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**REPORT ON SYNERGIZED STANDARD OPERATING  
PROCEDURES (SSOP) FOR COASTAL MULTI-HAZARDS  
EARLY WARNING SYSTEM PROJECT**

**(Item 4.2 of Provisional Agenda – Cross Cutting TC Projects)**

**(Submitted by Project Manager/Technical Advisor)**

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**Summary and Purpose of Document:**

**This document reviews the Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System project and discusses progress thus far and future plans.**

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**Action Proposed:**

The Committee is invited to:

- a) Take note of the progress and future plans of the SSOP project
- b) Advise how to improve the impact and benefits of the SSOP project based upon the proposed future plans.

**Appendix: REPORT ON SYNERGIZED STANDARD OPERATING PROCEDURES (SSOP) FOR  
COASTAL MULTI-HAZARDS EARLY WARNING SYSTEM PROJECT**

**Note: Some documents mentioned in this working document can be consulted in**

<http://www.typhooncommittee.org/SSOP/indexSSOP.html>

## **REPORT ON SYNERGIZED STANDARD OPERATING PROCEDURES (SSOP) FOR COASTAL MULTI-HAZARDS EARLY WARNING SYSTEM PROJECT**

### **1. Introduction**

Economic and Social Commission of Asia and Pacific (ESCAP)/World Meteorological Organization (WMO) Typhoon Committee (TC) and the WMO/ESCAP Panel on Tropical Cyclones (PTC) recognized a strong need to create synergies in early warning systems among different types of coastal hazards. Based upon this identified need, the TC and the PTC formulated, in collaboration with other organizations, and submitted a project entitled *Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System* to ESCAP for funding through the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and South East Asia. The Letter of Agreement between ESCAP and TC to fund this project was signed on the August 1, 2012. The expected termination date of the project is 31 December 2014.

### **2. Project Overview**

The TC and PTC will conduct the project in cooperation with Asia Disaster Preparedness Center (ADPC), Asia-Pacific Broadcasting Union (ABU), Global Alliance on Accessible Technologies and Environments (GAATES), Intergovernmental Oceanographic Commission (IOC) of UNESCO, and Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES). SSOP is the first project of Typhoon Committee to be funded by an international organization like ESCAP. This Project will involve thirteen beneficiary countries in TC and PTC regions including Bangladesh; Cambodia; China; India; Lao PDR; Malaysia; Maldives; Myanmar; Pakistan; Philippines; Sri Lanka; Thailand and Viet Nam.

The project will collect information on the performance status of coastal multi-hazard EWS and associated SOPs from the Members of TC and PTC. Based on the analysis and synergizing of the strengths, gaps, and needs of existing SOPs and those needed to be developed for coastal multi-hazard EWS, the project will develop a Manual of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazard Early Warning Systems.

The project will be mainly focused on the meteorological and hydrological services for areas that become more vulnerable to natural disasters after tsunami and other coastal disasters. The synergized SOPs will be easier to understand, use, and ensure coordination and integration. They can also be used to explain and train decision makers, forecasters, and dwellers, like fishermen on what actions will be taken. The project will conduct workshops and training courses for strengthening the capacity of the performance of coastal multi-hazard early warning system SOPs and to develop and coordinate a cooperative mechanism between TC and PTC. The project will also send expert missions to selected countries to provide assistance in the development, review, and implementation of multi-hazard SOPs.

#### **Objectives:**

- Capacity building for warning providers as the first priority of the proposed project,

mainly focusing on the aspect of hydro-meteorological service for multi-coastal hazards early warning, including the methodology and skills, data and experience sharing, etc.;

- Government officials who will be handling various coastal hazard forecasts and warnings and disaster managers at the national level to become more effective;
- Media who will be disseminating such information to the public to provide information in an understandable way to encourage actions;
- Local disaster managers who will issue evacuation orders to act in an integrated, coordinated methodology;
- Community leaders and dwellers, including fishermen, in coastal areas of southern Asia, specifically for those countries belonging to the PTC and TC to correctly act in hazardous situations; and
- Member countries of TC and PTC to enhance their coordination and cooperation.

## Goal

The long term goal of the project is to promote community resilience to coastal multi-hazards and to improve the policy and institutional arrangements at national, district, and community levels through integrated, effective standard operating procedures for multi-hazards EWS.

## Outcomes

**Expected Outcome 1:** Integrated, effective standard operating procedures for coastal multi-hazard EWS for TC and PTC Members.

**Activity 1:** Review and synergize existing SOPs for coastal multi-hazard EWS in the Members of TC and PTC and develop the Manual of Synergized SOPs for Coastal Multi-Hazards EWS.

- 1.1 Conduct a workshop to identify the current status of EWS and associated SOPs in the project's target countries, to present beneficial ideas from EWS SOP experts, and to collect and analyze performance status of coastal multi-hazard EWS, as available, in the 13 target countries;  
Success Indicator: Current status of EWS and associated SOPs identified and an initial identification of strengths, needs, and unmet gaps of SOPs for EWS in the selected target countries completed.
- 1.2 Conduct pilot missions and workshops in selected countries focusing on institutional capacity building and identification of pilot countries' strengths, needs, and gaps in the area of EWS SOPs.  
Success Indicator: In country workshops and missions (multiple visits) for 2-3 pilot countries completed.
- 1.3 Synergize existing SOPs and develop additional SOPs as needed to meet identified gaps and needs and compile a Manual of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning Systems, mainly focusing on the hydro-meteorological aspect, to meet the needs of diverse users, like decision makers, early warning issuers, media, researchers, operational, public, including fishermen at community-level.  
Success Indicator: Manual distributed to all TC/PTC Members.

**Expected Outcome 2:** Improved performance and effectiveness of SOPs for coastal multi-hazard EWS in Members of TC and PTC through integration, synergization, cooperation, and training.

**Activity 2:** *Enhance the performance and effectiveness of SOPs for coastal multi-hazard EWS in Members of TC and PTC through capacity building.*

- 2.1 Conduct training of users and issuers in the interpretation and preparation of EWS products for decision-making, media, and communications.  
Success Indicator 1: Train approximately 50 decision-makers, disaster managers, media professionals, and warning issuers from target countries.  
Success Indicator 2: Six missions to selected targeted countries to provide assistance and expertise to develop, update, coordinate, and implement improved SOPs for coastal multi-hazard EWS.
- 2.2 Conduct working meeting on building a cooperation mechanism between TC and PTC for coastal multi-hazard EW information sharing and technical transferring.  
Success Indicator: Approximately 20 participants from target countries participate in the meeting as focal points for a cooperation mechanism.

## **Outputs**

**Main output 1:** Manual of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System, mainly focusing on the hydro-meteorological service, including SOPs related to warning providers, disaster managers, media, and fishermen.

**Main output 2:** Regular communication and cooperation mechanism between TC and PTC on coastal multi-hazard early warning system, particularly southern countries in the region.

## **3. Results and Progress**

**(Note:** The TCS established a web page on the TC website which now includes many of the workshop reports, presentations, and other documents referred to below <http://www.typhooncommittee.org/SSOP/indexSSOP.html>

Between August 1, 2012, when the Letter of Agreement was signed and February 1, 2013, when the 45<sup>th</sup> TC Session ended, there was limited progress on the project, because it was necessary to seek approval at the TC Session for various aspects of the project. However the following actions were taken during this period:

- a. **Conference Call.** Representatives of ESCAP, WMO, TC, and PTC held a telephonic conference call and agreed on the need for a kick-off meeting to discuss the overall project and proposed dates and content for the workshop listed under Activity 1.1. They also identified the need 1) to coordinate with other projects funded by the ESCAP Trust Fund, 2) to appointment of a part-time Project Manager, and 3) to utilize the planned 7<sup>th</sup> IWS to discuss this project in more detail.

- b. Kick-Off Meeting.** Representatives of ESCAP, WMO, TC, PTC, and Thai Meteorological Department met in Bangkok on 22-23 October 2012. It was established that contacts with the 13 beneficiary countries would be through the Secretariats of TC and PTC and that TC and PTC with collaboration of consultants would review current SOPs and analyze common interests between this project and other projects, especially ESCAP's. It was decided that the Activity 1 Workshop would be held 18-20 March in Bangkok, Thailand because Thailand is a member of both TC and PTC and Bangkok is centrally located and that the 3 pilot countries would be selected at this workshop. The representatives identified the need 1) to coordinate with other related agencies and the global media, 2) to study the lessons from the Japan earthquake/tsunami, 3) to appoint a project manager with specified ToRs, 4) to hold a sub-meeting at the 7<sup>th</sup> IWS on SSOP project, 5) to incorporate SSOP related activities in TC's WGs annual operating plans and PTC's WGM plan for 2013, and 6) for the TCS to draft an implementation plan and ToRs for the Project Manager, Steering Group, and Task Force.
- c. 7<sup>th</sup> IWS.** The chairs of the WGs and TRCG of the TC and representatives of TCS, ESCAP, and WMO met at a sub-meeting on November 25, 2012. The participants raised concerns related to the implementation, wide scope, and short time frame of the project and that EWSs varied among countries. They suggested that there be limitations on implementation, clearer outcomes, and procedures to avoid duplication among organizations. They also recommended that the implementation plan, budget, and ToRs for the Project Manager, Steering Group, and Task Force be circulated to the TC members before the Session for review and approval at the 45<sup>th</sup> TC Session.
- d. 45<sup>th</sup> TC Session.** The TC session approved the establishment of a Steering Committee; the ToRs for the Project Manager/Technical Advisor, Steering Committee, and Task Force; and the implementation plan for the project.

After the 45<sup>th</sup> TC Session, activities and actions associated with the SSOP project began to increase in intensity.

- a. Program Manager/Technical Advisor.** On March 4, 2013, Jim Weyman was selected as the part-time Program Manager/Technical Advisor. Mr. Weyman retired in April 2011 from the USA NWS as the Director, RSMC Honolulu/Meteorologist in Charge Weather Forecast Office Honolulu and is living in Black Mountain, North Carolina, USA. He had been active in Typhoon Committee activities since November 2001. He was Chair of the Typhoon Committee from November 2001 to December 2002 and was chair or vice chair of a number of working groups from 2002 to 2011. A Letter of Service Agreement was signed on March 17, 2013.
- b. Initial Workshop.** The initial workshop was held on May 8-9, 2013 at the UN Conference Center in Bangkok, Thailand. Kind appreciation is expressed to the Thai Meteorological Department as the Local Organizing Committee and to ESCAP and the UN Conference Center for their support and contributions. The workshop had 3 objectives: 1) Identify the current status of EWSs and associated SOPs in the beneficial countries, 2) Present beneficial ideas from EWS SOP experts, and 3) Collect and analyze performance status of coastal multi-hazard EWS and associated SOPs, as available, in

the 13 target countries. To meet the objective of collecting and analyzing performance data, Bangladesh, China, India, Lao PDR, Malaysia, Maldives, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand, and Viet Nam made presentations describing their multi-hazard risks and early warning systems. Cambodia was unable to attend but sent a copy of their briefing which was provided to all. Based upon the discussions at this workshop, there were recommendations made regarding 1) the content of the Manual of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning Systems; 2) identified gaps and needs in the areas of training, human capacity building, SOPs, and infrastructure capacity building; and 3) opportunities to collaborate with various partners and other organizations. Based upon the outcome of this workshop, it was recommended that 1) the project be continued because it has great potential and value to the 13 beneficiary countries; 2) the project planned actions should be completed; and 3) the activities contained in the project's plan be accomplished as listed. (See Report for the Workshop on Standard Operating Procedures under the Project Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System, dated 28 November 2013 for details)

- c. **ESCAP Progress Report.** On May 30, 2013, the TCS in collaboration with the Project Manager, sent ESCAP the project's second progress report which covered the period through 30 April 2013. The report listed 4 results, the status of the budget, 5 Lessons Learned, and 3 items under sustainability. The third progress report was sent on 30 November and covered the activities from 1 June – 31 October 2013 which highlighted the results of the initial May 8-9, 2013 Workshop, the 3 in-country pilot workshops described below, the preparation of the compilation documents discussed below, and the established of a web page on the Typhoon Committee's web site with the URL provided at the top of this section. (See the Progress Reports for more details.)
- d. **In-Country Pilot Workshops.** At the initial workshop in May 2013, Bangladesh, Pakistan, and the Philippines were selected as the three pilot countries. Activity 1.2 of the project is to conduct pilot missions and workshops in selected countries focusing on institutional capacity building and identification of pilot countries' strengths, needs, and gaps in the area of EWS SOPs. In-country pilot workshops were held in succession from October 3-11, 2013: Philippines 3-4 October 2013, Bangladesh 6-7 October 2013, and Pakistan 10-11 October 2013. The pilot workshop team members consisted of the Program Manager and representatives from TC, PTC, ADPC, and ABU. Since the Program Manager was unable to obtain a visa to Pakistan in time for the visit, Mr. Olavo Rasquinho, headed the team in Pakistan. Mr. Weyman did participate on several different occasions in the Pakistan workshop via Skype from his home. The objectives of these workshops were:
  - Review existing coastal multi-hazards EWS SOPs of hydro-meteorological service, disaster management, media, elected official, and others from national to local level;
  - Identify best practices, gaps and needs, and recommendations for internal and cross-cutting SOPs; and
  - Develop action plan to highlight best practices, fill gaps/needs, and review capacity.

The recurring themes identified in the workshops for an effective early warning system were:

- High level government commitment and support required – most important;

- Legal and legislature framework is essential;
- Collaboration and coordination at all levels – national, regional, and local – is necessary;
- Media involvement as a partner is important;
- A multi-hazard approach is most effective; and
- Fully implemented elements of a people centered early warning system needed.

SOP strengths, gaps, and needs documented by the team varied among the three pilot countries visited, varied within and between agencies within countries, and varied at different levels of government. One overall recommendation was that SOP direction and guidance should come from the highest levels of government to mandate the need to disseminate, consult, and collaborate at all levels of government and mandate participation. The team found that each agency needs specific SOPs (technical and non-technical) for their actions, but that integrated, cross-cutting, multiagency, multi-level SOPs are also needed. Recommendations for the manual fell into three major themes:

- There is a wide variety of cultures, governments, past experiences, relationships, risks, and people among countries and even within many countries. Therefore, SSOPs must be flexible best practices, operational guidelines and recommendations that can be applied in a variety of situations.
- For SOPs to be useful and effective, direction and guidance should come from the highest levels of government to mandate the need to disseminate, consult, and collaborate at all levels of government and mandate participation. In addition, a national or regional coordinated policy document is needed to define roles and responsibilities
- Although the process and project is focused on the National Meteorological and Hydrological Services, the National Disaster Management Offices, and the National Tsunami Warning Centers, other relevant government, business, and community agencies must be involved in detailed, integrated ways to make the end to end, cross-cutting early warning system work.

(See the individual reports for each in-country pilot workshop and also the *Summary Report on Three Pilot Workshops for Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System* for details)

**e. Compilation of EWS and SOP Guidance and Checklist.** In preparation for the pilot workshops, the Program Manager prepared five documents which are compilations of available information on EWS and SOPs. These documents included:

- Compilation - A Guide to Writing Effective SOPs
- Compilation - Checklist for Effective SOPs for EWS
- Compilation - Information on Early Warning System Overview
- Compilation - Early Warning System Checklist Items
- Compilation - General Basic Information on EWS for NHMS, Warnings, Communications, and Relationships

These documents can be found as appendixes to *Summary Report on Three Pilot Workshops for Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System*. These were prepared to demonstrate some of the information available and necessary for the Manual to contain for developing and reviewing SOPs. These were compiled based extensively upon the information and wording in the documents listed in Section 8 of that report. Two important sources for

the first two documents on SOPs were 1) *Guidelines for Creating a Memorandum of Understanding and a Standard Operating Procedure between a National Meteorological or Hydro-meteorological Service and a Partner Agency* WMO-No. 1099 PWS-26 and 2) *Report of Multi-Hazard Early Warning and Decision Support Systems Workshop*, Shanghai Meteorological Service, Shanghai, China, March 21 -23, 2012. EWS information was obtained from documents/reports by ADPC, Global Facility for Disaster Reduction and Recovery, International Federation of Red Cross and Red Crescent Societies, International Strategy for Disaster Reduction, and WMO.

- f. **Revision of Work Plan and Budget Preparation.** Based upon the slow start of the project from August 2012 to February 2013, a revised work plan and budget for the project has been prepared for approval requesting a no-cost increased project extension from a termination date of 31 July 2014 to one of 31 December 2014. The proposed revised work plan and budget do not change the broad outlines, goals, activities, and intent of the project, but many of the words and specifics have been changed based upon the experiences and knowledge gained thus far from the workshop and from the three in-country pilot workshops.

#### 4. Future Plans and Activities.

The main focus of the project thus far has been on the general information gather at the initial May 2013 workshop and then preparing, conducting, and reporting the findings for the three pilot countries. Thus much coordination and collaboration has been done with Bangladesh, Pakistan, and the Philippines as pilot countries, but very little with the other 10 beneficiary countries and the other members of TC and PTC. The focus of the project will change at the beginning of 2014 when we moved into Activity 1.3.

- a. **Activity 1.3.** Activity 1.3 is *Synergize existing SOPs and develop additional SOPs as needed to meet identified gaps and needs and compile a Manual of Synergized Standard Operating Procedures (SSOPs) for Coastal Multi-Hazards Early Warning Systems, mainly focusing on the hydro-meteorological aspect, to meet the needs of diverse users, like decision makers, early warning issuers, media, researchers, operational, public, including fishermen at the community level.* A three prong effort will be used to accomplish the items in this activities during the period of January – April 2014 and the SSOP Focal Points and the SSOP Task Force will be extensively involved. 1) First, missions and consultants will be send to the three pilot countries for follow-up visits and working meetings and to obtain specific SOPs in use and to refine the needs and gaps identified in the initial pilot visits. 2) Secondly, missions and consultants will be sent to 6 other beneficiary countries for non-formal, working meetings to get specific examples of SOPs being used and also inputs on those that might need to be developed. The SSOP focal points will be the primary points of contacts for both of these type visits. 3) The third prong is for the Program Manager with the SSOP Task Force, TCS, and PTC will beginning compiling the manual on SSOPs for Coastal Multi-Hazard Early Warning Systems based upon the information already collected and that data being collecting in probe 1 and 2 described above. The goal is to have a good working version of the manual by 1 June 2014. This will fulfill the required of the project's Main Output 1.



**b. Activity 2.1.** Activity 2.1 is to *Conduct training of users and issuers in the interpretation and preparation of EWS products for decision-making, media, and communications.* A two prong effort is planned for this. 1) First, a training session for approximately 50 decision-makers, disaster managers, media professionals, and warning issuers from 13 target countries is planned, possibly the second week of June 2014. Approximately 5 experts in meteorology, hydrology, disaster risk reduction, media, social science, plus the Program Manager and TCS and PTC representatives will provide training to these 50 people on the basics of EWS, importance of SOPs, interpretation and preparation of EWS products, communications, dissemination, coordinated collaborative actions, etc. Hopefully this will be a “train the trainer” situation with the people trained at this class going back to their respective countries and holding training classes to train others. 2) The second prong is to send missions to approximately 6 selected targeted countries to provide assistance and expertise to develop, update, coordinate, and implement improved SOPs for coastal multi-hazard EWS during the time period of July – October 2014. At the three pilot workshops, the participants clearly stated that even with the Manual and possibly 3-4 people trained from their country, they will urgently need resources and support to implement improved, effective agency and cross-agency SOPs. Although it is understood that the missions can’t implement a whole new system with all of the details, these missions can be hands-on working meetings to “jump start” the implementation of improved SOPs for some countries.

**c. Activity 2.2.** Activity 2.2 is to *Conduct working meeting on building a cooperation mechanism between TC and PTC for coastal multi-hazard EW information sharing and technical transferring for approximately 20 participants from target countries.* At this meeting (most likely in September – October 2014), the TC and PTC members’ focal points for a joint cooperative mechanism will analyze current actions of the TC and PTC and how these can be used along with additional developed ones to create a sustainable cooperative mechanism between TC and PTC. The exact nature, content, and methodology of this cooperative mechanism is not well understood, but through joint workshops/meeting, interactions during the collection of EWS and SOP information, it is hoped that various members will develop possible ideas and methods to make this cooperative mechanism a reality.

**5. Monitoring, Evaluation, and Audit.** This is scheduled for October – December 2014. The project provides for an end of project review, along with an independent evaluation and budget audit under the Program Management heading of the Activity Work Plan. An independent end of term evaluation will be commissioned by the Typhoon Committee Secretariat in consultation with partners and ESCAP. The evaluation process should be conducted to facilitate learning. TCS will arrange an independent audit of the project funds at the end of the project and will submit the results to ESCAP within agreed timeframe.