UNESCO / IOC – NOAA International Tsunami Information Center (ITIC)
Laura Kong, Director, ITIC
September 2014

2014-2016 Project Proposal:
Essential Tsunami Preparedness: Evacuation Plans, Maps, and Procedures

Executive Summary

The UNESCO IOC Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) Working Group 3 on Disaster Management and Preparedness proposed, and the ICG/PTWS Steering Committee (SC) endorsed, the ITIC proposal to develop a new course aimed at building tsunami resilience through community preparedness. The PTWS SC agreed that the next priority of the PTWS after the implementation of the PTWC New Products in October 1, 2014, should be on Preparedness, e.g., that in the End-to-End tsunami warning chain, once a forecast is provided and a warning alert issued, communities must know what to do and where to go. The ‘where to’ answer would be a tsunami evacuation map that has been developed by, and therefore, owned by the community.

The new standard course, led by ITIC, with the guidance from and in cooperation with New Zealand, Member States, the UNESCO IOC and its regional Tsunami Information Centers, the US NOAA, and other expert practitioners, will include processes for preparing tsunami evacuation maps and associated response plans that are based on international practices (for example, British Overseas Territories, Chile, Haiti, Indonesia, Japan, New Zealand, Samoa, USA, and other countries, and guidelines developed by IOC, TOWS WG, and ICG Working Groups and Task Teams). The outcome (a general course curriculum and methodology that is usable in all ICGs) is expected to have global applicability and impact, analogous to previous ITIC-led efforts in SOP development and Exercises that have resulted in ITIC standard curricula being shared and taught to countries of the Indian Ocean, Pacific Ocean, and Caribbean Sea regions.

Planning, maps, and response procedures for evacuation will be covered through a series of training workshops and community engagements over a 1 to 2-year time period. The process will consider cases where modeling is and is not available, demonstrate the application of different levels of tsunami modeling to construct scenario worst case inundation maps, work through the process of creating a community-owned evacuation map, with appropriate routing, safe area assembly, signage, and finally, use an exercise to test emergency response operational readiness of communities. Where applicable, tsunami inundation modeling training can be conducted to enable the science studies needed to support evacuation mapping. Community training-of-trainers approaches for evacuation map creation will be built into the final course considering the needs exceed by far the capacity of a single institution or group. Targeted course trainees will include Tsunami National Contacts and Tsunami Warning Focal Points, other governmental institutions staff (local and national), NGOs members and civil society organizations leaders. Tsunami modeling training will target physical scientists and oceanographers in governmental institutions and universities.

Initial discussions on developing the course through a Pilot implementation are proposed to take place during the PTWS Central American – Pacific Coast Working Group hosted by INETER in Managua, Nicaragua on September 29-30, 2014.

Parallel efforts for the Pacific Island Countries, who have long-expressed a need, will also take place, subject to funding, and be led by the ITIC, New Zealand, and Member States.

The UNESCO IOC Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards noted the need for strengthening of the efforts for tsunami evacuation maps in the region. Initial discussions may take place during the CARIBE EWS Tsunami Modeling Workshop hosted by the Colombian Navy in Cartagena, Colombia on December 1-5, 2014.
ITIC New Training Course on Essential Tsunami Preparedness: Evacuation plans, Maps and Procedures

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Outline

- Background and Motivation
- Course Goals and Deliverables
- Inundation Modelling and Evacuation Maps – what, why, when
- Course Pilot Planning – Next Steps

PTWS Medium-Term Strategy 2014-2021

PTWS Vision:
“A modern and effective tsunami warning and mitigation system based on member State participation. As a result, PTWS Member States are aware of the tsunami threat, work to reduce risk, and are prepared to act to save lives.”

Three Pillars:
1. Risk Assessment and Reduction
   - Hazard and risk identification and risk reduction
2. Detection, Warning and Dissemination
   - Rapid detection and warning dissemination down to the last mile
   - National, Regional and Ocean-wide warning system
3. Disaster Management and Preparedness
   - Public education, Emergency planning and Response

PTWS WG3 – Disaster Management and Preparedness

- Chair: David Coetzee, NZ MCDEM
- Vice-Chair: Julie Leonard, USAID/OFDA

2013-2014 Activities
- Focus on the PTWC New Products (Oct 1 start) - Training & SOP development to strengthen response capabilities
- Exercise Pacific Wave 2015 (February 2-5) - test New Products
- Align with TOWS TT Disaster Management and Preparedness Activities

TOWS Inter-ICG Task Team on Disaster Management and Preparedness

- Two reps from each ICG, 1 should be ICG TIC Chair: David Coetzee, NZ MCDEM
- 2014 Activities (from Feb 2014 meeting)
  - Finalize SOP Manual (ITIC and IOC since 2008)
  - Compile reference list of tsunami evacuation mapping material, and develop a template for comprehensive mapping guidelines
  - Promote education and awareness strategies as well as 'Tsunami Ready and Tsunami Smart' type programmes (CARIBE-EWS initiatives)
  - Finalize tsunami guide for hotels (NEAMTIC, ITIC)
  - Finalize Post Event Performance Survey (ITIC, TICs, TOWS TT Watch Operations)

PTWS – Preparedness priority

PTWS Steering Committee (July, 2014) endorsed Working Group 3 (Disaster Mgmt and Preparedness) recommendation:
Following 1 October 2014 New Products start, the next PTWS priority focus is PREPAREDNESS
- Communities must know what to do and where to go upon when a tsunami will attack
- ITIC capacity building proposal - Evacuation
Gaps & Needs: Exercise Pacific Wave 2011

3A.6: The NTWC/NDMO has a tsunami mass coastal evacuation plan.

Gaps & Needs: Exercise Pacific Wave 2011

3B.6: Communities have tsunami evacuation maps, routes, evacuation signs and assembly points for evacuation areas?

Course Goal – what and how

Produce reliable tsunami evacuation maps working with communities and govt agencies

- Linked series of training workshops on
  - Evacuation Planning
  - Evacuation Map Development (inundation modeling and map creation)
  - Tsunami Warning & Emergency Response SOPs
  - Conducting Tsunami Exercises (incl evacuation)

- Course globally applicable
  - Standardized tools and methodologies
- Once developed, replicate as Train-the-Trainer

Course Development - Partners

- ITIC lead, in collaboration with New Zealand, UNESCO/IoC, PTWS Working Groups, other partners
- Course Team - Warning, Modelling, Disaster Mgmt, Community Preparedness, Educ/Outreach experts
- Compile and incorporate best practices worldwide
- Pilot Course using ‘real’ communities (produce evacuation map). After each training delivery, feedback mechanism to adapt and improve.
- Interest in Central America pilot(s)?
- At end, publish IOC Manual and Guide on Evacuation Plans, Maps, and Procedures

Tsunami Modeling Codes examples

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<th>GEOCLAW</th>
<th>ATDM (forecast)</th>
<th>COOLWAVE</th>
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<td>Shallow Water</td>
<td>Shallow Water</td>
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<td>AMR</td>
<td>Yes (two way)</td>
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<td>Interface</td>
<td>Graphical</td>
<td>Command line</td>
<td>Command line</td>
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</table>

Summary of selected tsunami modeling softwares used for tsunami inundation modeling for evacuation maps (vs forecasting).

Others used include NEOWAVE, COMCOT, TUNAMI-N2, etc
Community Model Interface for Tsunamis

Advantages of ComMIT:

- Easy to use Graphical Interface
- Ability to run on any platform (Windows, Unix or Macintosh).
- No need to deal with complicated compiler or library issues.
- It provides full access to NOAA NCTR propagation database

Disadvantages of ComMIT:

- Source definition is restricted to NOAA NCTR Propagation Database
- Output product generation is restricted to existing ComMIT visualization features.
- Limited grid size/resolution (can be easily resolved).
- Multi-run automation is not possible.
Course Development Plan: 2015-2016

1. Stakeholders coordination meetings
   - Outline process. Identify communities, participants/agencies/organizations

2. Linked training workshops
   - Evacuation Planning, Map Development, Tsunami Early Warning SOPs, Exercises

3. Activities / Products (some conduct in parallel):
   - Evacuation SOPs
   - Inundation Modeling for evacuation map
   - Tsunami Evacuation map – community outreach and awareness, signage
   - Tsunami Exercise - Plan, Conduct, Evaluate

Next Steps

☐ Identify Pilot locations. Central America?
☐ ITIC Pilot will
   - Develop Course
   - Assist communities to make evacuation maps
   - Expected time frame: 2015-2016
☐ Support mechanisms needed
   - Feedback Team (PTWS, sub-regional, country?)
   - Country consultant
   - For each pilot location, need
     ☐ Government point of contact
     ☐ Stakeholder agencies (national, local, non-government, science resource (govt, university, other))

WG3 Terms of Reference (aligns w/TOWS TT)

- Facilitate in collaboration with TOWS Task Team 2 and organizations such as UNISDR, the exchange of experiences and information on preparedness actions, education/awareness raising campaigns and other matters related to disaster management and preparedness;
- Promote preparedness in coastal communities through education and awareness products and campaigns;
- Facilitate SOP training across regions to strengthen emergency response capabilities of Member States and their Disaster Management Offices;
- Promote preparedness programs and assessment tools that have been successful in one region in the others as appropriate;
- Support the ITIC of the ICG;
- Report to the ICG-PTWS.

Thank you

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