobago's disaster resilience to earthquakes and other hazards. The project, **Making Cities Resilient Initiative**, is a global venture that will lead to the development of a Resilience Action Plan that would inform actions to strengthen communities' resilience across Tobago. When completed, the model would then be used as a template to inform the development of similar action plans in Trinidad.

## *3. National Building Codes*

Additionally, the Ministry of Planning and Development recently announced that it was leading a process to review our **national building codes**. The use of building codes and their enforcement in construction are critical elements in any effort to build multi-hazard readiness and resilience. However, even as these codes are being improved, persons in the process of building do not have to wait for the codes to be completed, but may seek guidance from agencies such as the Trinidad and Tobago Bureau of Standards, the Engineering Associations mentioned previously and the UWI Engineering Department.

## *4. National Disaster Preparedness Baseline Assessment (NDPBA)*

Despite the challenges posed by the pandemic, a **National Disaster Preparedness Baseline Assessment** was conducted from 2019-2021 to examine this country's risk to hazards such as earthquakes, vulnerabilities, resilience and disaster management capabilities. This study was undertaken with support from the US' Pacific Disaster Center (PDC) and the United States Southern Command. The PDC is a globally recognised research institution that produces scientifically informed road maps from data provided by contributors. These road maps are supporting the activities of the 14 municipalities and Tobago, in their efforts to reduce their risk of earthquakes and other potential hazards.

# **EARTHQUAKE RESPONSE PREPAREDNESS**

## *5. Response Training*

The short-duration nature of earthquakes means that emphasis is placed on individual and group protection. While the pandemic placed severe restrictions on communal training exercises, the ODPM and other Disaster Preparedness-focused Agencies continued to share information to educate the public about how to protect themselves and others.

As restrictions were eased, these knowledge-sharing activities were intensified and last May during the National Disaster Prevention and Preparedness Month (NDPPMC), community outreaches re-commenced and continued throughout the year. Emphasis was also placed on

school evacuation drills as in-person learning re-commenced, while national disaster response agencies were exercised through an integrated response to different disaster scenarios that included earthquakes.

#### ***6. Community Emergency Response Teams (CERT)***

The national response mechanism continues to expand its pool of trained personnel and volunteers to support response in the event of emergencies and disasters. The **Community Emergency Response Team (CERT) Programme**, which is led by the Disaster Management Units (DMUs) of the Ministry of Rural Development and Local Government and TEMA, has over 3,000 volunteers to support first responders following a major earthquake. Hence, the national CERT Programme has been actively training communities to take ownership of their disaster situations until professional help arrives. The programme regularly conducts exercises and training with its members to ensure they are ready should a disaster strike.

#### ***7. National Public Alert Notification System***

Our country also has established public alerting protocols to warn the public of danger in the event of an earthquake. While the ability to detect earthquakes is in its infancy globally, the UWI-SRC is the early warning agency for seismic risks in Trinidad and Tobago. It, therefore, has the responsibility to alert the ODPM, other disaster management agencies and the public about the occurrence.

Working in tandem with the communications networks, the ODPM would also supplement the UWI-SRC alerts with additional information to the public as information becomes available. To further bolster the system, the ODPM has developed the **Public Alert Notification System (PANS)**, which is a mass notification system covering the entire country. The platform is in its final stage of testing and when launched, it would allow the ODPM and other state agencies to provide emergency information to the general public or solely to residents in an affected area. Additionally, our country's public alerting capability would be further enhanced by the recently launched UN global initiative titled **Early Warning for all (EW4All)**.

#### ***8. Digitised Damage and Impact Assessment System***

The country has also made advances in the practical application of technology in the area of disaster risk management. First, using the ArcGIS platform, we have digitised our Damage and Impact Assessment System. Now, using digital devices, operators can send reports directly from the field, enabling near real-time updates to dashboards in Emergency Operations Centres, leading to enhanced situational awareness and decision-making. By implementing this technology, a more effective Shock Response Social Protection Capability has been developed, as the social services now have a tool that has the potential to assist citizens to recover faster from shocks and emergency situations such as earthquakes.



*Testing of Damage and Needs Assessment (DANA) Field Tablets*

### ***9. Humanitarian Aid and Disaster Relief Initiatives***

Along with the various national agencies, the ODPM continues to steadily build national **Humanitarian Aid and Disaster Relief** capacity, to ensure victims are provided with aid in the aftermath of a serious disaster. In this regard, training has been conducted in End to End (E2E) Supply Chain Management to support the effective distribution of food and water.

Additionally, national response agencies have been trained to deploy and construct Mobile Storage Units that have been provided by the United Nations World Food Programme (UN-WFP), should this need ever arise. Measures also include implementing a National Water, Sanitation, and Hygiene (WaSH) Cluster. This cluster contains local and international partners and aims to significantly enhance response and recovery coordination to a major hazard impact.

Aligned with our whole-of-society mantra, the ODPM continues to work closely with agencies such as the TT Red Cross Society, AMCHAM TT, SEWA TT and Is There Not A Cause (ITNAC), who are all committed to supporting the national relief efforts following hazard impacts. These agencies would be further enabled to support disaster relief efforts through their international humanitarian partners.



*Construction of a Mobile Storage Unit*

## **POST-EARTHQUAKE RESPONSE**

### ***10. Strengthened Capacity to Conduct Rapid Damage Assessments***

After a disaster, there is an urgent need to quickly check the integrity of critical infrastructure such as utilities, buildings and transportation networks to ensure the continuity of services and to shelter the displaced. To ensure this happens, as a component of the PREPARE TT initiative, 115 engineers and technicians from the Ministry of Works and Transport, along with personnel from the Ministry of Rural Development and Local Government have been trained to conduct **Rapid Damage Assessments (RDA)**. These inspectors will ascertain the structural integrity of infrastructure and assess their suitability to resume usage after a hazard event in a short space of time.



*Engineers conducting Rapid Damage Assessments (RDA)*

### ***11. Waste and Debris Management***

As another aspect of strengthening Trinidad and Tobago's disaster recovery capabilities, the ODPM spearheaded the development of the draft **National Disaster Debris Management Plan (NDDMP)**. This plan formalises the roles and responsibilities of agencies involved in collecting, sorting, transporting and disposing of the tons of debris that would be generated after an impact.

Reports from the recent earthquakes would have highlighted how disaster debris would have impeded emergency response and recovery efforts, as well as overwhelmed solid waste management personnel and facilities. Our national agencies simulated the execution of the plan in a post-impact scenario and now, the nation has a plan to manage the increased waste and debris that could result from any crisis.

### ***12. Strategic Placement of Mobile Hospitals on Both Islands***

To prepare for mass casualties in the event of a catastrophic event, Trinidad and Tobago has field hospitals that have been strategically stationed on each island. These hospitals were donated by the US Government in May 2021 to boost national COVID-19 response and similarly, would be used to enhance essential medical services in the event of a disaster.

### ***13. Regional and International Response Mechanism***

In the event of a devastating earthquake to our country, the public could be assured that T&T would not be alone in its response and recovery efforts, through well-established strategic partnerships and multilateral relationships developed over many decades.

Annually, as a Participating State within the Caribbean Disaster Emergency Management Agency (CDEMA) System, the Government of Trinidad and Tobago contributes financially to the organisation's upkeep. The Regional Response Mechanism (RRM) is a network of CDEMA Participating States (PSs) as well as national, regional, and international disaster stakeholders through which external response and relief operations are coordinated, in support of an impacted Participating State. The mechanism is subdivided into four (4) sub-regions (North-western, Eastern, Central, and Southern sub-regions), to allow for better coordination of operations in all the geographical regions covered by this mechanism.

T&T is the lead of the Southern Sub-Region and will be required to support Grenada, Guyana, and Suriname in the event of a major disaster. Similarly, these and other countries in the region will support us in the event of a major disaster.

Further to this, the UN Humanitarian Cluster System is used for coordinating non-refugee humanitarian emergencies. Clusters are voluntary groups of humanitarian organisations working in specific technical sectors of humanitarian action. Cluster members include NGOs, United Nations agencies, the Red Cross/Red Crescent Movement and government bodies involved in humanitarian response.

### ***14. Caribbean Catastrophe Risk Insurance Facility (CCRIF)***

Additionally, to assist the country recover from a major disaster such as an earthquake, Trinidad and Tobago is insured through the Caribbean Catastrophic Risk Insurance Facility (CCRIF). CCRIF is the first multi-country risk pool in the world and the first insurance instrument to successfully develop parametric policies backed by both traditional and capital markets. This and other financing instruments would assist the country to rebound faster after a serious impact.

### ***Conclusion***

The aforementioned 14 initiatives and others, work in combination to strengthen our country's resilience against earthquakes and other hazards. Disasters are now common occurrences and a country's ability to recover fast from them, requires a multipronged approach and the support of all persons and agencies. State organisations, private and civil sector bodies, communities, and citizens therefore must intensify their efforts to actively engage in disaster preparedness and management. Undoubtedly, the state agencies are committed to disaster management and continue to ensure that systems are in place to protect the people of our nation. However, we are not immune to the psychological trauma, damage and losses that can be experienced on such occasions. Thus, everyone **must** commit and add to their calendar, one personal activity that they will undertake to further strengthen their personal and T&T's overall disaster resilience.