

**Project Title:** Strengthening Tsunami Warning and Emergency Responses: Training Workshops on the Development of Standard Operating Procedures for Indian Ocean and Southeast Asian Countries

**Project by:** UNESCO Intergovernmental Oceanographic Commission

**Funded by:** Multi-donor Voluntary Trust Fund on Tsunami Early Warning Arrangements in the Indian Ocean and Southeast Asia, administered by UNESCAP

**Beneficiary Countries:** Indian Ocean and Southeast Asian Countries in UNESCAP region with borders to the Indian Ocean and/or western Pacific marginal seas that can be affected by tsunamis and earthquakes, including Bangladesh, Brunei Cambodia, China, Iran, India, Laos, Maldives, Sri Lanka, Pakistan, Philippines, Myanmar, Thailand, Malaysia, Singapore, Indonesia, Timor Leste, and Vietnam

**Target Groups:** National Tsunami Warning Centers (TWC) and National Disaster Management Organizations (NDMO)

**Time Frame:** 1 year, Nov 1, 2007 to Oct 31, 2008

**Activities:** 1 Regional Training (1-week long), May 12-16, 2008, Bangkok  
4 Country-dedicated Capacity Building Projects (3 1-week long missions to Myanmar, Pakistan, Philippines, Vietnam)

### **Executive Summary**

This Project seeks to strengthen existing tsunami warning and emergency responses through training workshops and capacity building missions to assist countries in the development of Standard Operating Procedures (SOP) as part of their Tsunami Warning Center and Tsunami Emergency Response Plans.

National Tsunami Warning Centers (NTWC) are currently being developed in the Indian and South China Sea regions. The NTWC, as the Tsunami Warning Focal Point (TWFP) with the responsibility of receiving international tsunami advisories and issuing official tsunami warnings within their own country, must have robust, well-tested tsunami warning standard operating procedures. When warnings are issued, Disaster Management Organizations (DMO) must then have equally well-practiced tsunami emergency response standard operating procedures to ensure an efficient rapid response that will evacuate people out of tsunami inundation zones before the wave's arrival. These are concepts endorsed by Member States of the UNESCO-IOC Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), whose Member States have long and valuable working experience in tsunami hazard mitigation.

At the time of this proposal (2006), most countries did not have well-tested protocols and procedures; many still do not. The 2006 conclusion was based on polling and discussions of 23 countries participating to the Regional Tsunami Workshop on Mitigation, Preparedness and Development of Tsunami Early Warning Systems in the Indian Ocean Region 14-16 June 2006, 20 countries participating to the Third session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System 3-5 August 2006, 20 countries attending the UNESCO-IOC XXth Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System 1-5 May 2006, 14 countries attending the International Round Table Dialogue on Earthquake & Tsunami Risks in Southeast Asia and the South China Sea Region 27 – 28 April 2006, 11 countries responding to the IOTWS WG 6 Capacity Questionnaire, and the conclusions of the UNESCAP-funded Mapping Study on Tsunami Early Warning Systems in the Indian Ocean and Southeast Asia (Draft, December 2006).

In order to ensure standards of interoperability and consistency in evaluation and warning message content, regionally coordinated approaches are needed to support the development of end-to-end tsunami warning. A Tsunami Warning Center (TWC) must provide threat advice to emergency authorities as early as possible (within minutes). For this, a TWC should have in place Standard Operating Procedures (SOP) in order to efficiently analyze the incoming data, evaluate its threat, and take clear action. Further, there is a need to stimulate technical and institutional capacity building and through this, agreement and implementation of regionally-transferable procedures for the rapid exchange of data and event information related to a potentially damaging events.

For an effective end-to-end tsunami warning system, Disaster Management Organizations (DMO), or their equivalent, from all levels of government should be responsible for public safety, health and welfare of the people and community during natural or man-made disasters. DMOs and other government and non-government organizations must develop Tsunami Emergency Response (TER) Plans and accompanying Standard Operating Procedures and Checklists to properly coordinate and execute rapid and massive public coastal evacuations in response to a Tsunami Warning Center's notification of an approaching tsunami on a 7X24 basis. TER Plans should be developed as part of an organization's broader multi-hazard Emergency Plans.

Both tsunami early warning systems and disaster management must ultimately be integrated into national, provincial, district and village levels to strengthen a community's capacity to respond appropriately to tsunami warnings and cope with disaster.

The Project is designed as a Regional Project in which a standard, generic set of COP, SOP, checklists, and flow charts will be provided as a common starting point from which countries may develop and enhance the procedures according to their own needs and specific situations. The planned materials, derived from best practice experiences of existing systems in the Pacific and especially from Japan and the USA, are intended to constitute a set of globally-consistent procedures and protocols for tsunami warning and emergency response. From this common point, the Project proposes to undertake Country-dedicated missions using practicing and/or well-experienced experts to assist in the development of responses specific to their needs and requirements.

For this, one Regional Training Workshop is planned to provide guidance, templates, and best practices to countries across the IOTWS and Southeast Asia region; the workshop will be conducted at the beginning-to-middle of the Project implementation period to introduce the concepts and provide reference materials. Four Country-dedicated, multi-mission technical assistance sub-projects will be carried out over a 5-6-month period in order to work directly with the country to build understanding and capacity to develop sound tsunami warning and emergency response SOPs; the sub-Projects will consist of technical assessment and recommendations to strengthen each country's protocols and procedures, development of or improvement upon their existing SOPs, and conduct of one type of tsunami drill, such as a tabletop exercise, to evaluate the feasibility of the developed SOPs. It should be emphasized that the Project funds are sufficient only to provide basic SOP understanding and development guidance; countries are expected to continue to improve and enhance their procedures, and especially after each event in order to identify and immediately make corrections to improve existing procedures.

Additionally, under separate funding, this approach will assist Sri Lanka, Maldives, Mauritius, and Mozambique in 2008 / 2009, and will continue to assist Indonesia through 2009.