



International Strategy
ISDR
for Disaster Reduction



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Evaluation and Strengthening of Early Warning Systems in Countries Affected by the 26 December 2004 Tsunami



Partnerships for Building Resilience to Tsunamis

“The devastating impact of the Indian Ocean tsunami has reminded us all of the vulnerability of human life to natural disasters”

Kofi Annan
Secretary General, United Nations

The Tsunami Disaster

On December 26th, 2004, an earthquake measuring 9.0 on the Richter scale struck the western coast of Sumatra in Indonesia triggering massive ocean waves or "tsunamis". Humans were confronted by an unprecedented catastrophe impacting lives of people not only in the Indian Ocean region but all over the world. The death toll is believed to be over 270,000 people with billions of dollars in damage cost. While many people are believed to have died in the earthquake, the main cause of death was trauma and drowning from the flux of seawater and waves pouring into coastal areas without warning.

The Response

A *Common Statement* by countries participating in the World Conference on Disaster Reduction (WCDR) recommended that **necessary regional disaster mechanisms should be established and strengthened as soon as possible** for all relevant natural hazards, including early warning systems, collaborative regional centers, and use of modern science and technology.

Recognising the urgency to develop an early warning system for the Indian Ocean region, a multi-partner, multi-donor initiative "**Evaluation and Strengthening of Early Warning Systems in countries affected by the 26 December 2004 Tsunami**" was launched in early 2005. The initiative is funded through the UN Flash Appeal for the Indian Ocean in 2005 and is being coordinated by the UN/ISDR Platform for the Promotion of Early Warning (PPEW).

Progress

This initiative has provided an **overall integrated framework** for strengthening an early warning system in the Indian Ocean. Its key components include core system implementation, integrated risk management, public awareness and education, community-based approaches, as well as partnership building and coordination.

Significant progress has been achieved in each of those components as described in details below.

Partnerships for Building Resilience to Tsunamis

Engagement of a wide range of partners and donor contributions has brought an added-value to the diversity of activities, and a more coordinated and coherent approach to the problem, thus extending the reach and effectiveness of inputs and resources.

This initiative has **strengthened coordination** of joint efforts of many UN agencies, regional and national organizations, research institutes and local communities.

Moreover, it is **contributing to the implementation of the Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters**.

Needs-Assessment for a Tsunami Early Warning System

This initiative funded needs-assessment missions to sixteen Indian Ocean countries to assess the capacity-building requirements for tsunami warning and mitigation. The missions were jointly organised by UNESCO-IOC, ISDR-PPEW, WMO and other partners with support from multidisciplinary expert teams. **The Overall regional summary of findings** published in December 2005 indicated that:

- Most countries have established or strengthened their disaster management laws, national platforms, and national and local coordination mechanisms but not all have specifically addressed **the tsunami coordination aspect**.
- All participating countries (except Somalia) receive tsunami warnings from the Pacific Tsunami Warning Center (PTWC) and the Japan Meteorological Agency (JMA), but few operate a national tsunami warning centre or have **the capacity to receive/provide data**.
- Few countries have developed tsunami emergency and evacuation plans or tested response procedures for tsunamis, but much of **the data needed** has yet to be collected.
- Many participating countries have assessed local government capacity for disaster preparedness and emergency response but not **community preparedness**.
- Community **education and outreach** programmes are being developed but are largely not in place in most participating countries.
- Most countries have made progress developing policies, assessing technological needs, and establishing coordination mechanisms at a national level, but **local planning and preparedness** activities are still being carried out selectively.

Louis Michel European Commissioner for Development & Humanitarian Aid

"The tsunami and subsequent Kashmir earthquake were stark reminders for the international community of the need to invest more in reducing the risk of disasters. In supporting the Tsunami Early Warning System in the Indian Ocean, the European Commission is giving a clear signal about its commitment to disaster risk reduction. In this area, we recognize the importance of partnership and of coordinated efforts leading to the establishment of people-centered, integrated early warning systems and disaster-preparedness measures. The TEWS initiative has successfully brought together a wide range of stakeholders at national, regional and international level under UN leadership. This project provides reassurance for coastal communities around the Indian Ocean and should help to save lives in the future. It is a fine example of what can be achieved by working together."



Credit: NOAA



Credit: IFRC



Credit: IFRC



Credit: IFRC

Tsunami Warning Core System

Led by UNESCO-IOC in partnership with WMO and countries bordering the Indian Ocean region, the core elements of a regional tsunami early warning system for the region are being developed and scheduled for completion by July 2006. **Achievements to date:**

- **Regional agreement** on the nature and core elements of a tsunami early warning system have been asserted.
- Set-up of an **interim tsunami advisory information system** involving the exchange of seismic data and tsunami advisories.
- Designation of **official tsunami national focal points** in twenty-six countries to receive tsunami advisory information.
- Deployment of **twenty-three real time sea level stations** will be completed by mid-2006 for full upgrade of the Global Sea Level Observing System (GLOSS) network in the region.
- Review and strengthening of **Global Telecommunication System (GTS)**, led by WMO, is ongoing to support the exchange and distribution of Indian Ocean Tsunami Warning System alerts and all-hazards information exchange system on the long-term.
- **Sixteen needs-assessment missions** to Indian Ocean countries in Africa and Asia were carried out in 2005, reviewed national capabilities for tsunami early warning and mitigation, public awareness, and risk reduction needs and opportunities. The full report is available on UNESCO-IOC web page.

Integrated Risk Management

This initiative promotes the integration of tsunami early warning systems into national disaster risk management and reduction mechanisms to ensure sustainability and effectiveness of the system. It emphasises the strengthening of national capacities for tsunami risk management and reduction. **Achievements to date:**

- Supporting the **institutional capacity building** in tsunami early warning and disaster management with focus on engaging national and local actors and enhancing coordination.
- Fifty high level administrators, from twenty-six Indian Ocean countries enhanced their knowledge and capacity through participation in **two study tours** to observe existing Pacific Ocean tsunami early warning systems in Japan and Hawaii.
- Providing **technical support** to disaster management institutes in Sri Lanka in policy design, planning, and duplicating experiences.
- Capacity strengthening - led by UNEP - of environmental authorities in Indonesia, Sri Lanka, and Maldives towards the **integration of environmental assessment** in national disaster risk reduction and early warning systems.
- Strengthening **ISDR-ASIA partnership** and regional coordination, networking, and outreach mechanisms.

Community-level Approaches

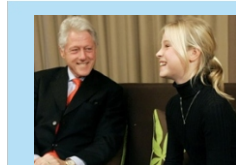
Local coastal communities are at the front line of tsunami disasters. Their response capability, knowledge, and participation in planning and operating early warning systems are essential elements. Their indigenous knowledge and voluntarism support disaster preparedness, mitigation and response. **Achievements to date:**

- Developing rapid **vulnerability assessment** techniques by UNU for the city of Galle in Sri Lanka to strengthen response capacity.
- Piloting initiatives by UNESCO and UNDP in Indonesia, Sri Lanka and India to **assess community mechanisms** for disaster preparedness and enhance disseminating early warnings to communities.
- Undertaking an **epidemiological study** of the human impact of the tsunami in Tamil Nadu, carried out by CRED with local institutes to inform policy planning for early warning and disaster mitigation.
- ISDR-Africa is providing technical assistance and partnership fostering to develop a **fishing boat owner's and farmer's insurance schemes** in the Seychelles.
- Role of **micro-finance in tsunami risk mitigation** and recovery was explored through sharing and documenting experiences from Asia in an international workshop coordinated by AIDMI and ISDR in India.

Public Awareness and Education

Ensuring an effective people-centered early warning system requires emphasis on public awareness and education to ensure that knowledge about disasters is widely disseminated and clearly understood by those at risk. The media, educators, and NGOs play a major role in raising public awareness. **Achievements to date:**

- ISDR **Disaster Reduction Field Library** initiative was launched to enhance knowledge of disaster risk reduction. It engages practitioners, educators, local communities and NGOs. The Field Library contains around 100 books packed in a blue metal trunk on wheels. On the request of the Governments of Indonesia and India, the first prototypes were handed over to each of them. Ten more will be distributed in the Indian Ocean region.
- Two **media-targeted workshop** coordinated by ABU and ISDR, and one **public awareness workshop** organized by ISDR-Asia Partnership strengthened coordination, improved dialogue and understanding regarding public awareness and education.
- Development of **tsunami awareness booklets** by ADRC using old Japanese tsunami story "Inamura-no-hi" and disseminating it for adults and children in 8 countries and in local languages.
- Development of "**Tsunami Teacher**" information kit by ITIC of UNESCO-IOC to provide reliable and verified tsunami warning, response and mitigation information and tailored-training modules.
- A video clip on disaster risk reduction "**Everybody's Business**" was produced by ISDR and distributed to the media & partners. More copies to be translated into local languages by UNESCO.
- **Lessons being learned** from the tsunami disaster in the Indian Ocean are being documented for dissemination by mid-2006.



Tilly Smith meeting UN Secretary-General's Special Envoy for Tsunami Recovery and former US President, William J. Clinton

Importance of Education...

Tilly Smith, an eleven year old schoolgirl, was on holiday in Thailand with her family when the tsunami hit. She recognized the signs of the receding sea and warned her parents of the impending tsunami, which led to hotel guests being rapidly cleared from the beach.

"All children should know what a tsunami is... and how to react"

Future Strategy

This UN initiative to strengthen early warning systems in the Indian Ocean has provided a sound basis for the enhancement of early warning systems of the countries in the region. Yet, much more work remains to be done in order to build long-term sustained national capacities for resilience to tsunamis and to ensure the integration of these systems in development and disaster risk reduction strategies.

A “**Strategy for Building Resilience to Tsunamis in the Indian Ocean for 2006-2008**” to sustain a systematic comprehensive people-centered early warning system is being developed by the ISDR secretariat, in its capacity and responsibility to facilitate the implementation of the Hyogo Framework, and in consultations with partners and donors.

The strategy aims to capitalise on achievements to date and ensuring the continuation of collective inter-agency efforts and enhanced linkages and partnerships. It will continue to support the development of the core warning system, while shifting the emphasis toward building resilience to tsunamis in the context of other hazards and disaster risk reduction.

In accordance with Hyogo Framework’s goal; “*Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards*”, the future strategy identifies specific outcomes building on the ongoing tsunami early warning initiative, and addressing the needs and gaps identified in the national needs-assessment reports, as well as areas that require further enhancement on a long-term basis. The areas of intended outcomes are:

1. **Disaster management** to support institutional capacity-building in disaster management.
2. **Public awareness** to facilitate the enhancement of public awareness regarding tsunami.
3. **Education** to support the strengthening of the education role in early warning.
4. **Community-based approaches** to support the strengthening of local communities' response capability.
5. **Early warning core system support** to support the completion of the current core system implementation plans.
6. **Tsunami risk assessment and mitigation** to facilitate the coordination of research development and risk assessment.

Satoru Nishikawa
Director, Disaster Preparedness,
Public Relations and
International Cooperation
Cabinet Office, Government of Japan

“Immediately after 26 December 2004, Japan decided to share, to the maximum extent with Indian Ocean Countries, our various expertises on Tsunami Early Warning System (TEWS). Effective TEWS must be a combination of scientific and accurate observation and analysis, immediate exchange of data and communication, immediate dissemination to the public, good understanding by the public and quick action by the recipients. It requires a multi-sectoral approach and concerted action by numerous players. Also the TEWS must be based on strong national capacities, drawing experiences from existing operational national and regional TEWS. Therefore Japan is supporting the joint efforts by UNESCO/IOC, WMO, ADRC and others with the good coordination role of ISDR supported by the expert inputs from the Pacific Tsunami Warning Center and Japan Meteorological Agency. Japan hopes that these efforts will provide a safe and sustainable future for the coming generations in the Indian Ocean region.”

Implementing Partners of the Flash Appeal Tsunami Early Warning Initiative

UNDP	United Nations Development Programme	ABU	Asia-Pacific Broadcasting Union
UNESCO	United Nations Educational, Scientific and Cultural Organization	ADPC	Asian Disaster Preparedness Center
UNESCO-IOC	UNESCO - Intergovernmental Oceanographic Commission	ADRC	Asian Disaster Reduction Center
UNEP	United Nations Environment Programme	AIDMI	All India Disaster Mitigation Institute
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific	CRED	Center for Research on the Epidemiology of Disasters
UNU-EHS	United Nations University-Institute for Environment and Human Security	ITIC	International Tsunami Information Center
WMO	World Meteorological Organization	UniGve	University of Geneva

UN/ISDR Platform for the Promotion of Early Warning (PPEW)

Provides the overall coordination of this initiative with emphasis on the strategic overview and planning, facilitating partnerships, meeting donor requirements, and disseminating information. PPEW also undertakes specific activities related to the mandate of ISDR and the overall aim of building nations and communities resilience to disasters. For information and contact details visit: <http://www.unisdr-earlywarning.org>

More Information on this Initiative

PPEW has launched the Tsunami Early Warning Information System (TEWIS) in 2005 as a web-based database that contains information, documentation and details on the activities supported by the current tsunami early warning strengthening initiative. TEWIS is available on:

<http://www.unisdr-earlywarning.org/tewis>



The European Commission and the Governments of Finland, Germany, Japan, Netherlands, Norway and Sweden have contributed generously - through the UN Flash Appeal for Indian Ocean Earthquake-Tsunami 2005- to support the UN/ISDR coordinated initiative: “Evaluation and Strengthening of Early Warning Systems in countries affected by the 26 December 2004 Tsunami”

This brochure provides progress update as of March 2006