

**ESCAP/WMO Typhoon Committee**  
Forty-eighty Session  
21-24 February 2017  
Honolulu, Hawaii  
USA

FOR PARTICIPANTS ONLY  
WRD/TC.49/5.4.2  
13 January 2017  
ENGLISH ONLY

**Report on the Progresses of  
the Proposal of SSOP- II: Implementation of Synergized Standard  
Operating Procedures (SSOP) for Coastal Multi-hazard Early Warning  
System in 2016**

(Item 5 of Tentative Program for TC 49<sup>th</sup> Session)

(Submitted by TCS)

**ACTION REQUIRED:**

This Committee is invited to:

- a) Review the proposal of SSOP-II submitted to ESCAP

**APPENDIXES:**

- I. FDRAFT TEXT FOR INCLUSION AT SESSION REPORT
- II. Report on the progresses of ESCAP Trust-funding application for proposal of the Project on SSOP-II: Implementation of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-hazard Early Warning System

## APPENDIX I

### DRAFT TEXT FOR INCLUSION AT SESSION REPORT

#### 5.4.2 ESCAP Funding Project – SSOP-II

1. The Session reviewed the final version of the ESCAP-funding application for the proposal of the Project on SSOP-II: Implementation of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-hazard Early Warning System, and noted the progresses made in 2016. The details can be found in the **Appendix ??**.
2. The Session noted with pleasure that TCS made its efforts on the Proposal, and also expressed its appreciation to ESCAP for its support and cooperation on the application.
3. The Session also requested AWG, the Working Groups and RCMC-Tokyo, in cooperation with TCS, to proceed with the project of SSOP-II should funds become available.
  1. we anticipate to transfer funds to the Typhoon Committee
  2. to expand the work undertaken to strengthen capacity of member States on
  3. Synergised Standard Operating Procedures and promote regional cooperation.

## APPENDIX II

### Report on the Progresses of the ESCAP Trust Funding Application for the Proposal of SSOP-II in 2016

#### I. Overview of Progresses of the ESCAP Trust Funding Application

Following the decision of TC 48th Session, TCS followed the progresses of the ESCAP Trust funding application for the proposal of SSOP-II: Implementation of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-hazard Early Warning System, which was submitted to ESCAP at 10th IWS in 2015 and approved at 48th Session to proceed with the project of SSOP-II should funds become available.

In April, it was informed by ESCAP that, the final version of SSOP-II was retained for further consideration in the shortlist selected from all 124 proposals.

According to the comments from ESCAP and proposal from 11<sup>th</sup> WGDRR Workshop, based on the repeated communication with ESCAP and RCMS-Tokyo, TCS submitted the final version of SSOP-II proposal in September 2016. The proposed activities in the final version include:

Activity 1: Conducting the training courses/workshops on mechanism of establishing and preparing SSOP for coastal multi-hazards EWS for DRR experts and warning experts from NTWCs, NDMOs, and Government sectoral agencies of 10 beneficiary countries at national level (3 days in RTC, Nanjing).

Activity 2: Conducting consulting workshops (2 days) at national-level for selected 3 nations from TC and PTC regions (based on Activity 1) on supporting updating and improving the existing SOPs by using the knowledge of Manual of SSOPs in combine with Monsoon Forums of RIMES in April-May and October-November 2017 (or in October-November 2017 and April-May 2018, depends on the schedule of RIMES workshops) under the umbrella of UN ESCAP (2 x 3 national consulting workshops in selected countries, in total 6 workshops).

Activity 3: Conducting RSMC attachment training in RSMCs Tokyo and New Delhi for Tropical Cyclones forecasters of selected 4 nations from TC and PTC regions (14 days in Tokyo x the number of selected nations in PTC region in Tokyo, 14 days in New Delhi x the number of selected countries in TC region).

The total budget applied from ESCAP Trust Funding is \$250,000 USD. The proposed implementation period is 18 months.

It was proposed to have final decision from the Panel of Trust Fund of ESCAP at the end of the year of 2016. The Agreement should be signed between ESCAP and TCS if the Proposal is approved by the Panel of ESCAP Trust Fund. And the project should be started in March of 2017 should the funds become available.

The following issues which are concerned seriously by ESCAP should be considered by the Committee, including:

- At this stage it is not guaranteed that RIMES will be implementing TTF-funded projects during this round of funding. Would this be a risk for a successful completion?

n of the proposed project?

- Need to consider both quantitative and qualitative indicators of success. Additional qualitative indicators are needed to define and measure the outcomes of the proposed project.
- Need to specify who will be project managing the initiative? Is a consultant or full-time project manager foreseen at all stages of the project cycle?
- Refer to project management alternatively through an external consultant or staff, what will determine the selection?

## II. Final version of the Proposal of SSOP-II

### A. Overview

1	ORGANIZATION SUBMITTING PROPOSAL	ESCAP/WMO Typhoon Committee Secretariat (TCS)
2	FOCAL POINT AT ORGANIZATION AND RELEVANT CONTACT INFORMATION	<b>Mr. YU Jixin</b> Secretary of Typhoon Committee Avenida de 5 de Outubro, Coloane-Macau, China Tel: +853 88010531; Fax:+853 8801 0530 Email: <a href="mailto:yujx@typhooncommittee.org">yujx@typhooncommittee.org</a> <a href="mailto:info@typhooncommittee.org">info@typhooncommittee.org</a>
3	PROJECT TITLE	SSOP Phase II: Implementation of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System
4	BENEFICIARY COUNTRIES	10 Countries: Bangladesh; Cambodia; Lao PDR; Maldives; Myanmar; Pakistan; Philippines; Sri Lanka; Thailand and Viet Nam.
5	TARGET GROUP(S)	<ul style="list-style-type: none"> <li>• National Meteorological and Hydrological Services (NMHSs) / National Tsunami Warning Centers (NTWCs)</li> <li>• National Disaster Management Offices (NDMOs)</li> <li>• Government sectoral agencies</li> </ul>
6	TIME FRAME	18 months: expected period From 1 March 2017 to 31 August 2018
7	TOTAL BUDGET (US\$) AND BREAKDOWN OF FUNDING SOURCES	ESCAP Trust Fund: US\$250,000.

## Executive Summary

As it is known that, the most nations in the regions of ESCAP/WMO Typhoon Committee (TC) and WMO/ESCAP Panel of Tropical Cyclones (PTC) are less developed countries, and are the most disaster prone regions in the world due to impacts of many types of natural disasters. Also the most countries have shortage on end-to-end disaster early warning system (EWS) which should be a fundamental component of nations' disaster risk reduction strategies, enabling governments from the national to the local levels, as well as communities, to take appropriate actions to reduce the loss of lives and livelihoods in anticipation of a disaster.

To assist the countries in TC and PTC regions to identify the specific gaps and needs for making the existing EWSs fully operational for the use in multi-hazards context, ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asia Countries funded TC in 2012, in cooperation with PTC, for conducting the project on Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System.

Under the great support and guidance from ESCAP and WMO, and the close cooperation from a series of international/regional organizations, beneficiary countries and target groups, the project of SSOP conducted successfully the proposed activities and achieved the expected outputs including compiling the Manual/Handbook of Synergized Standard Operating Procedures for Coastal Multi-Hazards Early Warning System.

This Manual of SSOPs was developed successfully as a resource for TC and PTC Members including key concepts, basic principles, and basic standards for SSOPs. It also provides useful information, examples, and references particularly focused on the role of National Meteorological and Hydrological Services (NMHSs) in preparing and implementing effective SSOPs. Each Member can decide to use the SSOP Manual and its Quick Reference Guide as they see appropriate. The most prominent features of the Manual of SSOPs are shown in the following three aspects:

- **Clearly identified the approach of SSOP development: Bottom-Up Approach.** SSOPs are mostly developed at a national level, then downward to the sub-national and then to the local levels. With new emphasis on impact-based warnings and forecasts, a “bottom up” concept may be more effective. It may be easier to incorporate synergy for multi-hazard, multi-agency, and multi-levels of government by beginning the development of SSOPs at the local community level rather than national level. By involving the communities at a very early stage of SSOP development, impacts and the specific needs of the communities can be the foundation rather than having many national and sub-national level SSOPs which would have to be merged into one meaningful system. The manual also includes critical guiding principles for contextual use and application, and strongly recommends the consideration of national policies and frameworks, including existing MoUs and arrangements. Such guidance makes the nature of the manual inclusive as well as flexible to adopt the different needs of users.
- **Clearly described the working steps of SSOP development.** The Manual instructed the different steps to prepare SSOPs depending upon: the task to be completed, the instruction as complexity of the task, the length of the task, and the level of the SSOP. Five different formats are provided and suggestions on when these might be used. An SSOP can follow one of these formats, a combination of two or more formats, or a format developed by the country involved. Whatever format that allows personnel to perform the task most effectively and efficiently is the one that should be used.
- **Detail provided a very easy understandable and workable guidance.** The pictures and the accompanying essays are both excellent in the Manual. A plenty of flow charts, tables and

checklists were used to show how to develop a SSOP so that to improve the efficiency and effectiveness on preparing, documenting, reviewing, testing, approval, and implementation of SSOPs.

The successful SSOP-I project is regarded as an excellent example on the cooperation on promoting the capacity building of multi-hazards early warning among two regional bodies. However, due to the limitation of budget and time, TC and PTC could not extent the results and achievements of SSOP-I project to all their Members deeply and widely.

Therefore, it was suggested very strongly at the 3rd joint Session of TC and PTC (TC 47th Session and PTC 42nd Session) to request the Members, after the Manual is complete, to consider ways to make the best use of it, and to develop a proposal for SSOP Phase II, based on the successful completion SSOP-I project, and submit to ESCAP for funding consideration.

The proposal of SSOP Phase II for Implementation of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System will be mainly focused on the training on how to establish an appropriate standard operating procedure (SOP) based on the published SSOP Manual and on promoting the TC and PTC Members' capacity building on Multi-hazards Risk early warning based on existing technical achievement for National Meteorological and Hydrological Services (NMHSs) in the 10 beneficiary countries (including Bangladesh; Cambodia; Lao PDR; Maldives; Myanmar; Pakistan; Philippines; Sri Lanka; Thailand and Viet Nam), and also on enhancement of mutual support between TC and PTC through the continuation of the project.

SSOP-II also will consider providing resources and opportunities to involve social scientists, DRR experts and warning experts from National Tsunami Warning Centres (NTWCs), National Disaster Management Offices (NDMOs), and Government sectoral agencies including national level, local level and community level to improve the training and capacity building on social science aspects of EWS, such as risk and impact assessment, warning communication strategies, partnership/stakeholder engagement, society response capability, etc..

SSOP-II will focus on training the "mechanism" of preparing and implementing synergized standard operating procedures for coastal multi-hazards early warning system in beneficiary countries with the goal of promoting the capacity on coastal community resilience to coastal multi-hazards through extending the achievement of SSOP-I.

## **B. Needs Assessment**

It has been pointed out in Early Warning Systems in the Indian Ocean and Southeast Asia - 2011 Report on Regional Unmet Needs prepared by ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asia Countries that the ESCAP/WMO Typhoon Committee (TC) and WMO/ESCAP Panel on Tropical Cyclones (PTC) regions are the most disaster prone regions in the world due to impacts of many types of natural disasters. Also the report indicated that, an end-to-end disaster early warning system (EWS) should be a fundamental component of nations' disaster risk reduction strategies, enabling governments from the national to the local levels, as well as communities, to take appropriate actions to reduce the loss of lives and livelihoods in anticipation of a disaster.

ESCAP approved the project on Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System submitted by the ESCAP/WMO TC and the WMO/ESCAP PTC in August 2012 to enhance:

1. Cooperation between TC and PTC in collaboration with other agencies to create synergies to support the EWS among TC and PTC Members for different types of coastal hazards. These synergies can be achieved through a multi-hazard and multi-agency approach; and
2. TC and PTC collaboration as a part of ESCAP strategy to deepen regional cooperation mechanism and strengthen the capacity of high risk TC and PTC Members to meet the challenges of hazardous weather. In this regard, the SSOP project was an innovative idea that ESCAP funded utilizing the provisions of the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in the Indian Ocean and South East Asia.

This project was jointly implemented by the Typhoon Committee (TC) and the Panel on Tropical Cyclones (PTC) with funding from the Economic and Social Commission for Asia and the Pacific (ESCAP) Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries.

The goal of the project of SSOP-I was to promote community resilience, including vulnerable and special needs individuals, to coastal hazards through effective, synergized SOPs for multi-hazards EWS. The goal was to be met through the preparation of this manual and the development of a cooperative mechanism between TC and PTC on coastal multi-hazards EWS.

SSOP-I collected and analysed the information on current status of SOP. In the most Members of TC and PTC have formulated their SOP (or called different names, like pre-scheduled emergency response) under their practice and system. For instance, in Thailand, Tsunami Early Warning (TEW) has been established under the National Disaster Warning Center (NDWC). NDWC acts as the center coordinating with other governmental agencies. NDWC has responsibility to make decisions, announce all warnings, and evacuate people in risk areas. The Thai Meteorological Department (TMD) is a governmental organization responsible for monitoring, analyzing, and warning all natural hazards related including earthquake information and Tsunami warning. Thailand made remarkable progresses in setting up TEW under NDWC, upgrading and expanding seismic stations, sea-level stations, and installing the warning towers in critical areas along the beaches in the Andaman coast line. All systems are reliable and compatible to the National, Regional and Global warning systems. In Pakistan, the project on Strengthening Tsunami Early Warning System was conducted on 2009. The specific areas of intervention are as: (1) establish and strengthen institutional arrangements for coastal hazards in Pakistan; (2) develop tsunami and sea-level related hazard Early Warning System; and (3) initiate pilot community and local level risk reduction arrangements. In India, the India Meteorological Department worked out in 2013 “Cyclone Warning in India Standard Operation Procedure”. However, not all current SOPs have fully considered all aspects and factors with basic principle of SOP. Those SOPs are usually made by single department for single hazard and lack of close cooperation with the related departments of Government for multi-hazards. In some of Members, there does not yet have a set of comprehensive, operational and executable procedures for Coastal Multi-Hazards Early Warning System.

The needs and gaps identified in SSOP-I through the workshops varied extensively. Below is summary of some of the commonly identified needs and gaps broken into categories. A complete list of all of the SOP related needs and gaps are located in Annex 1. 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. One item to mandate is the testing for coastal hazards like tsunami and storm surge.

#### ***a. SOPs for Specific Areas Needs***

- Each agency SOPs for the implementation of their roles and responsibilities defined in EWS national policies and orders for disasters
- SOPs for both technical and non-technical activities
- Hydro-meteorological service SOPs on all aspects of forecast and warning process to provide timely, accurate information to meet users’ requirements
- Hydro-meteorological SOP for development, use, and dissemination of storm surge information
- Hydro-meteorological SOP to cover back-up plans for catastrophic events such as power failure, fire, facility damaged, etc.
- Hydro-meteorological SOP for cyclone forecasting and warning process in consultation with all stakeholders
- Hydro-meteorological service SOP concerning preparing after action reports for warning situations which can be released to media and public
- National DRR/management operations center SOP on response procedures during a disaster
- DRR/management agencies below national level of government SOPs on heavy rain situations

- Local government SOPs on evacuation, sheltering, and resettlement

**b. *Integrated, cross-cutting SOPs Needs***

- SOP standards to enable better sharing of procedures, especially for local governments to use higher level government SOPs for guidance
- SOP on entire spectrum of disaster management
- Multiagency, detailed SOP on dissemination/communication process of alerts and warnings, including backup systems to meet the requirements of the users
- Multiagency SOP on the process and mechanism for sharing data and data analysis
- Local communities SOPs for EWS related activities to prevent conflicting activities and to ensure rapid dissemination/communication of information
- Provision of SOPs to other agencies and consultations from the national down to local officials
- Coordination procedures on dissemination of warnings and information by national, district and local governmental agencies to the media to prevent issuance of conflicting information
- Coordinated procedures on release of warning/alert information and DRR information
- Coordinated procedures on the process of implementation of new or updated SOPs involving all relevant agencies
- Coordinated process and procedures with all agencies involved for simplification of alert and warning information to include in SOPs, including use of technical terms, number of warning levels, emphasis on hazards not technical terms, specific non-generic warnings, simplified warnings and bulletins that media can “rip and read”, and consideration of color coded warnings associated with certain actions (i.e., prepare, most vulnerable evacuation, general evacuation).
- Involvement of non-government private, professional, civil society, community organizations and families in the development of SOPs
- Guide book or reference manual for media to understand and communicate warning information

**c. *Testing and maintaining needs***

- Annual or scheduled reviews of all SOPs
- Updated DRR/management offices SOPs based on past experience
- Conduct post disaster assessment between DRR/management and media
- Review of SOPs after changes in equipment, procedures, etc.
- Prioritized review and updating of SOPs after new National Disaster Management Plan
- Validate SOPs in all coastal areas

**d. *Awareness of SOPs Needs***

- Government and public awareness of the importance of SOPs

**e. *MOU related needs***

- National plan or MOU clearly defining all roles and responsibilities in EWS
- MOU between DRR/management and media to define methods of communicating
- MOU between hydro-meteorological service and media on methods and procedures of dissemination of data (e.g., timing of updates, content, source, press conferences, etc.)
- MOU between hydro-meteorological service and DRR/management agency
- MOU for agreement on the single, official source of information for government
- MOU on data formats, warnings, and monitoring systems which would include a standardized color alerting code and format
- MOU on coordination process, both top-down and bottom-up, for implementation of SOPs

It was envisioned that improved SSOPs could further enhance ongoing efforts of the TC and PTC Members to support sustainable, socio-economic development of the high economic growth areas of coastal zones. By building upon existing SSOPs and information of TC and PTC Members for coastal



hazards, especially those relevant to end-to-end EWSs and community-based disaster risk management, improved SSOPs could be developed. The connections between aspects of SSOPs and socio-economic implications are important to provide policy guidance to those involved in various aspects related to multi-hazard EWS.

TC and PTC are two inter-government regional bodies dealing with typhoon-related disaster risk reduction. The project was mainly focused on the meteorological and hydrological services of the TC and PTC regions. However, one agency or organization cannot develop all of the needed SSOPs for an effective multi-hazards EWS in isolation. Coordination, collaboration, support, and assistance are needed not only horizontally with other agencies at the same level of government, but also vertically to involve all levels of government, citizens, and media. An effective EWS must provide the required information to the people at risk so they in turn can perform the correct actions to save their lives and property regardless of whether they live in a large city or a rural, coastal location. Thus, the intended target readers or users of the manual are those involved in the enhancement of EWS services through a multi-hazard, multi-agency SSOP approach.

The project of SSOP-I synergized the knowledge and information of current SOPs which are using in TC and PTC Members as well as other regions in practice and research papers. A large amount of research and operational experiences by countries worldwide have shown the benefits and purposes of SSOPs in a EWS to save lives and protect property. Some of the vital benefits SSOPs can provide in a EWS are to:

- Ensure tasks are preformed within the country's documented EWS;
- Describe and document EWS roles and responsibilities;
- Incorporate concepts of synergy through multi-hazards, multi-agencies, and integration methods;
- Consider vulnerable and special needs individuals;
- Ensure tasks are integrated with other agencies and with all levels of government, especially local communities;
- Follow an identified process for formulation, review, testing, and approval before commissioning and implementation;
- Include a regular, robust, sustainable process for reviewing and updating after implementation; and
- Incorporate training and education programs at all levels for maximum effectiveness.
- Removes red-tape, border/territorial issues and allows free and open dialogue as well as collaborative partnerships between responsible RSMCs and all regional Members.
- Pooling of resources, thus ensuring cost-effective exercise to governments

In addition to these benefits, well written SSOPs can serve valuable purposes, such as to:

- Ensure tasks are performed in the same way and to the same standard each time;
- Provide specific, approved direction;
- Produce predictable, reproducible results;
- Maintain high quality and consistent service in hazard situations;
- Develop and implement the most efficient and effective method to perform tasks before an emergency occurs;
- Improve cooperation and integration of different tasks among agencies involved in EWS; and
- Reduce training time.

The Manual on Synergized Standard Operating Procedures (SSOPs) for Coastal Multi-Hazards Early Warning System (Annex 2), as the main outcomes of SSOP-I, was designed to provide flexible approaches, operational guidance, and recommendations based upon best practices and available resources to prepare Synergized Standard Operating Procedures (SSOPs) for early warning systems.

It includes key concepts, basic principles, and basic standards for SSOPs. It also provides useful information, examples, and references particularly focused on the role of National Meteorological and Hydrological Services (NMHSs) in preparing and implementing effective SSOPs.

In addition to the Manual, there is a companion document called “Quick Reference Guide on SSOPs for Coastal Multi-Hazards Early Warning System.” The Quick Reference Guide (Annex 3) is a summary of the basic ideas and methods for development and implementation of SSOPs. It is an operational guide for an organization to quickly and easily start or review implementation of the SSOP process.

To fully use the SSOP Manual, certain definitions are needed for a common understanding of its content, including:

### ***Synergy***

- To create SOPs through a cooperative development, sharing, review, analysis, and documentation process in a multi-hazard and multi-agency way so the whole is greater than the sum of its parts.
- Through this process, the overall EWS will be improved and the overall efficiency increased.

### ***Standard Operating Procedures***

- To identify, coordinate, integrate and document, in a logical order or sequence, a standard set of steps to be followed to ensure tasks are performed in the same way and to the same standard each time.
- Since these are done before a hazardous event occurs, the standard steps can be created in the most efficient and effective method to prepare, review, and release warnings in coordination with other agencies.

### ***Multi-Hazards***

- To identify and incorporate similarities of hazards into SSOPs.
- Hazards are different, occur on different time scales, and effect different geographical areas, but some elements of EWS for these hazards are similar. For example, this may include:
  - Processes involved in monitoring and observing;
  - Stages of alerts and warnings, for example, green, blue, yellow, red levels or other standard colours or levels;
  - Coordination among agencies; and
  - Processes of issuing and disseminating warnings.
- This approach can make a EWS and supporting SSOPs more sustainable because they would be used more frequently than stand-alone, single hazard methods. Single hazard SSOPs, if infrequently used, can produce operational, coordination, and communications problems when activated.

### ***Integration***

- To coordinate and integrate different agencies’ inter-related roles and responsibilities into each other’s SOPs to avoid conflicting information.
- This can be accomplished through a systematic review of the roles and responsibilities assigned to all agencies within a country involved in the EWS.
- This includes agencies at each level of government and also among different levels of government (national, sub-national, and local communities) involved in the warning chain.

### ***Sub-National***

- Levels between the national level and the community level. This would include provinces, territories, states, regions, divisions, governorates, prefectures, districts, and planning areas.
- Thus it will be used to describe all forms of government between the national level and the community level.

### ***Time-line Concept***

- Tasks listed in chronological order of how they are to be performed.

In a EWS, several levels of documentation usually exist and should be strongly considered for incorporation:

1. National, high-level policy document(s) which provides a comprehensive and integrated management approach encompassing all stages of disaster management. These documents define the roles and responsibilities of citizens, public representatives, ministries, departments, agencies, private sector, insurance sector, corporate sector, and non-government organizations (these will differ for different PTC and TC Members). They often specify at a high level the “who” (responsible agency) and “what” (roles and responsibilities) and many times the “when” and “why” of agencies’ roles and responsibilities in the EWS.
2. Memorandums of Understanding (MOUs). MOUs helps to ensure different agencies and organizations understand each other’s roles and responsibilities and how they can perform in an integrated manner as partners. MOUs can either be bilateral (between two agencies) or multilateral (among multiple agencies). An MOU identifies the parties involved; defines the subject matter and objectives; and establishes agreed upon roles and responsibilities.
3. SSOPs. There are effectively two levels of SSOPs. The “higher level” SSOPs are the ones that specify the “who”, “what”, “when”, “where”, “why”, and “how” tasks or activities associated with natural disasters to support the national level policy documents and are the main focus of this Manual. Modules 6 and 14 focus on this level of SSOPs and provide synergy ideas of what may be needed. The lower level procedures, sometimes referred to as operational directives or checklists, specify the more detailed “how to” and are internal to a particular workplace or agency. These are not shared or synergized because of their specific, internal nature.

The Manual of SSOPs consists of 15 Modules divided into six Parts to highlight the linkage between ongoing efforts with existing SSOPs and the need to improve them into SSOPs for a multi-hazards early warning system of coastal areas. The six parts are:

- a. Technical Background;
- b. Strategic Framework of SSOPs;
- c. Formalization of SSOPs;
- d. Towards an Effective and Sustainable Process of Improvement;
- e. National Meteorological and Hydrological Services (NMHSs) Activities in EWS; and
- f. Operationalizing Duty SSOPs.

The templates for creating SSOPs and checklists are found useful for creating new SSOPs as well as evaluating existing ones. The manual also includes critical guiding principles for contextual use and application, and strongly recommends the consideration of national policies and frameworks, including existing MoUs and arrangements. Such guidance makes the nature of the manual inclusive as well as flexible to adopt the different needs of users. The Manual on SSOPs was tested in the hands of training missions of consultants to 3 PTC (Bangladesh, Maldives, Myanmar) and 3 TC countries (Cambodia, Lao PDR and the Philippines).

This Manual of SSOPs was developed as a resource for TC and PTC Members and is not binding or required for any Member. Each Member can decide to use the SSOP Manual and Quick Reference Guide as they see appropriate. The most prominent features of the Manual of SSOPs are showing in the following three aspects: (1) ***Clearly identified the approach of SSOP development: Bottom-Up Approach.*** SSOPs are mostly developed at a national level, then downward to the sub-national and then to the local levels. With new emphasis on impact-based warnings and forecasts, a “bottom up” concept may be more effective. It may be easier to incorporate synergy for multi-hazard, multi-agency, and multi-levels of government by beginning the development of SSOPs at the local community level rather than national level. By involving the communities at a very early stage of SSOP development, impacts and the specific needs of the communities can be the foundation rather

than having many national and sub-national level SSOPs which would have to be merged into one meaningful system. (2) ***Clearly described the working steps of SSOP development.*** The Manual instructed the different steps to prepare SSOPs depending upon: the task to be completed, the instruction as complexity of the task, the length of the task, and the level of the SSOP. Five different formats are provided and suggestions on when these might be used. An SSOP can follow one of these formats, a combination of two or more formats, or a format developed by the country involved. Whatever format that allows personnel to perform the task most effectively and efficiently is the one that should be used. And (3) ***Detail provided a very easy understandable and workable guidance.*** The pictures and the accompanying essays are both excellent in the Manual. A plenty of flow chats, tables and checklists were used to show how to develop a SSOP so that to improve the efficiency and effectiveness on preparing, documenting, reviewing, testing, approval, and implementation of SSOPs.

The evaluation report of SSOP-I project (Annex 4 and 5), which was submitted by independent evaluator, assessed the key outcomes, outputs and lessons learnt from the perspective of relevance, effectiveness, efficiency and sustainability. The report pointed out that, in order to fully achieve both outcomes of SSOP in the 13 beneficiary countries, including Bangladesh, Cambodia, China, India, Lao PDR, Malaysia, Maldives, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand and Viet Nam, a SSOP Phase II is advisable.

The 3rd Joint Session of TC and PTC (42nd Session of PTC and 47th Session of TC), which was held in UN Conference Centre of ESCAP from 09 to 13 February 2015, took note of the progress and achievement of the project and decided to request ESCAP to consider the possibility to support conducting SSOP phase II after the current SSOP project (SSOP-I) is closed and to encourage Members to contribute TC cross-cutting project of SSOP, and also requested the Members of TC and PTC to consider ways to make the best use of the Manual. In order to enhance the cooperation mechanism of two regional bodies and promote the capacity of Members on costal multi-hazards early warning, the Joint Session also decided to pursue the following joint activities (Annex 6):

- To develop a mechanism for holding Joint PTC/TC Sessions more frequently and regularly.
- To develop a proposal for SSOP Phase II, based on the successful completion SSOP project, and submit to ESCAP for funding consideration.
- To request ESCAP and WMO to provide funding and expertise support for extension of TC on-going project of real-time Operational System for Urban Flood Forecasting and Inundation Mapping (OSUFFIM) to PTC Members, starting from organizing a joint workshop on implementation of OSUFFIM for selected pilot cities in TC and PTC Members in 2015.
- To facilitate PTC and TC Members to participate in each other's annual sessions and workshops/seminars, and to encourage PTC Members to seek funding through ESCAP or WMO to attend training courses and workshops offered by TC Members.
- To coordinate and undertake joint expert mission in assessing the damage caused by tropical cyclones and related disasters with the support from ESCAP.
- To invite two to three tropical cyclone forecasters from PTC Members to the RSMC Tokyo attachment training every year with the support of ESCAP, and to request ESCAP to make financial and logistic arrangements for the PTC participants in cooperation with RSMC Tokyo.
- To invite one or two tropical cyclone forecasters or researchers from PTC Members to the TRCG Research Fellowship Scheme of KMA every year if possible with the support of WMO/ESCAP or other donors. To request WMO/ESCAP to make financial and logistic arrangements for the PTC participants in cooperation with KMA.
- To invite TC members to join the initiatives of RSMC New Delhi on Forecast Demonstration Project on land falling cyclones over Bay of Bengal, Severe Weather Forecast Demonstration Project and coastal inundation modelling with the involvement of PTC member Countries.
- To invite TC members to participate in the annual bi-weekly training and short term weekly/ bi-weekly training programmes on specific themes such as Satellite Meteorology, Radar Meteorology, and NWP currently conducted by RSMC New Delhi/IMD for the benefit of PTC countries. While RSMC New Delhi provides only training support, it requests extra-budgetary resources to support air fare and DSA for the participants from PTC and TC member Countries.

- To strengthen data sharing between TC and PTC Members including satellites data, noting that by the end of 2016 EUMETSAT will terminate the operations of Meteosat-7.

At 3rd Joint Session of TC-PTC, the decisions were made from both regional bodies (See Annex 6):

- To request the Members, after the Manual is complete, to consider ways to make the best use of it.
- To Encourage the Members to disclose the Manual by various agencies, organizations and other entities related to early warning systems

At the 47th Annual Session, TC made its commitments (See Annex 7) to

- To encourage TC and PTC Members, in particular the SSOP beneficiary Members to use the SSOP Manual and provide feedback to the TCS.
- To request ESCAP to consider the possibility to support conducting SSOP phase II after the current SSOP project is closed and to encourage Members to contribute TC cross-cutting project of SSOP.

At 48th Annual Session, TC made commitment again to request the Working Groups, in cooperation with TCS, to discuss and formulate plans for the implementation of SSOP-II should funds become available. The Session requested the implementation of SSOP-II to be fully integrated with Working Groups' AOPs. (See Annex 8).

Some Members of TC and PTC sent the official letter requesting training of SSOP, such as Cambodia of TC, Pakistan of PTC (See Annex 9).

### **C. Problem Analysis**

The project activities of SSOP-I have alerted the TC and PTC beneficiary countries on the advantages in adopting a standardized way of drafting their SSOPs. However, some gaps were pointed out. One of the survey results indicated that though implementation arrangements were effective, mobilizing support and involvement of multiple actors and agencies at regional and national levels for planning purposes were challenging and took time. Similarly, the trainings conducted under the project needed more practical examples from disaster events, and that the incorporation of mock drills could have enhanced the overall value of the training package.

The project of SSOP-I contributed to warning knowledge and practices by discussing the concept of SSOPs. This is not yet adopted in many countries. Activities have contributed to better knowledge on how to save time for making decisions in case of a hydro-meteorological disaster. If utilized properly, the Manual of SSOPs can further contribute to enhancing the capacity of relevant government departments that deal with monitoring and forecasting of hydro-meteorological hazards.

For multi-agency SSOPs to be comprehensive and fully effective, the engagement and commitment of NMHSs, NDMOs, media, and key government agencies is necessary. However, during some of the missions during SSOP-I, it was found that the NMHSs, disaster management offices, and the media did not coordinate well and seldom met jointly. As mentioned above, not all current SOPs have fully considered all aspects and factors with basic principle of SOP. At this state, the project of SSOP-I has partly achieved its expected outcomes as more training and development needs to be done. On a positive note, a number of countries involved in the project of SSOP-I have made significant progress in developing SSOPS (both internally and externally), especially during the final phase of the Project.

The TC and the PTC budgets are very limited and designed for supporting their regular activities, such as workshops, training courses, meetings, etc. For this reason, support from other organizations (e.g., ESCAP, WMO) for implementing this cooperation mechanism will be necessary. The project of SSOP generated a great interest in most of the beneficiary counties and alerted the respective NMHSs on the necessity of having well structured SSOPs. As this project involved a great number of countries, the best way to guarantee the exit/ sustainability is ESCAP, PTC and TC Members to support the implementation of the Cooperative Mechanism and prepare the proposed project of SSOP-II.

## **D. Target Group**

The project of SSOP-II aims for the above-mentioned needs and gaps to conduct a series of training courses and workshops. The trainees will be oriented towards National Meteorological and Hydrological Services (NMHSs), National Tsunami Warning Centres (NTWCs), National Disaster Management Offices (NDMOs) and Government sectoral agencies including social scientists, decision makers, warning experts, DRR experts, warning information users and community managers.

The capacity building on coastal multi-hazard EWS is targeted for the following 10 beneficiary countries: Bangladesh; Cambodia; Lao PDR; Maldives; Myanmar; Pakistan; Philippines; Sri Lanka; Thailand and Viet Nam.

TC and PTC are two inter-government regional bodies dealing with typhoon-related disaster risk reduction. The initiative will involve related agents of three components, namely meteorological administration, hydrological department and disaster risk reduction Agency, at national level.

## **E. Project Strategy**

The Manual on SSOPs was prepared with the purpose of promoting community resilience to coastal multi-hazards. The aim was to improve policy and institutional arrangements at national, district, and community levels through integrated, effective standard operating procedures for multi-hazards EWS. The manual is extremely useful in improving existing SSOPs and in creating new ones as it provides detailed guidance with relevant examples and references.

In order to ensure effectiveness and sustainability of the process of improvement, it is necessary to ensure commitment of top leadership and participation of all key stakeholders using strategic planning and management concepts. The key factors of strategic planning and management would include the following:

- Complete commitment of top leadership to integrating EWS into the socio-economic development and resilience;
- Translation of the complete commitment into a shared vision for all key stakeholders;
- Establishment of performance indicators to ensure effective implementation and an appropriate system of accountability; and
- Development of an effective program of support for the implementation.

SSOP-II is the continuation of the project of Synergized Standard Operating Procedures (SSOP) for Coastal Multi-Hazards Early Warning System which has been closed in May 2015. The purpose of SSOP-II is to extend the achievements among 10 beneficiary countries (including Bangladesh; Cambodia; Lao PDR; Maldives; Myanmar; Pakistan; Philippines; Sri Lanka; Thailand and Viet Nam), and transit the existing technical methodologies on coastal multi-hazards early warning into productive forces so that to promote the capacity on disaster risk reduction.

The activities of SSOP-II will be mainly focused on the training the mechanism on how to establish and prepare an appropriate standard operating procedure (SOP) based on the published SSOP Manual and on promoting the TC and PTC Members' capacity building on Multi-hazards Risk early warning based on existing technical achievement for National Meteorological and Hydrological Services (NMHSs) in the beneficiary countries, and also on enhancement of mutual support between TC and PTC through the continuation of the project. National trainings will be linked to national monsoon forums or similar multi-stakeholder events, in order to seek synergies and cost savings. Further, a regional training on the Severe Weather Forecasting Demonstration Project will be supported in conjunction with the regional SSOP training.

SSOP-II also will consider providing resources and opportunities to involve social scientists and warning experts from National Tsunami Warning Centres (NTWCs), National Disaster Management Offices (NDMOs), and Government sectoral agencies including national level, local level and community level to improve the training and capacity building on social science aspects of EWS, such as risk and impact assessment, warning communication strategies, partnership/stakeholder engagement, society response capability, etc.

SSOP-II has both a regional and national-level components:

- At the regional-level component, it intends to implement the cooperation mechanism of two regional bodies endorsed at 3rd PT-PTC Joint Session, which was held at the United Nations (UN) Building of ESCAP from 09 to 13 February 2015, to enhance the collaboration between TC and PTC through the cooperation of the RSMC Tokyo and New Delhi starting from attachment training for Tropical Cyclones forecasters.
- At the national-level component, it was recommended to implement the project combining with the on-going projects of the Regional Integrated Multi-Hazard Early Warning System (RIMES) under the umbrella of ESCAP trust fund. RIMES issued an official letter to declare and confirm that RIMES agrees to partner with ESCAP/WMO Typhoon Committee Secretariat in the implementation of the proposed project attached as Annex 10.

To further involve social scientists and warning experts, a social scientist will be brought into activities of workshops as a lecturer. To effectively and efficiently manage and implement the project, the consultant(s) or full-time project manager is (are) foreseen for the Activity 1 and 2 of the project.

The achievement of SSOP-I is expected to be extended in 10 target countries. What it is expected after the proposed activity in the initiative is to make those 10 countries know how to establish and upgrade their SSOPs when they plan to do that. A questionnaire will be designed for measuring how effective the workshop/training courses are.

2-3 nations will be selected to learn upgrading their SSOPs at national level by using the Manual via proposed training courses. The selected nations will be requested to report the updated SSOPs.

## F. Results Framework

- **Goal (positive impact)**

The goal of the Project of SSOP-II is to promote the capacity on establishment of the SOP at national-level to coastal multi-hazards through extending the achievement of SSOP-I in TC and PTC regions by conducting training course and workshops on the "mechanics" of preparing and implementing synergized standard operating procedures for coastal multi-hazards early warning system in beneficiary countries, aiming at the problems and gaps mentioned in the PART C.

- **Outcomes**

**Expected Outcome:** extending the knowledge on the "mechanics" of preparing and implementing SSOPs in TC and PTC regions.

**Activity 1:** *Conducting the training courses/workshops on mechanism of establishing and preparing SSOP for coastal multi-hazards EWS for DRR experts and warning experts from NTWCs, NDMOs, and Government sectoral agencies of 10 beneficiary countries at national level. (3 days in RTC, Nanjing)*

***Indicator:*** the Manual of SSOPs is extended in selected 10 beneficiary countries with about 30 experts joined the training course.

**Activity 2:** *Conducting consulting workshops (2 days) at national-level for selected 3 nations from TC and PTC regions (based on Activity 1) on supporting updating and improving the existing SOPs by using the knowledge of Manual of SSOPs in combine with Monsoon Forums of RIMES in April-May and October-November 2017 (or in October-November 2017 and April-May 2018, depends on the schedule of RIMES workshops) under the umbrella of UN ESCAP (2 x 3 national consulting workshops in selected countries, in total 6 workshops).*

***Indicator:*** 3 countries from TC and PTC regions get supporting on establishing and/or updating and improving their existing SOPs for early warning with about 20 participants

in each selected countries, in total 120 participants.

***Activity 3:*** *Conducting RSMC attachment training in RSMCs Tokyo and New Delhi for Tropical Cyclones forecasters of selected 4 nations from TC and PTC regions (14 days in Tokyo x the number of selected nations in PTC region in Tokyo, 14 days in New Delhi x the number of selected countries in TC region).*

***Indicator:*** 4 countries from TC and PTC regions get updating their TC forecasting knowledge and improving their TC forecasting skills for more timely, accurate and user-oriented TC warning services at national levels.

- **Outputs**

- (1) The achievement of SSOP-I will be extended in TC and PTC region and the Manual of SSOPs will be applied at least in 3 countries. The selected 3 nations will establish a communication with SSOP consultants for additional guidance with support from ESCAP after the project.
- (2) The cooperation mechanism between TC and PTC will be put into practice via RSMCs cooperation on the annual RSMC Tokyo-New Delhi attachment training every year with support of ESCAP after the project.

## **G. Contribution to Regional Coordination/Cooperation**

The closed SSOP-I project was regarded as an every good example on enhancing the cooperation of two regional bodies of TC and PTC. The One of achievements of the closed SSOP project is the established regular communication and cooperation mechanism between TC and PTC on coastal multi-hazard early warning.

The 3rd Joint Session of TC and PTC recommended to develop a proposal for SSOP Phase II, based on the successful completion of the SSOP project, and to submit to ESCAP for funding consideration as one of measures to deepen and enhance the cooperation mechanism of two regional bodies.

The proposed activities for SSOP-II will play a positive role in improving the society response capacity, the technical support capacity of costal multi-hazards early warning. The experts from NHMSs, NTWCs, NDMOs, and Government sectoral agencies including national level, local level and community level will be trained on how to prepare SSOP, interpret the information of coastal multi-hazards early warning so that enhance the capacity of disaster risk management.

The proposal of SSOP-II will definitely contribute to regional coordination/cooperation mechanism on costal multi-hazards early warning and enhance the mutual support between TC and PTC through implementation of the proposed activities for SSOP-II.

The strategy of SSOP-II accepted the idea to provide resources and opportunities to involve social scientists and warning experts to improve the training and capacity building on social science aspects of EWS, such as risk and impact assessment, warning communication strategies, partnership/stakeholder engagement, society response capability. The proposal of SSOP-II based upon this strategy would be of great benefit to both TC and PTC, and also to a wider audience in other areas.

The updated SOPs and its direct impact (effectiveness, cost-benefit) in the selected nations will be presented at the Session of TC, PTC and the 4th Joint Session of TC and PTCS after the project.

## **H. Gender Considerations**

The fender was considered during SSOP-I. About 23% participants of the workshop and training course are female.

The proposed activities of SSOP-II will incorporate gender dimensions and widely encourage females from decision-makers, warning issuers, warning users and local community managers to be involved



in the training courses and workshops:

- At least one female from each beneficiary countries will be requested to be sent to training course in activity 1;
- At least 30% participants should be female for national- level consulting workshops in activity 2; and
- The female will be considered at priority in activity 3, one of two candidates will be requested as female.

TC and PTC will enhance sustainability of the gender-related project activities by integrating them into its on-going and future female training programmes in line with its annual strategic goals.

## **I. Partners**

As the experience during implementation of SSOP-I, the guidance and assistance from ESCAP and WMO played very important role for a successful project. Definitely, it will play same important role for a successful SSOP-II, especially for the cooperation with RIMES under the umbrella of ESCAP trust fund.

Following partners will be involved in the implementation of the project of SSOP-II and play their specific:

- ABU, GAATES, IOC of UNESCO, UN-Women, RIMES; UNDP Asia-Pacific Regional Centre, IRIDeS and ADPC, ADRC: used to be partners of SSOP-I, may provide potential resources persons for SSOP-II;
- RSMCs in Tokyo, New Delhi and Honolulu, Shanghai Typhoon Institute (STI), etc.: may provide resource persons and technical support for SSOP-II;
- NMHSs, NTWCs, NDMOs of capable Members such as China; Hong Kong, China; Japan and Republic of Korea: may provide resource persons and technical support for SSOP-II;
- WMO Nanjing Regional Training Centre (TC Training Centre), SYS University: may provide facilities for training courses and workshops of SSOP-II;
- The Secretariats of PTC (PTCS): in cooperative with TCS, will take the responsible for the provision of secretariat support for implementation of SSOP-II.

## **J. Capacity**

During the implementation of SSOP-I project, Steering Committee composed of Secretaries of TC and PTC, the technical advisor/project manager and Task Force composed of Working Group Chairpersons provided strong support on expertise and displayed immense courage and wisdom in coordination for success of SSOP. This capacity formed in the practice could ensure the smooth progress of SSOP-II.

The consultant team and resource persons formed in SSOP-I played very active and import role for success of Project in the past years. The expert team already involved with SSOP-I understand very well about the situation of coastal multi-hazards early warning in the regions of TC and PTC, and this team can be the potential candidates for implementation of SSOP-II as resource persons.

The resource persons for training courses and workshops are available from RSMCs in Tokyo, New Delhi and in Honolulu as well as National Meteorological and Hydrological Services (NMHSs), National Tsunami Warning Centres (NTWCs), National Disaster Management Offices (NDMOs) and Government sectoral agencies of capable Members such as China; Hong Kong, China; Japan and Republic of Korea, etc.

Through SSOP project, TC and PTC established close cooperation relationship with GAATES, IOC of UNESCO, UN-Women, RIMES; UNDP Asia-Pacific Regional Centre, IRIDeS. Those organizations would be available to provide support and cooperation for SSOP-II.

Since 2011, the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness has supported

RIMES and WMO in working with the NMHS to prepare the seasonal forecast in a user-friendly manner. At each Forum, the seasonal forecast is first presented to various user groups such as line ministries, local government, disaster management, NGOs etc., and then the necessary preparedness actions are discussed. The Monsoon Forum brings together the NMHS and the users of the weather information twice a year, before and after the rainy season. In countries near the Indian Ocean, the Monsoon Forums are typically held in April-May and October-November. The countries that currently have such forums include Cambodia, Lao PDR, Myanmar, Bangladesh, the Maldives Nepal, Sri Lanka, Pakistan and India. SSOP-II may combine its activities with this Monsoon Forums organized by RIMES under the umbrella of ESCAP.

As the organization submitting this proposal, TCS should be project managing the initiative and will work with PTC (PTCS) together taking the responsible for the provision of secretariat support for implementation of SSOP-II. And TCS and PTCS could further explore with working groups on possible collaborations and activities related to this aspect for SSOP-II. The consultant(s) or full-time project manager is (are) foreseen for the Activity 1 and 2 of the project.

As the managing Organization of the project, Typhoon Committee will monitor the implementation status and progresses at all stages of the project. The results and findings will be reported and reviewed at workshops and annual sessions, and also at the platforms of ESCAP and WMO. The updated SOPs and its direct impact in selected nations will be presented and introduced in two regional bodies as good examples by various ways after the project, such as workshops, websites, etc.

## **K. Knowledge Management and Results Dissemination**

The Manual of SSOP has been published with ESCAP logo with mention of the ESCAP Trust Fund, following approval from ESCAP. It has been delivered to related organizations/agencies such as ESCAP, WMO as well as technical advisor/project manager, consultants, evaluator, etc. And all documentations, publications, evaluation report, and summary reports of workshops and training courses related to the project of SSOP-I are also available at webpage of Typhoon Committee: [http://typhooncommittee.org/SSOP/FINAL\\_MANUAL.html](http://typhooncommittee.org/SSOP/FINAL_MANUAL.html). The hard copies will be distributed to Members of TC and PTC as the main material for the training courses and workshops of SSOP-II.

This measure enhancing the visibility would be an opportunity to capture concrete ways the participants intend to take forward the SSOPs in their respective countries. All partners will be encouraged to gather photos for operational communication and visibility purposes, and periodically share a selection with the Trust Fund Secretariat, for use in relevant publications and promotional material. Evidence of the impact of the project in the selected countries is required.

As have done in SSOP-I, this project of SSOP-II will also provide visibility for the ESCAP Trust Fund for Tsunami Disaster and Climate Preparedness in certain ways:

- Since both TC and PTC are regional bodies affiliated to ESCAP, the Project will need to be conducted under the supervision of ESCAP DRR.
- During the implementation of the project, the activities related to the workshop and training courses are expected to be conducted jointly by TC, PTC and ESCAP.
- The Summary Reports and Results from training courses and workshops will be disseminated among Members of TC and PTC via websites with ESCAP logo and mentioning of the ESCAP Trust Fund, following approval from ESCAP.
- TC and PTC will communicate the findings of this initiative to ESCAP and other regional bodies at the platform of ESCAP annual sessions and WMO regional cooperation.
- The questionnaires, summary reports and upgraded SSOP of the participating nations in events will be reported at TC and PTC Sessions as well as the annual session of ESCAP, also will be uploaded on the websites of TC, PTC, and the benefiting agencies.
- The source of funding/name of project will be acknowledged on the Session reports of TC and PTC as well as the website of TC, PTC, and the benefiting agencies.

## **L. Sustainability**

The project of SSOP-I is sustainable in terms of approach. The project has established a cooperative mechanism through discussions and negotiations, which will serve as the basis for future actions. Countries have indicated that they would like to continue technical transfer as well as trainings at country levels for refinement of SSOPs. The main output 2 of the project (Regular communication and cooperation mechanism between TC and PTC on coastal multi-hazards early warning system, particularly southern countries in the region) is expected to contribute to sustainability.

The SSOP-II will play very important role through training courses and workshops on promotion of capacity building of coastal multi-hazards risk early warning, which will be great benefit the beneficiary countries on sustainable development of society and economy.

The trainees in SSOP-II will work as trainers after the completion of SSOP-II in their home countries to promote the whole capacity of regions in aspect of coastal multi-hazards early warning and disaster risk reduction and management.

The results and experiences the proposed project will be benefit TC and PTC to update their Strategic Plan in future. It would be very important for two regional bodies in long-term sustainable development.

The proposed cooperation of RSMCs of Tokyo and New Delhi under SSOP-II is one activity under the Cooperation Mechanism of TC and PTC. This kind of activities could be conducted regularly or non-regularly after project if funding is available from various resources.

The Typhoon Committee may seek various funding resource to help Members promoting their SSOP after the project to ensure the sustainability in various approaches.

## **M. Counterpart Contributions**

Expertise on coastal multi-hazards risk reduction and the facilities for trainings/workshops from target Members and partners of SSOP-II, hosting Members and benefiting countries will be available towards the project as an in-kind contribution. The in-kind contributions may be estimated financially as a reflection of co-funding (\$394,000USD in total):

- Regarding the activity 1 to be held in Nanjing, China, as the experience in Typhoon Committee, the LOC needs to consider about 20 person-days labour for providing logistics support, local transportation, meeting rooms and facilities to support the 3-day workshop for about 35 participants. As the current standard of conference agent, the in-kind contribution for hosting the workshop may be estimated financially about \$20,000USD in total.
- Regarding the activity 2, according to the in-kind contribution of hosting TC Integrated Workshop from Members, the in-kind contribution for hosting 2x3 2-day training courses may be estimated financially about \$90,000USD in total.
- Regarding activity 3, referring to attachment training conducted in RSMC-Tokyo last year for TC Members, the in-kind contribution for attachment trainings to be conducted in RSMC-Tokyo and New Delhi might be estimated as \$64,000USD in total.
- The in-kind contribution from selected 10 beneficiary countries for expertise and human resources may be estimated financially as \$130,000USD in total.
- The in-kind contribution from TCS, PTCS and RIMES for their provision of secretariat support to SSOP-II during the project period of 18 months may be estimated financially as \$50,000+\$20,000+\$20,000=\$90,000USD in total.

## N. Monitoring, Evaluation and Audit

The project provides for in-house monitoring through Steering Committee, as well as an end of project review, along with an independent evaluation and audit budgeted under the Programme Management heading of the Activity Work Plan.

Typhoon Committee Secretariat (TCS) shall submit to ESCAP biannual progress reports, together with cumulative financial reports within the duration of the project, following a progress reporting template provided by ESCAP.

An independent end of term evaluation would be commissioned by the Typhoon Committee Secretariat in consultation with ESCAP. The evaluation process should aim at facilitating learning. At the evaluation stage, it could be reported how many benefiting countries learnt the knowledge of establishment of SSOP, and how many countries upgraded their SSOPs by using SSOP-II Manual.

TCS will arrange an independent audit of the project funds at the end of the project and will submit to ESCAP with agreed timeframe.

## O. Annexes

### Table of Contents

Annex Number	Annex Name
1	SSOP-I Summary Report on Analysis of SOPs in TC and PTC regions
2	Manual on Synergized Standard Operating Procedures (SSOPs) for Coastal Multi-hazards Early Warning System
3	Quick Reference Guide of SSOPs Manual for Coastal Multi-hazards Early Warning System
4	End of Term Evaluation Report: Synergized Standard Operating Procedures for Coastal Multi-hazards Early Warning System
5	SSOP Evaluation Report Brief
6	The Report of 3 <sup>rd</sup> Joint Session of TC and PTC
7	The Report of 47 <sup>th</sup> Session of TC
8	The Report of 48 <sup>th</sup> Session of TC
9	The letters officially requesting SSOP training from Members
10	The Confirmation letter from RIMES to be the partner of SSOP-II
11	The form of financial budget and payment schedule
12	TIME SCHEDULE for SSOP-II

## P. Budget and Payment Schedule.

An initial payment **USD158,914.00** will be provided by ESCAP upon signature of the Agreement by both to start the activities 1 as indicated in the attached Project Budget and Payment Schedule.

Subsequent payments will be provided upon approval by ESCAP of a written request for payment from the Typhoon Committee Secretariat, together with the relevant progress reports containing both substantive and financial sections, and will take into account the progress of the project and projected liquidity needs, as contained in the Budget Payment Schedule and Expense Report.