



Proposed Strategy for Building Resilience to Tsunamis In the Indian Ocean 2006-2008

Background and Context:

Following the devastating tsunami disaster on 26 December 2004, the international community has made concerted efforts to address the humanitarian, recovery and development needs of the countries and population affected. Recognizing the urgency to mobilize efforts and resources towards establishing an early warning system for the Indian Ocean region, the ISDR secretariat, in cooperation with UNESCO's Intergovernmental Oceanographic Commission (IOC) and other agencies, developed the tsunami early warning initiative "***Evaluation and Strengthening of Early Warning Systems in countries affected by the 26 December 2004 Tsunami***". As part of the UN Flash Appeal for tsunami affected countries, the above initiative provided the initial preparatory steps and coordination mechanisms towards the establishment of a comprehensive people-centered early warning system for the Indian Ocean region.

With generous donor contributions and the collective efforts of partners from the UN, regional organizations and research organizations, the project has targeted technical core system implementation, community-level approaches, public awareness, and integrated risk management. During 2005, substantial progress has been made towards the development of capacities to support tsunami early warning system in the Indian Ocean.

Key achievements include:

- Establishment of the core technical elements of a regional tsunami early warning system is on track and to be completed by June 2006.
- Coordination of joint efforts of many key organizations in the UN and the region, linking the tsunami warning system to other hazard warning systems and to disaster management institutions.
- Significant progress towards awareness raising and capacity building in advocacy with effective engagement of the media and non-governmental organizations.
- Provision of an example of an integrating vehicle for supporting the implementation of the *Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters*.
- Engagement of a wide range of partners and donor contributions, which 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.

During 2005, several activities were completed and major accomplishments include the development of regional inter-governmental processes to support tsunami early warning system in the Indian Ocean, completion of national needs assessments for sixteen countries in the Indian Ocean region in both Asia and Africa, the development of vulnerability assessment methods in selected communities, the increased coordination and networking among national disaster management offices and their local and regional counterparts, tailored tsunami public awareness and education initiatives, and community-based approaches to preparedness and mitigation.



However, while the Flash Appeal initiative has provided a sound basis for strengthening tsunami early warning systems of countries in the Indian Ocean region, much more work remains to be done to build the 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 develop and sustain a systematic comprehensive people-centered early warning system, long-term strategic planning coupled with financial and human resources allocations will be essential. ISDR secretariat, in its capacity and responsibility to facilitate the implementation of the *Hyogo Framework for Action 2005-2015*, proposes the attached **“Strategy for Building Resilience to Tsunamis in the Indian Ocean for 2006-2008”**. The strategy aims to capitalize on achievements of the 2005 activities, including the continued development of collective inter-agency efforts and enhanced linkages and partnerships. It will complement the continuing initiatives by UNESCO-IOC and WMO to strengthen the design and coordination of the core warning system, while shifting the emphasis toward building resilience to tsunamis in the context of other hazards and disaster risk management and reduction.

Guided by the *Hyogo Framework for Action 2005-2015*, the strategy’s overall goal will be Hyogo’s strategic goal 2, which is the “Development and strengthening of institutions, mechanisms, and capacities to build resilience to hazards”. The strategy – detailed in the attached matrix – will support the implementation of priorities for action identified in the Hyogo Framework for Action, and will develop activities towards the achievement of the following three **“Priorities for Action”** from *Hyogo Framework for Action 2005-2015*:

- Identify, assess and monitor disaster risks and enhance early warning;
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels;
- Strengthen disaster preparedness for effective response at all levels.

In addition, the strategy will draw on the conclusions and findings of the sixteen-needs assessment missions carried out in sixteen countries bordering the Indian Ocean rim during 2005. The national assessment missions provided an opportunity to define the components and implementation actions of tsunami early warning and mitigation systems and to identify related capacity building opportunities, and the consolidated report, published in December 2005, provides a summary of the types of guidance documents and capacity building activities that will help to catalyze national actions. An overall **regional summary of findings** 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 receive international tsunami warnings from the Pacific Tsunami Warning Center (PTWC) and the Japan Meteorological Agency (JMA) except Somalia, but few countries operate a national tsunami warning centre or have the capacity to receive or provide real-time seismic or sea level data.

- Few participating countries have developed tsunami emergency and evacuation plans and signage or tested response procedures for tsunamis or earthquakes, but much of the information and data needed to develop these plans, such as post-event surveys, inundation modeling, and tsunami hazard and vulnerability assessment, 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 for tsunami warning and mitigation. But local planning and preparedness activities are being carried out first in selected target areas, or cities and towns, rather than as comprehensive national programmes.

In that respect, the ISDR proposed “**Strategy for Building Resilience to Tsunamis in the Indian Ocean for 2006-2008**”, has identified six key areas of intended outcomes that build on the ongoing tsunami early warning initiative as well as addressing the strategic goals of Hyogo Framework for Action, the needs and gaps identified in the national needs-assessment reports, and areas that require further strengthening and enhancement on a long-term basis. **Areas of intended outcomes** include:

1. Disaster management
2. Public awareness
3. Education
4. Community-based approaches
5. Early warning core system support
6. Tsunami risk assessment and mitigation

ISDR secretariat will aim to ensure that the strategy is mainstreamed and integrated within the joint work programme of the ISDR system, the activities of the ISDR Africa and Asia outreach offices, and the work plan of the ISDR Platform for the Promotion of Early Warning. The regional offices will play key roles in coordinating project activities and further strengthening networks and collaboration at the regional and national levels. In order to sustain activities and outcomes in the region, special attention will be paid to capacity-building needs of ISDR National Platforms and the strengthening of coordination mechanisms across regional, national, and local levels.

Moreover, linkages and synergies will be emphasized to promote a comprehensive and development-oriented approach to disaster mitigation, preparedness and response to ensure that early warning systems development are mainstreamed into national disaster risk reduction and development planning, therefore more sustainable. This requires more engagement and follow-up to the implementation of Hyogo Framework for Action and national planning and development processes, including enhanced coordination with governments, UN country teams, and donors. The strategy provides an opportunity to further strengthen inter-agency, multi-partner, and multi-sectoral collaboration towards the implementation of the Hyogo Framework for Action, and building the resilience of communities and nations to tsunamis in the Indian Ocean.

Proposed Strategy for Building Resilience to Tsunamis in the Indian Ocean 2006-2008

HYOGO Strategic Goal	Development and strengthening of institutions, mechanism, and capacities to build resilience to hazards		
Relevant HYOGO Priorities for Action	<ul style="list-style-type: none"> • Identify, assess and monitor disaster risks and enhance early warning • Use knowledge, innovation and education to build a culture of safety and resilience at all levels • Strengthen disaster preparedness for effective response at all levels 		
Targeted Countries	All the Indian Ocean Countries		
Areas of Intended Outcomes	Intended Outputs	Proposed Partner Agencies	Resources Target
1. Disaster Management	Support institutional capacity-building in disaster management through: <ul style="list-style-type: none"> • Support the strengthening of ISDR National Platform including tsunami and other hazards entities. • Support disaster risk reduction activities through the National Disaster Management Office's (NDMO) mechanism with partner agencies. • Promotion of strong linkage and coordination between the NDMO and local, provincial, disaster management authorities. • Facilitate the set-up of regional coordination and information exchange mechanisms. • Promotion of the integration of disaster risk reduction in coastal zone management. • Guidance on warning dissemination mechanisms, from authorities to people at risk. 	UNDP Country Offices and BCPR, ADPC, ADRC, UNEP, UNESCAP, UNESCO-IOC / ITIC, PWRI, ISDR secretariat	US\$ 3,500,000
2. Public Awareness	Facilitate the enhancement of public awareness regarding tsunami through: <ul style="list-style-type: none"> • Dissemination of best practices and lessons learned from tsunami of 2004. • Support for national and local authorities to carry out targeted awareness-raising campaigns through the media and public events. • Support the development of public information material tailored to local cultures and languages. • Support the compilation of all-hazard kit (web-based information materials). 	ADRC, ADPC, ABU, UNESCO-IOC/ ITIC, IFRC, WMO, Special Envoy Office for Tsunami, ActionAid, ISDR secretariat	US\$ 1,000,000

3. Education	Support the strengthening of the education role in early warning through: <ul style="list-style-type: none"> Promotion and support for the integration of natural hazard component into school curriculum. Engagement of members of the education system in developing tsunami educational materials. Training of trainers programmes for schoolteachers and disaster managers. 	UNESCO (Education sector and IOC/ITIC), ADRC, ActionAid, ISDR secretariat	US\$1,000,000
4. Community-based Approaches	Support the strengthening of local communities' response capability through: <ul style="list-style-type: none"> Assessment and improvement of community preparedness measures in coastal zones. Development of community tools and methods for effective disaster risk reduction. Targeted-action at tsunami high risk community areas and develop plans to strengthen their capacity and build their resilience (e.g. Padang, Indonesia) 	UNDP, UNEP, ADRC, ADPC, IFRC, UNESCO (Education sector and IOC/ITIC), UNV, ISDR secretariat	US\$ 1,500,000
5. Early Warning Core System Implementation	Support the completion of the current core system implementation plans through: <ul style="list-style-type: none"> Support for national tsunami early warning centers. Support regional coordination and inter-governmental processes led by IOC. Clarification and strengthening of roles among national tsunami warning centers, national meteorological centers and NDMOs. Support for a faster and more dependable international communication between tsunami warning centers. 	UNESCO-IOC, WMO, JMA, PTWC, ISDR secretariat	US\$ 1,000,000*
6. Tsunami Risk Assessment and Mitigation	Facilitate the coordination of research development and risk assessment to provide: <ul style="list-style-type: none"> Guidance on the application of tsunami-specific structural measures such as tsunami shelters, sea walls, levees. Analysis and detection of historical tsunami records Knowledge exchange and training on hazard map and its application strategy. Identification of hot spots with higher probability of tsunami risk in the near future. Risk factor analysis on tsunami disaster affected population. 	USGS, NIED, UNEP, UNU-IEHS, CRED, UNESCO-IOC/ITIC, ISDR secretariat	US\$ 500,000
Overall project coordination among multi-partners, different stakeholders, and regional offices including the monitoring, reporting and evaluation of project activities and results.		ISDR secretariat / Platform for the Promotion of Early Warning	US\$ 500,000
OVERALL project resources required			US\$ 9,000,000

* Indicative resources assume that UNESCO-IOC and WMO are supported by additional bilateral funding and projects for core system implementation.



Acronyms:

ABU	Asia Pacific Broadcasting Union
ADPC	Asian Disaster Preparedness Center
ADRC	Asian Disaster Reduction Center
BCPR	Bureau for Crisis Prevention and Recovery (of UNDP)
CRED	Center for Research on the Epidemiology of Disasters (of Belgium)
UNESCAP	UN Economic and Social Commission for Asia and the Pacific
IEHS	Institute for Environment and Human Security (of UNU)
IFRC	International Federation of Red Cross and Red Crescent Societies
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
ISDR	International Strategy for Disaster Reduction
ITIC	International Tsunami Information Center (of UNESCO)
JMA	Japan Meteorological Agency
NIED	National Research Institute for Earth Science and Disaster Prevention (of Japan)
PTWC	Pacific Tsunami Warning Center (of the United States)
PWRI	Public Works Research Institute (of Japan)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	UN Educational, Scientific and Cultural Organization
UNU	United Nations University
UNV	United Nations Volunteers Programme
USGS	United States Geological Survey
WMO	World Meteorological Organization