

Executive summary

The objective of the initiative, “Evaluation and Strengthening of Early Warning Systems in Countries Affected by the 26 December 2004 Tsunami”, facilitated and coordinated by the United Nations International Strategy for Disaster Reduction (UN/ISDR), was to provide an overall integrated framework for strengthening early warning systems in the Indian Ocean region by building on the existing systems and to facilitate coordination among various specialized and technical institutions. The project has been highly relevant to the mandate of the UN/ISDR of advocating disaster risk reduction within the Hyogo Framework for Action, 2005-2015: Building the Resilience of Nations and Communities to Disasters¹ and the work of the Platform for the Promotion of Early Warning (PPEW), one of the thematic platforms of the ISDR system.

The project underscored a partnership approach to supporting the integrated development of tsunami early warning systems in close collaboration with the numerous United Nations and other organizations which have been devoted to improving disaster risk management and risk reduction. In particular, the project supported the United Nations Educational, Scientific and Cultural Organization Intergovernmental Oceanographic Commission (UNESCO/IOC) in its leadership to achieve a consensus on the core elements of a tsunami early warning system and set-up an interim warning system in the Indian Ocean region.

The project was financed with a total of US\$10.5 million in contributions from seven donors, namely the Governments of Finland, Germany, Japan, Netherlands, Norway, Sweden, and the European Commission Humanitarian Aid Office (ECHO).

The project components were identified broadly in two different areas, namely warning system development and preparedness. As a cross-cutting theme, the project has promoted “people-centred early warning systems” emphasizing (i) risk knowledge, that is, prior knowledge of the risks faced by communities, (ii) monitoring and warning service, (iii) communications and dissemination of understandable warnings to those at risk and (iv) response capability and preparedness to act by those threatened aspects.

The project was coordinated by the UN/ISDR-PPEW, as part of the larger Flash Appeal coordinated by UNOCHA, and was implemented by 16 partners, namely United Nations Development Programme (UNDP) India and Sri Lanka Offices, the United Nations Environment Programme (UNEP), the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), United Nations Educational, Scientific and Cultural Organization (UNESCO) Jakarta Office, the UNESCO Intergovernmental Oceanographic Commission (UNESCO/IOC), the United Nations Office for Project Services (UNOPS), the United Nations University Institute for Environment and Human Security (UNU-EHS), the World Meteorological Organization (WMO), the All India Disaster Mitigation Institute (AIDMI), the Asia-Pacific Broadcasting Union (ABU), the Asian Disaster Reduction Center (ADRC), the Asian Disaster Preparedness Centre (ADPC), the Centre for Research on the Epidemiology of Disasters (CREED), Sustainable Environment and Ecological Development Society (SEEDS) and the University of Geneva.

The activities of the project were structured into five key components, core system implementation, integrated risk management, public awareness and education, community-level approaches and project coordination. An interim tsunami early warning system in the Indian Ocean region has been operational since April 2005 with interim tsunami advisory information issued by two institutions, the Pacific Tsunami Early Warning Center in Hawaii and the Japan Meteorological Agency in Tokyo. These tsunami advisory information have been received by tsunami focal points of the Indian Ocean countries designated by 25 countries to date. The project activities have been completed by 31 December 2006 except some capacity building activities undertaken by UNESCO/IOC, UNESCO Jakarta and UNDP Sri Lanka, which have been completed by 31 December 2007 without additional cost implication.

¹ Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, <http://www.unisdr.org/eng/hfa/hfa.htm>

Various lessons were learned from the project. Although both the multi-partner, multi-donor nature of the project and the time constraint for the implementation caused some administrative challenges, the project successfully assisted in strengthening coordination, partnerships, linkages and synergies among the implementing agencies and donors during the process of implementing the project. A number of local good practices have been identified through the regional offices of the UN/ISDR in Asia and Africa. Some success stories have been reported by implementing partners such as UNESCO/IOC, UNESCO Jakarta, WMO and UNDP Sri Lanka for the successful application of the procedures and warning systems developed under the project at the time of the occurrence of tsunami, earthquake and landslides in Indonesia and Sri Lanka in 2006 and 2007. All outputs and publication of the project have been disseminated to a wider audience by the UN/ISDR secretariat and each implementing partner to further enhance awareness on tsunami early warning and disaster risk reduction and to facilitate the Indian Ocean countries to exchange of experiences and replicate good practices.

The project contributed to maximizing effectiveness of inputs and resources by providing strategic direction for the implementation and monitoring of the project activities and avoiding overlaps between the implementing agencies. It was the first time that the UN/ISDR secretariat provided overall coordination to a project under the UN Flash Appeal which was not necessarily focusing exclusively on humanitarian assistance. Nevertheless, the integrated approach and coordination proved to be effective.

The project has created an enabling environment for coordination and partnership-building necessary for the development of “end-to-end” and “people-centred” early warning systems in the Indian Ocean region. However, the project activities are only the first step for establishing fully-fledged tsunami early warning systems within a multi-hazard framework. Strong political commitment of the Indian Ocean countries as well as substantial financial and technical supports from the international community are crucial to achieve this goal in the long term.

In order to realize the fully-fledged tsunami early warning systems (TEWS) with a close linkage with other ocean related hazards, the following actions are recommended.

- The UN/ISDR, UNESCO/IOC, WMO as well as other UN, international and regional institutions working on early warning systems should continue to provide their assistance to the Indian Ocean countries in enhancing capacities and mobilizing resources necessary for both establishment of the TEWS and the establishment of national platforms for disaster risk reduction.
- To generate an enabling environment for TEWS in the Indian Ocean region, the UN/ISDR secretariat, its regional offices and other members of the ISDR system should continue to assist the countries in Asia and Africa to establish and/or strengthen national platforms for disaster risk reduction to effectively implement the Hyogo Framework for Action.
- The regional coordination mechanism for the tsunami early warning systems through the UNESCO/IOC Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning System (ICG/IOTWS) should be strengthened through the activities of the Sixth Working Group on Mitigation, Preparedness and Response in addition to the on-going discussion of the other working groups in order to ensure integration of tsunami early warning systems into national and regional mitigation, preparedness and response capability building efforts within a multi-hazard framework.
- Before the 26 December 2004 tsunami, many of the countries in the Indian Ocean region did not have a well organized disaster management system except for tropical cyclone-prone countries such as India and Bangladesh. Thus, National Disaster Management Offices in most countries were very weak, and there were few established national platforms for disaster risk reduction in the region. The roles of the National Disaster Management Offices should be further enhanced for better coordination within a country.

- Constructing structural measures such as sea walls and shelters should be considered to protect lives, properties, and significant infrastructures from tsunami. Currently, very few countries have implemented the structural measures mainly due to a lack of information on risks. Countries need to have access to such information.
- Accurate tsunami risk assessment based on paleo-tsunami research in the Indian Ocean region is needed. Currently, sufficient scientific information is not available on the historical occurrence of natural hazards in the region, except Indonesia for which some records are available only for the last few hundred years. Research outcomes would facilitate policy-making process in each country. In addition, historical and geographical research should be promoted to analyze what happened in the region in the past.