

ESCAP Multi-Donor Trust Fund for Tsunami,  
Disaster and Climate Preparedness in  
Indian Ocean and Southeast Asian Countries

**2013**

**ANNUAL REPORT**

ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness for Indian Ocean and Southeast Asian Countries

Annual Report 2013

March 2014

**ESCAP**

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ST/ESCAP/2690

## Contributions

As of 31 December 2013, the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in the Indian Ocean and Southeast Asia (hereinafter referred to as “the Fund”) had received US\$ 13.8 million in contributions and in kind support from the following donors:



The Netherlands provided an Associate Expert from September 2008 to April 2011. ESCAP contributed in kind technical expertise and administrative assistance to the Fund.

## Member countries and partners

Special thanks are extended to the ESCAP member countries covered by the Fund and partners that work together with ESCAP to contribute to more resilient coastal communities, and ultimately to save lives and reduce loss and damage from disasters.



Empowered lives.  
Resilient nations.





## Foreword

In 2013, the Asia-Pacific region was once again affected by a series of powerful natural disasters, which demonstrated the need for further investment in risk reduction measures, including the strengthening of early warning systems.

Typhoon Haiyan, one of the most powerful storms on record, left more than 6,000 people dead and 16 million affected in the Philippines alone. Cyclone Phailin, the second most powerful storm to ever make landfall in India, prompted mass evacuations and affected 13 million people. Cyclone Mahasen also caused severe destruction and loss of life in six countries across South and South-East Asia.

Despite progress in building resilience to natural disasters, risks are still rising across the region. People in Asia and the Pacific remain twice as likely to be affected by disasters than those in Africa, and almost 30 times more likely than those in Europe or North America. Faced with this challenge, timely and collective efforts are required in order to safeguard development gains, and promote further progress in the Asia-Pacific region.

The ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness is an effective vehicle for building resilience to such disasters, by promoting regional cooperation, strengthening capacities at various levels, as well as facilitating the sharing of data, tools and expertise. Since its inception in 2005, the Fund supported a total of 23 projects, benefiting 19 Indian Ocean and South-East Asian countries, with a combined budget of US\$ 13.0 million.

ESCAP's approach to natural disasters is driven by the preference of our member States for regional cooperation aimed at strengthening end-to-end early warning systems. Our strategy is to work with partners to enhance regional mechanisms and South-South cooperation, and to address the specific needs of countries with capacity limitations.

In 2013, the Fund's Advisory Council made an important decision approving a new strategy for 2013-2016, setting the priorities for the second phase of the Fund. ESCAP was also proud to welcome the German Government through its Global Initiative on Disaster Risk Management (GIDRM) as a new partner and donor to the Fund, and its generous contribution earmarked for this second phase.

I would like to once again express my deep gratitude to the Royal Thai Government, as the founding donor of the Fund, as well as to Bangladesh, Germany, Nepal, the Philippines, Sweden and Turkey for their generous contributions. My appeal to member States is to continue to make strategic investments in resilience through the Fund, and in this way to contribute to sustained social and economic development across the region.

**Shamshad Akhtar**

Under-Secretary-General of the United Nations &  
Executive Secretary, United Nations Economic and Social Commission  
for Asia and the Pacific

## Results Summary

Since its establishment in 2005, the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness has contributed significantly to the progress made in building a regional tsunami warning system for the Indian Ocean. In 2011, a key milestone was reached with the operationalization of the Indian Ocean Tsunami Warning and Mitigation System (IOTWS), which was established through the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO).

In March 2013, the regional service providers, Australia, India and Indonesia, assumed full responsibility for issuing international tsunami bulletins for the Indian Ocean, another major milestone. The Fund was one of the many contributors to this new system, in particular through support for the adaptation of standard operating procedures (SOPs) for tsunami warning and emergency response, training and other capacity building at regional, national and local levels, and the establishment of the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES).

The Fund's support for member States with limited capacity, delivered via partners such as RIMES, the Asian Disaster Preparedness Center (ADPC) and UNDP, remains in high demand, particularly among countries facing high risk and limited domestic capacity. RIMES, which was created through a project supported by the Fund, provides a range of cost-effective products and services including tsunami watch services, weather prediction and localized hydro-meteorological risk information within the framework of the World Meteorological Organization (WMO).

At the national level, some of the most valuable and sustainable results of the Fund's projects involve the strengthening of monitoring and warning services. The Fund helped establish four sea-level stations in the Philippines and Viet Nam, and four seismic stations in Myanmar, the Philippines and Viet Nam, filling key gaps and significantly strengthening early warning systems at national and regional levels. Today, data generated from these stations are not only shared nationally and regionally, but also globally via the WMO's Global Telecommunication System and the Incorporated Research Institutions for Seismology (IRIS) through RIMES, respectively.

Following the completion of the above-mentioned activities, which also included training and technical support, the respective Governments of Myanmar, the Philippines and Viet Nam have taken over the ownership, management and maintenance of the sea-level and seismic stations established with Fund support, thus making the projects' achievements sustainable over time.

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Photo: Tsunami tower in Hambantota Town, Sri Lanka (Source: RIMES).

# 1 Introduction

The 2004 Indian Ocean Tsunami resulted in widespread loss of human life and livelihoods, severe damage to infrastructure and ecosystems, and large economic costs. Following this disaster, there was strong recognition across the Asia-Pacific region of the need to undertake a coordinated, long-term effort to mitigate the impact of natural disasters through effective preparedness and prevention measures, including the establishment and further strengthening of early warning systems.

The ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness was established in 2005 following a US\$ 10 million contribution from the Royal Thai Government. The Fund is part of the overall United Nations effort to strengthen resilience across the region. It contributes to the narrowing of capacity gaps and supports the development of an integrated, regional early warning system comprised of a network of collaborative centres. In 2011, the scope of the Fund was expanded from tsunamis to also cover disaster and climate preparedness, while retaining a focus on end-to-end early warning for coastal hazards.

ESCAP is entrusted with managing and administering the Fund, and draws on its mandate as the commission for Asia and the Pacific to promote regional cooperation and integration for effective disaster risk reduction.

In accordance with the Fund’s Terms and Conditions, this Annual Report provides an overview of the results of the Fund in 2013. It also describes the financial status of the Fund, and the activities carried out by the Secretariat.

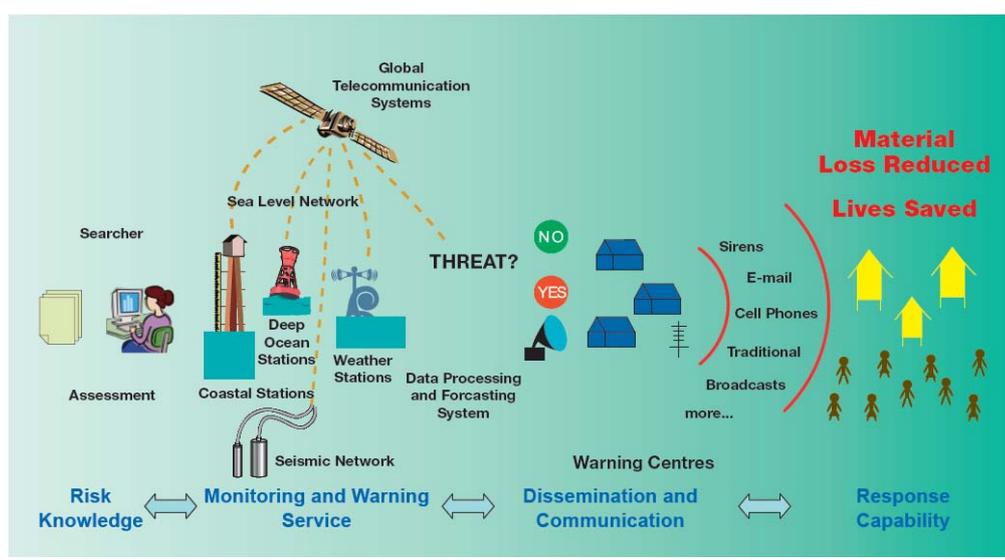


Illustration adapted from IOC-UNESCO Technical Series No. 71.

## 2 Results of Fund-supported Projects

### Portfolio

As of the end of 2013, 23 projects with a combined budget of US\$ 13.0 million had been approved since the Fund's inception in 2005. Fourteen of these projects had been fully completed and closed, while another nine were still under implementation (see Annex 1 for further details on each project).

Through the various projects, the Fund is supporting priority areas such as risk assessments, development of hazard monitoring and warning services, development and testing of SOPs, education and awareness raising, strengthening of warning dissemination, and emergency drills.



Photo: Seismic Station in Sittwe, Myanmar, established through project TTF-02 (Source: ESCAP).

### Generation and Application of Early Warning Information

RIMES, which was created with support from the Fund, provides low-cost warning products and services, particularly for tsunamis and extreme weather systems. These products and services are in particularly high demand by countries that are at high risk of disasters and at the same time possess limited domestic capacity in hazard monitoring and early warning. RIMES also assists countries in applying hydro-meteorological risk information more effectively for decision making at the national and local levels. Services cover the provision of daily numerical weather predictions, severe weather information forecasts, and seasonal climate outlooks for risk management and preparedness.

Three Trust Fund projects (TTF-02, TTF-02 and TTF-07) implemented by ADPC contributed to the initial establishment of RIMES. In 2013, the Fund's Advisory Council approved a new RIMES project called "Strengthening of Myanmar's Multi-Hazard Early Warning System" (TTF-23), which seeks to further enhance the early warning capacities of Myanmar's Department of Meteorology and Hydrology (DMH).



Photo: National Training on Forecast Interpretation, Translation, Communication and Application in Sri Lanka in October 2013, provided as part of project TTF-16 (Source: RIMES).

As part of the project "Reducing Risks for Tsunami, Storm Surges, Large Waves and other Natural Hazards in Low Elevation Coastal Zones" (TTF-16), implemented jointly by RIMES and WMO, multi-stakeholder national monsoon forums have been established and supported in Bangladesh, India, Maldives, Myanmar and Sri Lanka, in collaboration with the respective National Meteorological and Hydrological Services (NMHS). A state-level forum has also been established in Tamil Nadu, India. These annual forums serve as an important platform for NMHS and the main users of early warning information to identify lessons learned from previous monsoon seasons, take stock of available tools and services, share forecasts for the upcoming season, and plan joint preparedness activities. Additionally, the forums have helped the NMHS better target their products to the end users, and are supplemented by technical training of forecasters provided by WMO.

Project TTF-16 also seeks to improve the uptake of early warning information at the local level, by organizing "user dialogues" in selected communities at risk in the five target countries. These dialogues have been useful in raising awareness in the communities and providing feedback to the NMHS. The pilot communities are also assisted in strengthening their linkages to the national early warning system, through the installation of communication equipment and the training of local-level focal points for warnings.

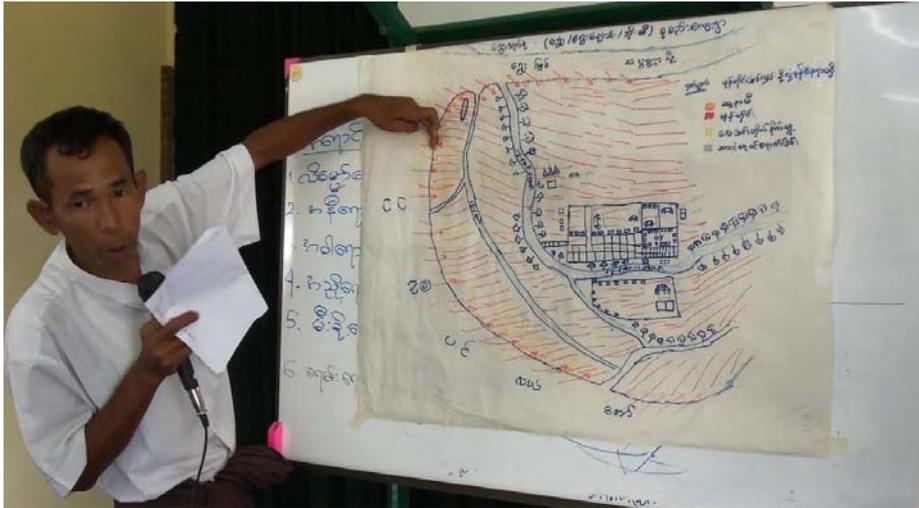


Photo: A community leader in Pyinsalu Sub-Township, Labutta Township, Myanmar presents historical hazards and their impacts as experienced in the community, as part of project TTF-16 (Source: RIMES).

### Strengthening Tsunami Risk Assessment

The project “Enhancing coastal hazard early warning and response: tools and institutional strengthening” (TTF-17), implemented by RIMES, seeks to strengthen capacities for tsunami risk assessment in Myanmar, the Philippines and Sri Lanka. As part of the project, technical staff from government agencies in Sri Lanka and the Philippines were trained on the generation of high-resolution data for tsunami risk assessment using near-shore bathymetric, topographic and exposure surveys. Staff from the Philippines and Sri Lanka also received a month-long training at RIMES in near-shore field survey data processing and development of related outputs. Similar support is planned for Myanmar in 2014.

As part of project TTF-17, the INSPIRE system for tsunami risk assessment was installed in the Philippines. This system was initially developed under a previous project (TTF-07) supported by the Fund, and is now becoming a standard that can be rolled out in multiple countries in the region. Officers from a range of government agencies in the Philippines were also trained on evacuation mapping using the ESCAPE platform developed by RIMES, and produced maps showing evacuation zones and routes while incorporating the outputs generated from INSPIRE.



Photo: Participants from the Philippine National Mapping and Resource Information Authority (NAMRIA) and the Philippine Institute of Volcanology and Seismology (PHIVOLCS) being trained in hazard assessment and mapping, as part of project TTF-17 (Source: RIMES).

### **Tsunami Risk Awareness**

The IOC-UNESCO project “Communicating the effects of the 1945 Makran tsunami” (TTF-21) aims to increase awareness of, and preparedness for, tsunami events in the Makran region, with a focus on Pakistan, Iran and India. In 1945, a major tsunami occurred in the Makran region, resulting in the death of at least 4,000 people. However, the event is not well known locally and regionally, despite the ongoing risk of a new tsunami affecting the same region. Project TTF-21 aims to change this by documenting the 1945 Makran tsunami and its impact, and subsequently using the information to support activities to raise tsunami awareness in the countries at risk.

In 2013, the project undertook field missions to India, Iran, Oman and Pakistan to review historical documents and obtain eyewitness accounts of the 1945 Makran tsunami. The missions gathered a wealth of information and received many eyewitness accounts, particularly in Pakistan. Priorities for future work under the project identified, including (1) interviews in the Indus Delta near Karachi, where it appears that the majority of fatalities took place; and, (2) follow-up interviews in Pasni, Pakistan, where an old port fell into the sea as a result of the earthquake/tsunami and may account for reports of a large “second wave”. Plans were also developed for a website to host the final results of the research.

### **Strengthening National Early Warning Services**

The project “Strengthening Early Warning Systems for Extreme Weather Events to Advance Climate Risk Management in the South East Asian Region” (TTF-15),

implemented by UNDP's Asia-Pacific Regional Centre in partnership with RIMES, supports the authorities in Cambodia and Timor-Leste in better accessing and using information on extreme weather conditions.

In 2013, the project completed provided national trainings on SOPs for improving climate risk information in the two target countries. These trainings supplemented trainings on the generation and interpretation of weather forecasts, which took place earlier in the project. Under the project, RIMES provides ongoing data support to the NMHS. This support was further enhanced in 2013 through the procurement and installation at RIMES of a dedicated server providing 3-day, 10-day and site specific forecasts to Cambodia and Timor-Leste.

In parallel, recognizing the importance of documenting the impact of past disasters to inform preparations for future events, the project supported the establishment of national disaster loss databases in Cambodia and Timor-Leste. In 2013, these databases became operational following training provided earlier in the project. In Cambodia, a national workshop was held to increase the participation of various government agencies in the work required to keep the database updated with information on the impact of disasters.

### **Supporting End-to-End Early Warning Systems**

The project "Technical assistance for enhancing the capacity of end-to-end multi-hazard Early Warning Systems (EWS) for coastal hazards in Myanmar, Sri Lanka and the Philippines" (TTF-18) is implemented by ADPC. It provides a range of technical support, both at the national and at the local levels, to strengthen end-to-end early warning in the project countries.

At the outset of the project, national level early warning systems gap assessments were initiated in Myanmar, Sri Lanka and the Philippines. These assessments helped identify the priorities to be addressed by the project, including training in specific kinds of weather forecasting/modeling, coastal hazard mapping and local-level preparedness activities.

In 2013, a regional capacity building workshop on Weather Research and Forecasting (WRF) modeling was held, with participation from the national hydro-meteorological services of Myanmar, Sri Lanka and the Philippines. As part of the workshop, three professionals from each target country received intensive training on WRF. Staff members from national forecasters were also trained on storm surge modeling by the Japan Meteorological Agency. In the case of the Philippines, the training helped PAGASA accurately predict the storm surge triggered by Typhoon Haiyan in October 2013.

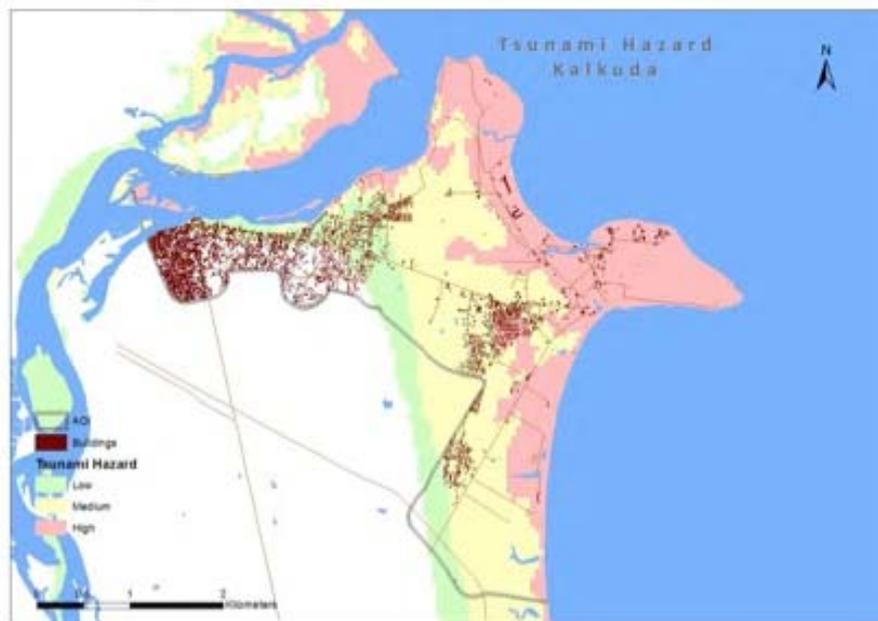


Photo: Tsunami hazard map for Kalkuda, Sri Lanka, developed as part of project TTF-18 (Source: ADPC).

At the local level, hazard mapping for selected pilot sites and associated areas were initiated in Sri Lanka and Myanmar. Similar mapping is planned for the Philippines in 2014. In Sri Lanka, a national workshop was also held to gather feedback on the risk maps and the methods used. Based on this feedback, a training workshop on climate forecast downscaling was provided in order to further strengthen capacity for coastal hazard mapping.

In Myanmar and Sri Lanka, evacuation maps and SOPs for evacuation covering the pilot sites were produced and tested through local evacuation exercises. Communications equipment such as megaphones was also installed in the pilot sites, based on the needs identified through local consultations.

### **Disability and Early Warning**

Experience has shown that people with disabilities are often among the most vulnerable in disaster situations, and that special attention to this group is required across all aspects of disaster management. The Fund is currently supporting two projects focusing on disability and early warning, implemented by ABU and ADPC, respectively, in close collaboration with the Global Alliance on Accessible Technologies and Environments (GAATES).

The project “ABU Disaster Risk Reduction Broadcast Initiative” (TTF-19) aims to strengthen the role of broadcasters in disaster risk reduction, especially early warning. As part of the project, ABU is working with GAATES to develop a manual on emergency communications for people with disabilities. Likewise, ADPC is working with GAATES to develop a manual on disaster preparedness for persons with disabilities, as part of the project “Technical assistance for

enhancing the capacity of end-to-end multi-hazard Early Warning Systems (EWS) for coastal hazards in Myanmar, Sri Lanka and the Philippines” (TTF-18). Both manuals are expected to be completed for further rollout in 2014.



Photo: Working meeting among representatives from ABU, ADPC, GAATES, the Panel on Tropical Cyclones and the Typhoon Committee in May 2013 (Source: ADPC).

### **UN Coordination and Aid Effectiveness**

The Fund benefits from strong partnerships, in particular with other United Nations entities (IOC-UNESCO, ISDR, OCHA, UNDP, UNEP and WMO), who in 2013 attended Advisory Council meetings as observers, contributed to the Trust Fund’s strategy for 2013-2016, and participated in the Inter-Agency Task Force reviewing new project proposals. These contributions were highly useful for the management of the Fund, and helped increase overall coherence and coordination of efforts in the area of early warning.

In 2013, ESCAP took important steps to strengthen coordination among partners. In particular, in August 2013, ESCAP convened a one-day meeting of all the organizations currently implementing projects supported by the Fund, in order to share progress made and outstanding challenges, identify good practices, and promote practical collaboration. In the meeting, participants identified several concrete areas for future collaboration across projects, and also agreed to develop a joint calendar of activities to reduce the risk of duplication and enable joint missions etc. The calendar is now being updated regularly with support from the ESCAP Secretariat.

Certain partnership arrangements under Fund-supported projects are already in place. For example, in support of SOPs for multi-hazard early warning, ADPC, ABU, the Typhoon Committee and the Panel on Tropical Cyclones worked closely together and undertook joint activities in Bangladesh, Pakistan and the Philippines in 2013. ADPC and ABU also coordinate their work related to early warning and disabled people, in which both partner with GAATES. The project

“Reducing Risks for Tsunami, Storm Surges, Large Waves and other Natural Hazards in Low Elevation Coastal Zones” (TTF-16), jointly implemented by RIMES and WMO, is strengthening the cooperation between those two organizations.

Implementing partners are strongly encouraged to integrate projects into wider regional and national early warning and DRR programmes. For project TTF-15, UNDP has been integrating project activities into broader risk reduction programmes in Indonesia, Timor-Leste and Cambodia. For project TTF-16, RIMES builds on existing national platforms to enhance the relevance of early warning products, instead of creating new ones.

### 3 Governance and Management

The Trust Fund for Tsunami, Disaster and Climate Preparedness is managed by ESCAP on behalf of the member States in cooperation with other partners and stakeholders. Its governance structure includes the Advisory Council, the Inter-Agency Task Force and the Secretariat.

#### Advisory Council

The Advisory Council makes funding and policy decisions related to the Fund. In 2013, the Council included the Executive Secretary of ESCAP and representatives from the founding donor Thailand and key donor<sup>1</sup> Sweden. Representatives from the other donors to the Fund, including Turkey, the Philippines, Bangladesh and Nepal, served as observers. The following United Nations partners also participated as observers: IOC-UNESCO, OCHA, UNDP, UNEP, UNISDR and WMO.

The Fund's thirteenth Advisory Council meeting was held on 15 May 2013. At this meeting, the Council approved one new project with a total budget of US\$ 705,291, as part of the eight round of funding.

#### Inter-Agency Task Force

The Inter-Agency Task Force provides technical guidance to the Fund. As such, it reviews project proposals; provides technical advice in response to Advisory Council information requests; and, reviews substantive amendments to ongoing projects supported by the Fund.

The Task Force is chaired by the Chief of the Information and Communications Technology and Disaster Risk Reduction Division (IDD) of ESCAP, with the Senior Regional Coordinator of the UNISDR acting as Alternate Chairperson. The Task Force also includes representatives from the Social Development Division and the Environment and Development Division of ESCAP; and representatives from IOC-UNESCO and UNDP. The Fund's Programme Officer acts as the Secretary. In 2013, the Task Force met once to review and provide technical comments on proposals for decision by the Advisory Council.

#### Secretariat

As the administrator of the Fund, ESCAP acts as the Secretariat. One Programme Officer is financed by the Fund. ESCAP provides administrative support staff to the Fund. In addition, professional staff of IDD provides managerial guidance and technical advice to the Secretariat.

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<sup>1</sup> Donors that have contributed more than 20 per cent of the remaining balance of the Fund are considered key donors.

## General Trust Fund Management

ESCAP managed agreements with implementing organizations for nine projects that were ongoing in 2013, including one project starting that year, reviewed progress reports and project evaluations, tracked financial resources, periodically updated the Fund's website with information on progress on Fund-supported projects, and carried out overall reporting, including the annual report of the Fund.

## Transfer of Ownership of Fund-supported Equipment

The transfer of ownership of the Fund-supported seismic station in Sittwe (provided as part of project TTF-02) to the Department of Meteorology and Hydrology in Myanmar was completed in November 2013. The transfer process was initiated in 2012, following a decision taken by the Advisory Council.

After endorsement by the United Nations Property Survey Board, and approval by the authorized official, the equipment was handed over to the national authorities.



Photo: Handover of Sittwe Seismic Station from ESCAP to the Government of the Republic of the Union of Myanmar, 27 November 2012 (Source: ESCAP).

## Ninth Round of Funding

The Fund's ninth round of funding was launched on 16 December 2013, with a closing date of 28 February 2014. The Inter Agency Task Force was expected to review the proposals and present its recommendations to the Advisory Council for decision in the second quarter of 2014.

## Advocacy

The Secretariat represented ESCAP at the 40th Session of the WMO/ESCAP Panel on Tropical Cyclones in Colombo, Sri Lanka, on 25 February-1 March 2013.

At this meeting, it raised awareness of the role of the Fund among the members of the Panel, and advocated for greater attention to collective early warning mechanisms. The secretariat also held successful discussions aimed at increasing participation among Panel members in project TTF-23, which is implemented jointly by the Typhoon Committee and the Panel on Tropical Cyclones.

During the 69<sup>th</sup> Session of ESCAP in April 2013, the Secretariat organized a side event aimed at raising the profile of the Fund and its achievements among ESCAP member States. The event was well attended, and featured speakers by the Governments of Thailand and Myanmar, respectively, as well as ADPC and RIMES, in addition to ESCAP.

On 16-20 May 2013, the Secretariat participated in 2nd Asia-Pacific Water Summit in Chiang Mai, Thailand, and had its own booth in the exhibition hall at the Summit. The booth was well visited by member States, partner organizations and the general public. The Fund Manager was also interviewed in Thai television and spoke about the Fund and early warning as well as broader disaster risk reduction issues.

The Secretariat participated in the IOTWS Regional Workshop on Standard Operating Procedures for Tsunami Warning and Emergency Response for Northern and Eastern Indian Ocean Countries held on 23-27 September 2013 in Jakarta, Indonesia. The workshop, which was organized by IOC-UNESCO, served as an opportunity to strengthen linkages with a range of partners involved with tsunami early warning in the Indian Ocean, including disaster managers and broadcasters from ten countries, and to increased awareness of the Fund.

On 27-29 November 2013, during the 3<sup>rd</sup> session of the ESCAP Committee on Disaster Risk Reduction, the Secretariat organized an exhibition on disaster resilience, which included a separate booth on the Fund. In preparation for the session, the Secretariat also prepared a background note giving an overview of the Fund and outlining its past achievements and future strategy.

## 4 Resource Management<sup>2</sup>

As of 31 December 2013, the total balance of the Fund was US\$ 1,206,623.71. In October 2011, the Advisory Council approved an estimate of US\$ 824,000 for Secretariat support from January 2012 through December 2014, including US\$ 264,401 for 2014, making the available balance for new programming and Secretariat support US\$ 942,222.71.

**Table 4.1: Unallocated resources as of 31 December 2013 (US\$)**

Balance at 31 Dec 2012	Allocations (2013)	Interest (2013)	Unspent balance (Projects and Secretariat costs)	Contributions (2013)	Amended projects (2013)	Balance at 31 Dec 2013
1,377,741.75	-1,014,489.23	+15,158.89	+145,482.30	+682,730.00	0.00	1,206,623.71

Total unspent Fund balance (US\$)	1,206,623.71
Estimated Secretariat support in 2014 (including PSC)	264,401.00
Available for programming and Secretariat support	942,222.71

**Table 4.2: Resources allocated but unspent as of 31 December 2013 (US\$)**

Item	Balance at 31 Dec 2012	Notes
<i>Grants agreements</i>		
Grant TTF-14	85,837.04	Funding recovered (unspent terminal balance).
PSC on grants	2,575.11	
<b>Total grants</b>	<b>88,412.15</b>	
<i>Secretariat support</i>		
Support activities	55,407.91	Unspent funding that had been allocated for Secretariat support in 2013.
PSC	1,662.24	
<b>Total Secretariat</b>	<b>57,070.15</b>	
<b>Total</b>	<b>145,482.30</b>	

<sup>2</sup> Funds are “programmed” when the Advisory Council has agreed to support an activity. Funds are “allocated” when ESCAP has transferred them from the Global Tsunami Trust Fund account to a specific project account. Funds are “expended” or “committed” when ESCAP has made a formal funding commitment through a Letter of Agreement signed between ESCAP and the implementing organization.

As of end December 2013, the Fund had programmed grants to 23 projects for a total of US\$ 12,950,570.88. Of this amount, US\$ 10,734,998.88 had been transferred to implementing organizations, with an expenditure of US\$ 9,582,300.74 as per the latest progress reports. An overview of the status of grants is provided in Table 4.3.

**Table: 4.3 Financial status of grants (as of 31 December 2013) (US\$)**

Project number	Implementing Organization (IO)	Funds programmed	Funds committed/ expended by ESCAP	Funds transferred to IO	Funds expended by IO <sup>3</sup>	Status
TTF-01	ADPC	247,901.00	247,901.00	247,901.00	247,901.00	completed
TTF-02	ADPC	2,358,984.75	2,358,984.75	2,358,984.75	2,358,984.75	completed
TTF-03	Asian Disaster Reduction Center	79,819.00	79,819.00	79,819.00	79,819.00	completed
TTF-04	IOC-UNESCO	339,067.55	339,067.55	339,067.55	339,067.55	completed
TTF-05	UNDP-Maldives	122,276.69	122,276.69	122,276.69	122,276.69	completed
TTF-06	Disaster Management Centre, Sri Lanka	153,282.65	153,282.65	153,282.65	153,282.65	completed
TTF-07	ADPC	774,674.00	774,674.00	774,674.00	774,674.00	completed
TTF-08	Maldives Meteorological Service	276,128.00	276,128.00	276,128.00	276,128.00	completed
TTF-09	UNDP Indonesia	1,552,779.36	1,552,779.36	1,552,779.36	1,552,779.36	completed
TTF-10	UNESCO Office Jakarta	573,003.21	573,003.21	573,003.21	573,003.21	completed
TTF-11	IOC-UNESCO	128,603.89	128,603.89	128,603.89	128,603.89	completed
TTF-12	ABU	312,275.82	312,275.82	312,275.82	312,275.82	completed
TTF-13	UNDP APRC	344,385.60	344,385.60	344,385.60	344,385.60	completed
TTF-14	Raks Thai Foundation	514,162.96	514,162.96	514,162.96	514,162.96	completed
TTF-15	UNDP APRC	381,066.40	381,066.40	381,066.40	381,066.40	ongoing
TTF-16	RIMES	1,818,274.00	1,818,274.00	1,047,102.00	571,281.00	ongoing
TTF-17	RIMES	484,990.00	484,990.00	279,654.00	152,208.00	ongoing
TTF-18	ADPC	486,304.00	486,304.00	243,152.00	323,141.00	ongoing
TTF-19	ABU	237,692.00	237,692.00	50,000.00	79,100.75	ongoing
TTF-20	IOC-UNESCO	480,947.00	480,947.00	288,500.00	66,479.49	ongoing
TTF-21	IOC-UNESCO	121,662.00	121,662.00	73,000.00	41,999.77	ongoing
TTF-22	Typhoon Committee	457,000.00	457,000.00	253,257.00	106,319.85	ongoing
TTF-23	RIMES	705,291.00	705,291.00	341,923.00	83,360.00	ongoing
<b>Total</b>		<b>12,950,570.88</b>	<b>12,950,570.88</b>	<b>10,734,998.88</b>	<b>9,582,300.74</b>	

<sup>3</sup> As of most recent progress report or terminal report.

In 2013, a new cash contribution of Euro 500,000, or US\$ 682,730, was received from the German Federal Ministry for Economic Cooperation and Development (BMZ) through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH as part of the Global Initiative on Disaster Risk Management (GIDRM). Table 4.4 provides an overview of donor shares for the remaining balance of the Fund.

**Table 4.4: Donor contributions and shares as of 31 December 2013<sup>4</sup>**

Donor shares	Percentage	Amount (US\$)
Government of Germany	72.60%	682,730.00
Government of Thailand	19.06%	180,976.07
Government of Sweden	7.27%	68,476.22
Other donors (Bangladesh, Nepal, the Philippines and Turkey)	1.07%	10,040.42
<b>TOTAL FUND BALANCE</b>		<b>942,222.71</b>

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<sup>4</sup> Donor shares in the Fund are spent on a pro-rata basis. Donors with greater than a 20% share in the Fund are represented on the Fund's Advisory Council. Members on the Advisory Council are appointed for a two-year term. The current term is from 1 January 2013 to 31 December 2014.

# Abbreviations

<b>ABU</b>	Asia Pacific Broadcasting Union
<b>ADPC</b>	Asian Disaster Preparedness Centre
<b>DMC</b>	Disaster Management Centre, Sri Lanka
<b>DMH</b>	Department of Meteorology and Hydrology, Myanmar
<b>DRR</b>	Disaster Risk Reduction
<b>ESCAP</b>	Economic and Social Commission for Asia and the Pacific
<b>ICG/IOTWS</b>	Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System
<b>IOC-UNESCO</b>	Intergovernmental Oceanographic Commission of UNESCO
<b>ISDR</b>	International Strategy for Disaster Reduction
<b>RIMES</b>	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
<b>UNDP APRC</b>	United Nations Development Programme Asia Pacific Regional Centre
<b>WMO</b>	World Meteorological Organization

## Annex 1: Status of Fund-supported Projects

(Note: Completed projects listed with shaded background.)

Project No. / Organisation/ Project Dates <sup>5</sup>	Project name	Project Results
<p>TTF-01 ADPC August 2006 - April 2010</p>	<p>Support to the establishment of capacities in the region to observe and evaluate anomalous sea level conditions for early warning of tsunamis in the Indian Ocean and Southeast Asia</p>	<p>Near real-time sea level stations were established/upgraded in the Philippines (Subic, Lubang) and Viet Nam (Qui Nhon and Vung Tau). The stations are operational, with station data shared globally through the WMO's Global Telecommunication System. Technical staff members of relevant Government agencies were trained on station operation and maintenance. Ownership of the stations was transferred to national Government counterparts.</p>
<p>TTF-02 ADPC July 2007 - June 2010</p>	<p>End-to-end early warning of tsunamis and other natural hazards for disaster preparedness and mitigation in the Indian Ocean and Southeast Asia: Phase 1</p>	<p>Seismic stations were established in Myanmar (Sittwe), the Philippines (Santa) and Viet Nam (Dalat and Son La). The stations are operational, and ownership was transferred to national Government counterparts. The Tsunami Alert Rapid Notification System (TARNS) was prepared in Sri Lanka, the Maldives and Myanmar, detailing the warning dissemination procedure at national and local levels. The Incident Command System (ICS) was adapted for use in the Maldives and Myanmar. Concept of Operations (CONOPS) documents for the tsunami warning services in the Maldives and Myanmar were finalized. Coastal Community Resilience (CCR) frameworks were introduced in the Maldives, Myanmar, and Sri Lanka.</p>
<p>TTF-03 Asian Disaster Reduction Center (ADRC) July 2007 - March 2008</p>	<p>Trainers training programme on community-based hazard map development</p>	<p>Community-based hazard mapping was strengthened in India and Bangladesh. A total of 90 trainers were trained on community-based hazard map development in five Indian provinces and two Bangladeshi divisions. By involving local communities in hazard mapping, the project built tsunami awareness among community members that otherwise might run danger of neglecting the continuing tsunami threat due to the long period that usually goes by between each tsunami.</p>
<p>TTF-04 IOC-UNESCO September 2007 - March 2011</p>	<p>Strengthening tsunami warning and emergency responses: training workshops on the development of SOPs for the Indian Ocean and Southeast Asia</p>	<p>The project contributed to the readiness of the Indian Ocean Tsunami Warning System to enter into operation on 12 October 2011. A total of 12 workshops (two regional; ten country specific) were delivered to 20 Indian Ocean and Pacific Ocean countries (over 370 participants) to integrate SOPs for effective end-to-end warning and response, with emphasis on robust communication networks between key agencies. At the regional workshops, participants developed their own country-specific SOPs. A draft Manual on SOP for Tsunami Warning and Emergency Response was developed.</p> <p>Regional and sub-regional cooperation between National Tsunami Warning Centres and National Disaster Management Organizations was fostered.</p> <p>As a result of the training, SOPs for tsunami warning and emergency response were developed and/or improved in four target countries (Myanmar, Pakistan, the Philippines and Viet Nam).</p>

<sup>5</sup> Start Date: Date of signature of Letter of Agreement.

<p>TTF-05</p> <p>UNDP Maldives</p> <p>January 2008 - December 2009</p>	<p>Strengthening national and community capacities for effective early warning dissemination and response</p>	<p>National and local early warning capacities were strengthened. Fourteen related sets of standard operating procedures for early warning were finalized. Relevant agencies were trained in these procedures as well as weather research and forecasting, global telecommunication systems and tsunami modelling.</p> <p>Community-based preparedness plans were developed and signed by ten islands within two Atolls of the Maldives.</p> <p>Community mobilization led to the inception of early warning task force teams. Public awareness was raised through the International Day for Disaster Reduction, a televised debate, and a public awareness campaign encompassing newspapers, a website (<a href="http://www.rakkaa.mv">http://www.rakkaa.mv</a>), television and hand-out materials.</p>
<p>TTF-06</p> <p>Disaster Management Centre, Sri Lanka</p> <p>February 2009 - January 2011</p>	<p>Enhancing national capacity for early warning dissemination in Sri Lanka</p>	<p>A reliable and cost-effective radio communication system (hand-held radios, repeaters and VHF base station) became fully operational. The system is facilitated by the Disaster Management Centre (DMC) and can serve during emergency situations. The DMC has committed to contribute its own funding to maintain the radio communication system. The SOPs for early warning were revised, tested, documented and distributed.</p> <p>Staff of the Emergency Operation Centers and members of the District Disaster Management Committees and Divisional Disaster Management Committees of Colombo, Galle and Batticaloa were trained to form a resource pool that can support other Centers and Committees.</p> <p>In line with the Disaster Management Act, Road Map and National Disaster Management Plan, the Government of Sri Lanka is mobilizing resources to expand the communication system to other disaster-prone Districts.</p>
<p>TTF-07</p> <p>ADPC</p> <p>March 2008 - December 2010</p>	<p>End-to-end early warning of tsunamis and other natural hazards for disaster preparedness and mitigation in the Indian Ocean and Southeast Asia: Phase 2</p>	<p>In April 2010, the regional early warning centre started experimental operations for earthquake monitoring and tsunami watch (see project TTF-02 above). The system became fully operational in 2011. Located at the RIMES regional facility in Pathumthani, Thailand, with capabilities to receive and analyze seismic, sea level, and deep ocean sensor data, the RIMES Tsunami Watch Center utilizes data generated from its own monitoring stations and from global networks to evaluate the tsunamigenic potential of an earthquake.</p> <p>RIMES incorporated tsunami early warning into existing national warning systems through its interrelated components including regional tsunami and earthquake monitoring, advisory dissemination, decision-support tool development, potential impact and risk assessments and other related research on trans-boundary hazards.</p> <p>A web-based portal for real-time tsunami forecasting (PRECISE) was completed, tested and evaluated, giving the regional early warning centre near real-time tsunami forecasting capability. A tsunami risk assessment tool (INSPIRE) was also developed.</p>

<p>TTF-08</p> <p>Maldives Meteorological Service (MMS)</p> <p>May 2009 - June 2012</p>	<p>Towards sustaining the Indian Ocean and Southeast Asia End-to-End Multi-Hazard Early Warning System</p>	<p>The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) was established on 30 April 2009 as a result of projects TTF-01, TTF-02 and TTF-07. The membership and demand for RIMES services grew during the project period. The RIMES Council had 13 Member States of which India, Papua New Guinea and Sri Lanka joined in 2011. India served as RIMES Council Chair.</p> <p>The draft RIMES Five-Year Master Plan (2010-2014), which documents Member States' priority needs in hazard observation, forecasting and warning, capacity building, and research and development, was adopted by the RIMES Executive Board.</p> <p>Mongolia assumed the RIMES Secretariat functions in April 2011 from the Maldives. Mongolia focused on resource mobilization for Master Plan implementation and accelerating the process of having more countries sign the RIMES Cooperation Agreement. The Maldives continued to represent RIMES in the ICG/IOTWS.</p> <p>Bangladesh and Nepal contributed financially to RIMES through donor-funded projects, while India contributed through fixed institutional support and programme funding.</p>
<p>TTF-09</p> <p>UNDP Indonesia</p> <p>March 2009 - December 2011</p>	<p>Making Provincial Communities Safer Through Disaster Risk Reduction in Development (SCDRR)</p>	<p>A Provincial Platform for DRR was established in West Sumatra, including an established structure, work plan and executive body. With the support of SCDRR, the West Sumatra Provincial DRR Forum is now fully operational and able to facilitate the implementation of the Forum's activities.</p> <p>The processes of community-based DRR were tested on how to facilitate the formulation of village disaster management plans, contingency plans and action plans, in more than 40 target locations covered by SCDRR.</p> <p>Draft disaster management, contingency and community action plans were developed in Jorong (sub-village). In Nagari (village) Salayo, DRR officially became the local development policy for 2011-2015.</p> <p>Padang City developed a risk map (district level), while West Sumatra Province developed a hazard map.</p>
<p>TTF-10</p> <p>UNESCO Jakarta</p> <p>March 2009 - July 2011</p>	<p>Tsunami Awareness and Preparedness Tools and Materials Assessment</p>	<p>A regional depository for tsunami awareness and training resources was established. The project developed the structure of Jakarta Tsunami Information Centre (JTIC) website and translated the content into five different languages (English, Bahasa Indonesia, Thai, Tagalog and Tetun). The website was regularly updated by focal points of each country.</p> <p>A total of 20 education materials on tsunami awareness were produced, translated and promoted in Indonesia, Timor-Leste, Thailand and the Philippines. Activities in the Philippines were scaled up using national budgets.</p> <p>The lessons were shared to a wider number of countries through a regional lessons learned workshop at the end of the project implementation.</p>
<p>TTF-11</p> <p>IOC-UNESCO</p> <p>November 2009 - August 2011</p>	<p>Assessment and awareness of Makran tsunami hazards</p>	<p>The project contributed to increased awareness of the Makran tsunami hazard in key national and local institutions (Baluchistan) in Pakistan. A future strategy to further the work on understanding the Makran tsunami hazards and create awareness was agreed.</p> <p>Trainings in assessment of tsunami hazard and paleotsunami field techniques were held in Iran, Pakistan and Indonesia.</p> <p>A network of experts from Pakistan, India, Oman and Iran was established. An international support network for Makran research was also established, with participation from Thailand, Indonesia, Sri Lanka, USA and Chile.</p>

<p>TTF-12</p> <p>ABU</p> <p>November 2009 - July 2011</p>	<p>ABU Early Warning Broadcast Media Initiative</p>	<p>The project created a platform for continuous advancement of integration of broadcast media in Early Warning Systems on a national scale in six pilot countries (Cambodia, China, Malaysia, the Philippines, Thailand, and Viet Nam). It was implemented through two complementary series of workshops. The first series of workshops, dealing with early warning broadcast and disaster risk reduction messaging through traditional knowledge, targeted television and radio broadcast journalists. Four in-country content development workshops were held in Cambodia, Malaysia, Thailand and Viet Nam. The second series, the 'Early Warning Broadcast System Road Show', dealt primarily with the technology and operation of an early warning broadcasting system (EWBS). Demonstration kits for EWBS were produced and tailor-made for each pilot country.</p> <p>ABU assisted the Thai Public Broadcasting Service and Radio and TV Malaysia (workshop participants) to establish Early Warning units within their organizations. The Thai PBS team has produced several features.</p> <p>The ABU Team has continued to conduct consultations on EWBS after the termination of the project as part of national and regional EWBS development.</p>
<p>TTF-13</p> <p>UNDP Asia Pacific Regional Centre</p> <p>Dec 2009 - August 2012</p>	<p>Building risk knowledge to enhance early warning, preparedness and mitigation in tsunami-affected countries</p>	<p>An interactive CD-ROM containing training material on tsunami risk assessment and mitigation, including the social dimensions of vulnerability was completed and applied by experts in Sri Lanka and Indonesia. Indonesia conducted a review of its SOPs and assessed gaps for further follow-up. Final National Guidelines on Tsunami Risk Assessment for Indonesian Context incorporating recommendations from two pilots in Simeulue and Majene were prepared and shared with the BNPB.</p> <p>A case study of the Port City of Galle, Sri Lanka on "Risk Assessment and Management for Tsunami Hazard" was finalized and used by the regional IOTWS Working Group.</p> <p>A significant contribution was made to the Indian Ocean Tsunami Warning System (IOTWS) capacity, including through the regional SOP Training Workshop in September 2011 in Jakarta, Indonesia. The outcomes of this workshop provided direct inputs to the IOWave 2011, which tested SOPs before the IOTWS became fully operational in October 2011.</p>
<p>TTF-14</p> <p>Raks Thai Foundation</p> <p>January 2010 - July 2012</p>	<p>Strengthening Community-based Disaster Risk Management in Asia: shifting from lessons observed to lessons learned.</p>	<p>A regional network for community-based disaster risk management was developed. CARE Netherlands, CARE Australia and CARE Denmark supported additional countries to take part in the regional component, beyond the ones supported through the project (India, Indonesia, Sri Lanka and Thailand). E-learning modules on Disaster Risk Management were developed and used to support capacity building in participating countries.</p> <p>A Learning Lab was developed in two pilot communities in Krabi province, Thailand, where local disaster preparedness plans were rolled out in collaboration with the provincial governor. Six other nearby communities adopted the implementation strategy after seeing the two pilot communities' progress, and received mini-grants to develop and implement local disaster management plans. An independent survey of the target communities found that awareness of climate change and natural disasters had increased significantly during the lifetime of the project.</p>

<p>TTF-15 UNDP Asia Pacific Regional Centre May 2011 - June 2014</p>	<p>Strengthening Early Warning Systems for Extreme Weather Events to Advance Climate Risk Management in the South East Asian Region (Cambodia and Timor-Leste)</p>	<p>Through this project, UNDP and RIMES worked together to develop national capacities and provide early warning services to Cambodia and Timor-Leste.</p> <p>Assessments of weather forecasting capacities and infrastructure were completed in Cambodia and Timor-Leste. Based on the findings, technical personnel from both countries were sent to RIMES for a targeted, two-month training programme on the generation and interpretation of weather forecasts. A regional SOP workshop in data sharing on extreme weather events was held with the participation of 17 officials from the two target countries. A dedicated server was procured and installed at RIMES, providing 3-day, 10-day and site-specific weather forecasts for Cambodia and Timor-Leste.</p> <p>Disaster loss databases were established in Cambodia and Timor-Leste, following technical training and other capacity-building activities for government officials in both countries. Experts from Indonesia were mobilized to support Timor-Leste.</p> <p>National trainings on SOPs for improving climate risk information were organized in Cambodia and Timor-Leste. High-resolution weather forecasts for application in the agriculture sector were highlighted as a priority need in both countries.</p>
<p>TTF-16 RIMES May 2011 - April 2014</p>	<p>Reducing Risks for Tsunami, Storm Surges, Large Waves and other Natural Hazards in Low Elevation Coastal Zones</p>	<p>Multi-stakeholder national monsoon forums were established and supported in Bangladesh, India, Maldives, Myanmar and Sri Lanka, in collaboration with the National Meteorological and Hydrological Services and WMO. Additionally, a state-level forum was established in Tamil Nadu, India. Local-level dialogues with users of warning information were held in the five target countries.</p> <p>An early warning system evaluation guide was drafted, covering assessment of risks, hazard observation and monitoring, hazard prediction and forecasting, forecast translation into potential impacts and response options, communicating risks and response and options, and community readiness to receive and respond to risk information. The guide was piloted during early warning audits in Bangladesh, Maldives and Myanmar, and also used during field activities and dialogues in India and Sri Lanka. Cambodia, China, Lao PDR, Pakistan, the Philippines, and Viet Nam expressed interest to replicate similar activities in their countries.</p> <p>Selected communities at risk were connected to the early warning system and 24-hour warning focal points were established in ten pilot sites in Bangladesh, India, Maldives, Myanmar and Sri Lanka (two sites per country). Capacity building activities for the application of warning information products were initiated in the target countries, and 130 disaster managers in India, Myanmar and Sri Lanka were trained on preparing disaster impact outlooks and management response options.</p> <p>WMO in collaboration with the Typhoon Committee trained forecasters from the project countries in interpretation and application of advanced forecasting products from global and regional centres, with emphasis on timely delivery of improved forecasts and warnings to the public.</p>

<p>TTF-17 RIMES July 2012 - June 2014</p>	<p>Enhancing coastal hazard early warning and response: tools and institutional strengthening</p>	<p>Technical staff from government agencies in Sri Lanka and the Philippines were trained on the generation of high-resolution data for tsunami risk assessment using near-shore bathymetric, topographic and exposure surveys. A near-shore field survey user manual was shared with both countries. Similar capacity building was planned for Myanmar in 2014.</p> <p>The INSPIRE system (see project TTF-07) for tsunami risk assessment was installed in the Philippines. Officers from a range of government agencies were trained on evacuation mapping using the ESCAPE platform developed by RIMES, and produced maps showing evacuation zones and routes incorporating the outputs generated from INSPIRE. Evacuation exercises using the IOC tsunami manual were scheduled for 2014.</p> <p>Six technical staff from the Philippines and seven staff from Sri Lanka received a month-long training at RIMES in near-shore field survey data processing and development of related outputs.</p>
<p>TTF-18 ADPC July 2012 - June 2014</p>	<p>Technical assistance for enhancing the capacity of end-to-end multi-hazard Early Warning Systems (EWS) for coastal hazards in Myanmar, Sri Lanka and the Philippines</p>	<p>National level early warning systems gap assessments were initiated during workshops held in Myanmar, Sri Lanka and the Philippines.</p> <p>A regional capacity building workshop on Weather Research and Forecasting (WRF) modelling was held, with participation from the national hydro-meteorological services of Myanmar, Sri Lanka and the Philippines. Three professionals from each target country received intensive training on WRF.</p> <p>Technical staff members from national forecasters in the three project countries were trained in storm surge modelling by experts from the Japan Meteorological Agency.</p> <p>Hazard mapping for pilot sites and associated areas were initiated in Sri Lanka and Myanmar. In Sri Lanka, a national workshop was held to gather feedback on the risk maps and the methods used.</p> <p>Training on climate forecast downscaling held in Sri Lanka to further strengthen capacity for coastal hazard mapping.</p> <p>Pilot sites selected in Myanmar and Sri Lanka, pre-selection field trips and consultations undertaken in the Philippines. Evacuation maps and SOPs for evacuation produced, and communications equipment installed, for pilot sites in Myanmar and Sri Lanka.</p> <p>Research undertaken and working draft developed for manual on disaster preparedness for persons with disabilities.</p>
<p>TTF-19 ABU July 2012 - June 2014</p>	<p>ABU Disaster Risk Reduction Broadcast Initiative</p>	<p>Country profiles were developed for India, Indonesia, Maldives, Myanmar, Pakistan, the Philippines, Sri Lanka and Thailand.</p> <p>Induction meeting focusing on the role of broadcasters in early warning and disaster risk reduction was held with 60 participants from 25 countries.</p> <p>Workshops for broadcasters and disaster managers held in the Maldives, Sri Lanka and Viet Nam. Broadcasters from India, Iran, Malaysia and Pakistan trained at regional workshop in Malaysia. A field mission was undertaken to Myanmar to identify national focal points and agree on next steps. In the Maldives, broadcasters and disaster managers were supported in drafting SOPs for the role of broadcasters in early warning.</p> <p>The Early Warning Broadcasting Systems Handbook was updated. Preparatory work started on manuals on disaster recovery for broadcasters and emergency communications for people with disabilities (the latter in close collaboration with GAATES and ADPC).</p>

<p>TTF-20 IOC-UNESCO July 2012 - December 2014</p>	<p>Enhancing Tsunami Risk Assessment and Management, Strengthening Policy Support and Developing Guidelines for Tsunami Exercises in Indian Ocean Countries</p>	<p>Multi-stakeholder process initiated to revise and expand guidelines on tsunami risk assessment. Detailed training modules developed on tsunami exercises, with pilots planned in Bangladesh, Myanmar and Timor-Leste.</p> <p>Tools for stocktaking surveys of policies on disaster risk reduction including tsunami exercises developed and piloted in Bangladesh, Myanmar and Timor-Leste.</p> <p>Training on tsunami risk assessment and exercises held in Bangladesh, using modules developed by the project. Case study on tsunami risk assessment in Sri Lanka under development.</p>
<p>TTF-21 IOC-UNESCO July 2012 - September 2014</p>	<p>Communicating the effects of the 1945 Makran tsunami to increase awareness and preparedness of tsunami hazards in the Makran region</p>	<p>Field missions conducted to India, Iran, Oman and Pakistan to review literature/historical documents and obtain eyewitness accounts of 1945 Makran tsunami. The missions gathered a wealth of information and received many eyewitness accounts, particularly in Pakistan (34). Plans developed for a website to host the results of the research.</p> <p>Priorities for future work identified, including: (1) interviews in the Indus delta near Karachi, where it appears that the majority of fatalities took place; and, (2) follow-up interviews in Pasni to identify the timing of the old port sliding into the sea and determine whether this event may account for a late, large “second wave”.</p>
<p>TTF-22 Typhoon Committee August 2012 - December 2014</p>	<p>Synergized Standard Operating Procedures (SSOPs) for Coastal Multi-Hazard Early Warning Systems</p>	<p>Workshop held in May 2013 on the status of coastal multi-hazard early warning systems, with participation from 27 member countries in the Typhoon Committee and the Panel on Tropical Cyclones. In country-workshops held in the three pilot countries (Bangladesh, Pakistan and the Philippines) to review existing SOPs; identify best practices, gaps and needs; make recommendations on how to further build institutional capacity and strengthen SOPs.</p> <p>Work started on a manual on synergized standard operating procedures for coastal multi-hazard early warning systems, to be rolled out in the three pilot countries and ten other members of the Typhoon Committee and the Panel on Tropical Cyclones.</p>
<p>TTF-23 RIMES June 2013 - November 2014</p>	<p>Strengthening of Myanmar’s Multi-Hazard Early Warning System</p>	<p>This project aims to assist Myanmar’s Department of Meteorology and Hydrology (DMH) in developing a capacity building program framework for addressing capacity gaps, as well as fill immediate capacity gaps in earthquake monitoring and tsunami warning, and decision-support tools for disaster risk management.</p> <p>RIMES assisted DMH in undertaking a self-assessment of current capacities in hazard observation and monitoring, to be incorporated to the capacity building document that is under development.</p> <p>A high-capacity computer was delivered to DMH and installed with SeisComP3, and ShakeCast software. Software was also installed to enable access to data from the California Integrated Seismic Network. Hand-on training on SeisComP3 was provided in November 2013 to 13 staff members at the DMH’s National Earthquake and Data Center (NEDC). Two servers were installed at NEDC for acquiring near real-time sea-level information. Tide Tool software was installed, and training provided to 14 NEDC staff.</p> <p>Tsunami warning drill held at NEDC in November 2013. In September 2012, a survey of 9 out of the 20 agro-meteorological stations to be upgraded by the project. Survey of the remaining 9 stations is planned.</p> <p>In October 2013, DMH staff members were trained on WRF system installation, operation, and maintenance. An assessment of agro-meteorological stations to be upgraded under the project has also been undertaken.</p>

## Annex 2: Secretariat Monitoring and Advocacy Missions

Location	Dates	Mission/event
Colombo, Sri Lanka	February 2013	<p>Represented ESCAP at the 40<sup>th</sup> Session of WMO/ESCAP Panel on Tropical Cyclones (PTC)</p> <p>Key outcome: Awareness of the Fund, including its achievements and future opportunities, was raised among PTC members. Progress was also made in building support for project TTF-23, which is being implemented jointly by the Typhoon Committee and the Panel on Tropical Cyclones.</p>
Chiang Mai, Thailand	May 2013	<p>Participated in the 2<sup>nd</sup> Asia-Pacific Water Summit and had a booth at the exhibition on ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness</p> <p>Key outcome: The Fund was visibly represented at this major event, and its booth at the exhibition was well visited by member States, partner organizations and the general public. The Fund Manager was also interviewed in Thai television and spoke about the Fund as well as broader disaster risk reduction issues.</p>
Phnom Penh, Cambodia	June 2013	<p>Participated in Cambodia National Disaster Loss Database Technical Training Workshop (TTF-15)</p> <p>Key outcome: The workshop gave the Secretariat an opportunity to monitor the progress being made under project TTF-15. The workshop revealed that there had been major progress in building a disaster loss database in Cambodia as part of the project, and that there was a high level of buy-in among the main national stakeholders.</p>
Kuala Lumpur, Malaysia	June 2013	<p>Participated in ABU workshop on the role of broadcasters in early warning (TTF-19)</p> <p>Key outcome: The workshop served as an opportunity for the Secretariat to monitor the progress being made under project TTF-19. The workshop showed that there were good practices emerging from broadcasters in countries including India, Malaysia, Sri Lanka and Pakistan, but that a key challenge was to build better linkages between broadcasters and national disaster management offices.</p>
Yangon, Myanmar	September 2013	<p>Conducted a site visit to the Sittwe Seismic Station with the Department of Meteorology and Hydrology (DMH) and RIMES</p> <p>Key outcome: The seismic station, which was build as part of project TTF-02, was found to be fully operational and ready for handover of ownership from ESCAP to the Government. Plans were made for an official handover ceremony, which was later held in Bangkok in November 2013.</p>
Jakarta, Indonesia	September 2013	<p>Participated in Regional Workshop on Standard Operating Procedures for Tsunami Warning and Emergency Response</p> <p>Key outcome: Linkages were built with partners involved with tsunami early warning in the Indian Ocean, including disaster managers and broadcasters from ten countries. Increased awareness of the Fund was also generated.</p>
Macau, China	December 2013	<p>Represented ESCAP in the 8<sup>th</sup> Integrated Workshop and the 2<sup>nd</sup> Training and Research Coordination Group Forum, organized by the WMO/ESCAP Typhoon Committee</p> <p>Key outcome: The Secretariat raised the profile of the Fund by giving the opening speech at the Integrated Workshops. Increased support was generated for project TTF-23, which is implemented jointly by the Typhoon Committee and the Panel on Tropical Cyclones. Linkages established to partners involved with early warning for hydro-meteorological disasters in 14 countries.</p>

# Trust Fund for Tsunami, Disaster and Climate Preparedness

The ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian countries was established in 2005 to support tsunami early warning through a multi-hazard approach. The devastation caused by the Indian Ocean Tsunami in December 2004 demonstrated the need for an effective regional disaster preparedness mechanism. Following a major, multi-stakeholder effort, the Indian Ocean Tsunami Early Warning and Mitigation system facilitated by IOC-UNESCO went into full operation in 2011, with the Fund as one of the contributors.

In 2010, the scope of the Fund was officially broadened to include disaster and climate preparedness within the Fund's core areas of support. The Fund's focus remains on end-to-end early warning for coastal hazards such as tsunamis, cyclones, storm surges and coastal zone flooding, while applying a multi-hazard approach.

## Purpose

To contribute to more resilient coastal communities, and ultimately to help save lives and reduce loss and damage from disasters.

## Objective

To build and enhance tsunami, disaster and climate preparedness capacities for early warning for coastal hazards.

The Fund focuses on strategic approaches that build on ESCAP's comparative advantages as a convener of **regional cooperation** for its member States. In line with the role of ESCAP, the Fund supports projects and activities that can facilitate:

- Strengthening of regional institutions dealing with early warning.
- Enhancement of regional cooperation for early warning through data sharing, joint standards, resource sharing arrangements and effective networks.
- Sharing of knowledge and good practices.

At the **national level**, the Fund focuses on policy and institutional strengthening in countries facing high risk and low capacity. In projects targeting specific national capacities, the Fund applies South-South approaches to enhance cooperation between countries covered by the Fund and tap into the existing capacities in the region.

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