

TERMINAL REPORT

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| PROJECT TITLE | Technical assistance for enhancing the capacity of en-to-end multi-hazard Early Warning Systems for costal hazard in Myanmar, Sri Lanka and Philippines | | |
| ORGANIZATION | Asian Disaster Preparedness Center (ADPC) Terminal Report for the project duration | | |
| Total project budget | US\$ 486,304 | Funding received to date | US\$ 486,304 |
| Percentage of total project budget spent | 92.02% | Percentage of funding received to date that has been spent | 92.02% |
| Duration of Project | 30 months | Period covered | 13 July, 2012 to 31 Oct, 2014 |
| Date of signature of LoA | 13 July, 2012 | End date agreed between your organization and ESCAP | 31 October, 2014 |
| Current expected date of completion | 31 Oct, 2014 | Interest earned on funding received from ESCAP | US\$ 0 |

ANNEXES

1. Annex 01. Brief WRF training workshop Report in 24-28 September 2012;
2. Annex 02. Brief minutes of the Regional Discussion held with NHMS in Bangkok on October 2012;
3. Annex 03. Report on the Regional Storm Surge Training 25-28 July 2013;
4. Annex 04. Capacity Building Training Workshop on Coastal Hazard Forecast Tools in Sri Lanka in 2014;
5. Annex 05. ADPC's technical collaborative support to TC-PTCs' SSOP training workshop;
6. Annex 06. Climate Downscaling training report of ADPC-DOM-UNESCAP;
7. Annex 07_Brief note on the Hazard and Risk Mapping under the project component 2;
8. Annex 08. National level sharing workshop in Sri Lanka 14-15 August 2013;
9. Annex 09. Local level field visits, stakeholder consultations, trainings in three Pilot countries;
10. Annex 10. Production of Evacuation Maps and SOP for Evacuation in Ayeyarwaddy Myanmar;

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11. Annex 11. Production of Evacuation Maps and SOP for Evacuation for in SriLanka;
12. Annex 12. Establishment of the E2E Multi-hazard EWS Communications in the pilot sites;
13. Annex 13. Local level consultation and training workshops in three countries;
14. Annex 14. Local level meetings in Sri Lanka by GAATES-ADPC team for result area 5;
15. Annex 15. Conduction of the 'End-to-End' Multi-hazard EWS Simulation in Sri Lanka in December 2013;
16. Annex 16. Conduction of the 'End-to-End' Multi-hazard EWS Simulations in Myanmar;
17. Annex 17. Draft Guidebook on End-to-End Early Warning Systems for Coastal Areas;
18. Annex 18. ADPC collaborative support to SSOP project of TC-PTC;
19. Annex 19. Production of IEC materials in several related IEC materials;
20. Annex 20. Draft Handbook on Effective Media Relations for National Disaster Management Agencies;
21. Annex 21. "Annotated Bibliography" on the PWD and DRR for the Result Area 5 of the project;
22. Annex 22. "Draft Final Version of the "Guideline on Inclusive Disaster Risk Reduction: Disabilities and Disasters" for the Result Area 5 of the project; and
23. Annex 23. Overall Project Result Reporting in UNESCAP Trust Fund reporting format.

I certify the accuracy of the substantive and financial information contained in this report.

This Terminal Report
is accepted.

A. Blikberg

Mr. Alf Blikberg, Programme Officer
Trust Fund For Tsunami, Disaster and
Climate Preparedness

Shane Wright

Mr. Shane Wright
Executive Director, Asian Disaster Preparedness Center
March, 2015.

OVERALL ASSESSMENT

The current regional project supported by the 7th round of the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries titled: “Technical assistance for enhancing the capacity of end-to-end multi-hazard Early Warning Systems for coastal hazard in Myanmar, Sri Lanka and Philippines” implemented by the Asian Disaster Preparedness Center (ADPC) aims to develop the five key result areas. The key five results areas are:

- Result area 1: Improved Institutional linkages between International & Regional EWS with national level EWS in target countries.
- Result area 2: Most vulnerable areas to extreme coastal hazards identified and risk potential assessed through development of scenarios.
- Result area 3: Improved EW dissemination by national warning centres and use of multi-hazard EW by at-risk communities for responding to coastal hazards effectively.
- Result area 4: Improved policy environment and institutional arrangements for EW and responding to coastal hazards
- Result area 5: Improved Policy and Practice guidance and changes for communication and evacuation of persons with disabilities in early warning systems and emergency management.

This is the Terminal Report covering the whole duration of the project starting from 13 July, 2012 ending on 31 October, 2014. ADPC and partners have completed the activities for all five result areas of the project in three program countries including Myanmar, Sri Lanka, the Philippines and in the regional level. The progresses for these performed activities since the beginning of the project are reported in 4 subsequent progress reports and a summary is presented by the results areas below.

Result area 1: Improved Institutional linkages between International & Regional EWS with national level EWS in target countries

- 1.1. ADPC team conducted the initial briefing of the project and its objectives with all the three program country representatives: Sri Lanka, Myanmar and the Philippines from July through Oct, 2012; a regional level consultation meeting was held in Bangkok with the NHMS representatives from the target countries and other officials in Bangkok on 4 October, 2012 (**Ref. Annex 01, Annex 02**);
- 1.2. Regional capacity building workshop for the NHMS on Weather Research and Forecasting (WRF) modeling held from 24-28 September, 2012 in Hanoi Vietnam where the three target country participants were brought and trained on WRF for strengthen the operational capacity of the NHMSs on detection of the tropical cyclone and associated weather phenomena (**Ref. Annex 01**);
- 1.3. ADPC team conducted the Regional Storm Surge Capacity building Training in collaboration with Japan Meteorological Agency (JMA) and trained selected member state NHMS and other professionals on the JMA Storm Surge modeling and other methods in a training held in Bangkok from 25-28 July, 2013 (**Ref. Annex 03**);
- 1.4. ADPC team in collaboration with the Sri Lanka Department of Meteorology conducted a hands-on Capacity Building Training

Workshop on Coastal Hazard Forecast Tools in Sri Lanka in May, 2014 (*Ref. Annex 04, Annex 01*);

- 1.5. ADPC's technical collaborative support to TC-PTCs' Synergized Standard Operating Procedures (SSOP) for the Regional Training Workshop in Nanjing in 2014 (*Ref. Annex 05, Annex 18*);

Result area 2: Most vulnerable areas to extreme coastal hazards identified and risk potential assessed through development of scenarios.

- 2.1. ADPC project team has conducted the Climate Downscaling training event in Sri Lanka to support the Department of Meteorology (DOM) to develop further capacity for the coastal hazard mapping on 14-17 May, 2013 in Colombo, Sri Lanka (*Ref. Annex 06*);
- 2.2. ADPC team has developed the hazard risk mapping for the pilot sites and produced a methodology note with outputs of the Hazard and Risk Mapping are produced (*Ref. Annex 07*);
- 2.3. Followed up with the various previous trainings conducted to support the Sri Lanka to support the Department of Meteorology (DOM) to develop further capacity for the coastal hazard detection and mapping (*Ref. Annex 04, Annex 06, Annex 07*).

Result area 3: Improved EW dissemination by national warning centres and use of multi-hazard EW by at-risk communities for responding to coastal hazards effectively

- 3.1. National level sharing workshop held in Sri Lanka, the Philippines and Myanmar to share the project activities in the country (Myanmar: November, 2012, Sri Lanka: August, 2013; Philippines: February, 2013) (*Ref. Annex 08*);
- 3.2. Local level field visits and local workshop held with multiple stakeholders in the Eastern province of Sri Lanka, the western coast of Myanmar (in Pathain and Chauntha beach) of Ayeyarwady division and Paypon of the same division of Myanmar and in the Central Eastern coast of the Philippines (Daet, Camarines Norte and Real Quezon) (*Ref. Annex 09*);
- 3.3. Development of Risk, Resource and Evacuation Mapping with simple standard operating procedures for evacuation for the coastal hazard early warning systems for the pilot sites in Myanmar and Sri Lanka (*Ref. Annex 10, Annex 11*);
- 3.4. Early warning communications equipment are procured for the selected pilot sites in Sri Lanka, Myanmar and in the Philippines to facilitate the Public Addressing System (PAS) and the end-to-end connectivity of the warning disseminations from the central Emergency Operation Center (EOC) and the community EWS Units in the pilots areas (*Ref. Annex 12*);
- 3.5. The National and local level sharing and training workshops held in Sri Lanka, Myanmar and the Philippines to train the stakeholders from the pilot sites and the national disaster management officials and local government entities (*Ref. Annex 13, 14, 08*);
- 3.6. End-to-End Coastal Hazard Early Warning Simulations for the eight (8) pilot sites are conducted in Myanmar (3), Sri Lanka (2), and

the Philippines (3) involving multi-layer stakeholders (**Ref. Annex 15, Annex 16**);

- 3.7. A Draft “Draft Guidebook on End-to-End Early Warning Systems for Coastal Areas” is developed to guide the practitioners (**Ref. Annex 17**);

Result area 4: Improved policy environment and institutional arrangements for EW and responding to coastal hazards

- 4.1. ADPC team has carried out a Media Forum in Colombo Sri Lanka to establish close connectivity between Disaster Management Centre (DMC) and the media professionals for timely dissemination and amplification of the coastal hazard early warning information to the mass population (**Ref. Annex 08**);
- 4.2. ADPC team developed Information Education and communication products (IEC) for various stakeholders that would enhance knowledge and awareness for the coastal hazards in the pilot countries; ADPC team also developed project briefs and brochures for all the three partner countries to brief the partners and collaborate on activities in the country and regionally (**Ref. Annex 19**);
- 4.3. ADPC developed a draft “Handbook on Effective Media Relations for National Disaster Management Agencies” for sensitizing the local and DRR and media professionals on the DRR and EWS issues relating to the coastal hazards (**Ref. Annex 20**);

Result area 5: Improved Policy and Practice guidance and changes for communication and evacuation of persons with disabilities in early warning systems and emergency management.

- 5.1. GAATES team has developed and updated an “Annotated Bibliography” on the relevant literature on persons with disability, DRM and early warning systems (**Ref. Annex 21**);
- 5.2. The Guideline on Inclusive Disaster Risk Reduction: Disabilities and Disasters” was developed on disaster preparedness for persons with disabilities, identifying issues and a range of possible practical solutions (**Ref. Annex 22**);

LESSONS LEARNED

During the project 30 months of the implementation of the project, ADPC team has gathered many useful experiences which are worth reporting in a systematic manner. The brief of the some of the key lessons learned during the project is reported below as part of the Terminal Report.

- It was found that the early warning systems for the coastal areas in the three project pilot countries of operations – Myanmar, Sri Lanka and Philippines are functioning but there are multiple layers of gaps existing that need to be strengthened. Particularly in the context of coastal hazards happened in Sri Lanka (Sea Swells in July, 2013) and the Typhoon Haiyan in the Philippines (in November, 2013) have kept us rooms for thinking the issue of resilience to coastal hazards in an unique way. To have a successful end-to-end connectivity between various layers and stakeholders, a great deal of concentrations are needed on issues such as systematic understanding of the last mile measures of the early warning, dissemination and response systems for the early warning information or localizing the early warning information products with respect to time, location and geographic areas.
- ADPC team during the project period has formed an operational collaboration between the government focal agencies and ministries in the three program countries; In Sri Lanka formal relationships is established with the Disaster Management Center (DMC), Sri Lanka under the Ministry of Disaster Management Sri Lanka. Collaboration in Myanmar is established with the Department of Hydrology and Meteorology (DMH), Myanmar under the Ministry of Transport Myanmar, and in Philippine, partnership held with PAGASA which is the nodal agency for early warning system in the country. Apart from that collaborations are also made with other agencies in each respective country to focus on the both upstream scientific information as well as the downstream EW dissemination and coordination issues.
- Due to the political reasons and several levels of elections in the Philippines some of the activities at community level has been delayed particularly relating to the 3 and 4 but it was completed during the extended period of the project. ADPC team visited the Philippines sites in early 2013 and had good consultation and collaborative arrangements with the national government stakeholders such as PAGASA and NDRRMC and civil society active entities such as Center for Disaster Preparedness (CDP) to expand the collaborative activities in the Philippines. Reflecting the ground situation in Philippines it would be needed that the project is extended upto 31 October, 2014 to complete the ground works in a more concrete manner in Philippines; Subsequent Barangay level elections also cause some unexpected delays for the field pilot demonstration under result area 3 of the project in Philippines. The request for extension is mentioned in the cover letter of this progress report.
- During the project collaborations have been made with existing ESCAP Trust Fund Partners. Further synergies can be made if there are more collaborative meetings can be arranged within the key partners of the ESCAP Trust Fund receipt agencies; ADPC has already started collaborative discussions with Typhoon Committee's SSOP project, ABU, PTC, RIMES, GAATES, ESCAP IDD and ESCAP Trust Fund secretariat to strengthen and collaborate further.

SUSTAINABILITY

Please elaborate on any progress towards ensuring that this project results in a long-term benefit to the project stakeholders.

In consideration of the sustainability issues some of the observations are reported below and there are other new issues emerging that will be reported gradually in future.

- It was observed in that in the three program countries the “project steering committees” particularly focusing on the coastal hazards are needed. ADPC developed that in two countries and found to be useful for implementation. Particularly, ADPC is has followed the experiences keenly in Sri Lanka and came up with lessons for the developments of the DRR and EWS institutional processes in Philippines and Myanmar with regards to their own context of heterogeneity and also the common areas. It was found that the processes are uniquely different in all three countries and shaping up with a dynamic manner for future leading towards the Post 2015 framework for DRR;
- ADPC and partner GAATES are developing the guidebook on EWS and Disability which has some overlapping with the ABU project where GAATES is also partner. ADPC, GAATES and ABU have meet on that and resolved the issues of overlapping in a greater extent. However, there might be some overlapping which might not be detrimental to the process and may yield good products as well;
- ADPC is willing to provide ESCAP support in following up with the sustainability mechanisms for ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness through advocacy, networking, partnerships and platforming even after the project is over. There are good opportunities to do donor coordination and pledges together on the relevant areas of progress in the region but also new areas of cooperation between ADPC and ESCAP in the region. ADPC would remain open for any discussions welcomed in future in this regards. ADPC values the significance of Regional Cooperation for building resilience for the coastal resilience by integrating science-systems and societal-economic systems in a common chain; Our lessons, suggest that the Trust Fund has achieved significant in this line and allowed to move towards resilience where we should not just stop here but move on towards resilience together with hands-on-hand to support the ESCAP member states and vulnerable communities.
- ADPC would be very open to have any gradual collaborative arrangements and collaborative fund raising or donor coordination in any of the pillars of the three pillars identified in the ESCAP Multi-donor Trust Fund Strategic Note 2013-2016.
- ADPC would also remain open to collaborate with ESCAP/ESCAP Trust Fund for the future rounds of funding which are under planning. Member state Government partners from the Myanmar, Philippines, Vietnam, Sri Lanka and others have extend their formal partnerships and intend to grow projects relating to their needs and follow up from the existing TTF-ADPC-Govt. collaborations.