

**Third Joint Session**  
**Panel on Tropical Cyclones | Typhoon Committee**  
(42<sup>nd</sup> Session of PTC and 47<sup>th</sup> Session of TC)  
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FOR PARTICIPANTS ONLY  
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## **COOPERATIVE MECHANISM FOR COASTAL MULTI-HAZARD EARLY WARNING INFORMATION SHARING AND TECHNICAL TRANSFERRING BETWEEN THE PTC AND TC**

(Item 6 of Provisional Agenda–Cross-cutting Projects and PTC/TC Cooperative Mechanism)

(Submitted by TCS , PTCS and ESCAP)

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### Summary and Purpose of Document:

This document presents the conclusions and recommendations of the Working Meeting on Cooperative Mechanism for Coastal Multi-hazard Early Warning Information Sharing and Technical Transferring between the Panel on Tropical Cyclones (PTC) and the Typhoon Committee (TC), held in Bangkok on 9-10 October 2014, under the SSOP project funded by ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries.

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### **Action Required:**

The Committee is invited to:

- (a) Take note of the conclusions and recommendations
- (b) Approve the recommendations as appropriate with changes as needed

**Appendix:** Conclusions and recommendations of the Working Meeting on PTC/TC Cooperative Mechanism for Coastal Multi-hazard Early Warning Information Sharing and Technical Transferring between PTC and TC (Bangkok, Thailand, on 9-10 October 2014)

## APPENDIX

### **Conclusions and recommendations of the Working Meeting on PTC/TC Cooperative Mechanism for Coastal Multi-hazard Early Warning Information Sharing and Technical Transferring between PTC and TC**

(Bangkok, Thailand, on 9-10 October 2014)

#### **Background Information**

As established in the in the Activity 2.2 of the Terms of Reference of the project “Synergized Standard Operating Procedures for Coastal Multi-hazards Early Warning System (SSOP)”, a Working Meeting on Cooperative Mechanism for Coastal Multi-hazard Early Warning Information Sharing and Technical Transferring between the Panel on Tropical Cyclones (PTC) and the Typhoon Committee (TC) was held in Bangkok, Thailand, on 9-10 October 2014.

The Meeting was attended by 22 participants which were mainly Chairpersons of the Working Groups on Meteorology, Hydrology and Disaster Risk Reduction (DRR) of PTC and TC or their representatives; Heads of the Regional Specialized Meteorological Centers (RSMC) of Honolulu, New Delhi and Tokyo, or their representatives; Program Specialist in Early Warning Systems of Asian Disaster Preparedness Center (ADPC); the Acting Administrator of PAGASA, and representatives of the Secretariats of ESCAP, WMO, PTC and TC.

The main objective of the workshop was to exchange information on the activities in PTC and TC, to find possible gaps and challenges in Coastal Multi-Hazards Early Warning Systems, and to identify priority areas on information sharing and technical transferring between PTC and TC to help fill identified gaps and to meet current and future challenges.

#### **1. Conclusions**

- 1) The Working Meeting recognized that it is necessary and important to establish a cooperative mechanism between PTC and TC to promote increased the capacity on coastal multi-hazards early warning systems through information sharing and technical transferring between two regional bodies.
- 2) A framework of cooperative mechanism was outlined to enhance the collaboration between TC and PTC with the institutional support from RSMCs. The concept note highlighting the details of the mechanism is at Annex I for ready reference. It was suggested to mobilize extra-budgetary resources for the capacity building, joint projects, analytical publications and knowledge sharing activities of RSMCs to strengthen TC and PTC collaboration.
- 3) It was recognized that the SSOP project (under the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries) is a very successful example of closely link the two regional bodies current and future activities. This kind of cooperation should be encouraged in future.
- 4) It is recognized the following priority areas need to be emphasized in cooperation activities between PTC and TC in short-term:

- a. Enhancements of human capacity building including training, participating in workshops/seminars, field surveys, exchanging information, expertise and publications;
  - b. Enhancements of capacity building on early warning system (EWS) especially for QPE/QPF technology; flood forecasting modeling; inundation and flooding simulation; and coupling of storm surge model with runoff model and flash flood model.
  - c. Exchanging experiences and knowledge in operational hydrometeorology in flood forecasting modeling in terms of rainfall, runoff and inundation and urban flood forecasting.
- 5) It is recognized that the support and guidance from ESCAP and WMO are very important to promote and enhance the cooperation between PTC and TC.
  - 6) The targets and goals of the cooperative mechanism between PTC and TC should be harmonized with the strategies and framework of ESCAP and WMO.

## **2. Recommendations**

- 1) To request PTC and TC to establish a mechanism for holding Joint PTC/TC Sessions periodically, approximately every 6 years.
- 2) To request PTC and TC to conduct analytic study focusing on science and policy related aspects of TC/PTC regional activities;
- 3) To request the PTC and TC to jointly integrate their activities into the Global Framework for Climate Services (GFCS), an UN-led initiative led by WMO to guide the development and application of science-based climate information and services in support of decision-making to promote PTC and TC cooperation.
- 4) To request ESCAP to consider the possibility to support conducting SSOP phase II after the current SSOP project is closed to (suggest giving several broad areas where additional work is needed, such as) further development and testing of the SSOP Manual, continued assistance to PTC and TC countries to improve and implement SSOPs, and to share the Manual with other WMO regions for their reference and use.
- 5) To request ESCAP and WMO to continue the support to implement further the on-going project of real-time Operational System for Urban Flood Forecasting and Inundation Mapping (OSUFFIM), which can be used in PTC and TC region.
- 6) To encourage PTC and TC to participate in each other's Annual Sessions, Integrated Workshops and other workshops/seminars each other.
- 7) To encourage the PTC Members to contribute research papers to Tropical Cyclone Research and Review (TCRR) of TC.
- 8) To encourage PTC and TC to share their practices and knowledge on public awareness programmes and good practices of early warning system.
- 9) To encourage PTC to be involved in the development of three components (Meteorology, Hydrology and DRR) of TC's Annual Operation Plans (AOPs) with support from ESCAP and WMO.

- 10) To request PTC and TC to establish an mechanism to transfer technical knowledge and share experiences on hydro-meteorological and DRR aspects through fellowships, roving seminars, attachment training; specific research projects, tropical cyclone analysis and forecasting, storm surge prediction; flood forecasting modeling, rainfall runoff modeling, inundation mapping and flash flood forecasting; coupling of storm surge model with runoff model and flash flood model.
- 11) To request PTC and TC to conduct ESCAP/WMO joint capacity development programme with support from RSMCs for PTC and TC Members, under support and guidance from ESCAP and WMO

**Concept Note  
On**

**PTC/TC Cooperative Mechanism for Building Institutional Capacity in Coastal Multi-hazard Risk Management and Early Warning System**

- 1. Context and background:** Establishment of a Cooperative Mechanism between the WMO/ESCAP Panel on Tropical Cyclones (PTC) and the ESCAP/WMO Typhoon Committee (TC) is one of the outcomes emanating from ongoing project “Synergized Standard Operating Procedures for Coastal Multi-hazards Early Warning System (SSOP)”. The working meeting of the key stakeholders from TC, PTC, ESCAP and WMO secretariats, held in Bangkok, Thailand on 9-10 October 2014, outlined the broad contours of the framework for the TC/PTC cooperative mechanism. The framework envisages enhanced collaboration between TC and PTC with institutional support from Regional Specialized Meteorological Centres (RSMCs) in New Delhi and Tokyo.
- 2. Coastal Multi-hazard Risk Management Approach:** The RSMCs, with the support from WMO and respective TC/PTC member Countries, have been providing capacity building training programmes for National Meteorological Services (NMSs) in areas such as Storm Surge Modeling, Operational Tropical Typhoon/Cyclones Forecasting and so on. While there have been considerable efforts towards capacity development by RSMCs in these areas, the recent experiences in TC/PTC countries highlight that a coastal multi-hazard risk management approach is required to arrest the increasing economic losses due to typhoons/cyclones. This approach calls for the balancing of three components i.e. meteorology, hydrology and disaster risk reduction and its integration into the TC/PTC’s Annual Operation Plans (AOPs). Institutional capacity development based on the coastal multi-hazard risk management approach could be therefore an important area for the TC/PTC Cooperative Mechanism in order to build the institutional capacity of TC/PTC member Countries.
- 3. Focus areas for TC/PTC Cooperative Mechanism:** The TC/PTC Cooperative Mechanism may focus on building institutional capacity, transferring technical knowledge and sharing experiences on hydro-meteorological and disaster risk reduction aspects through fellowships, roving seminars, attachment training, specific research projects, etc. Technical areas of particular interest would include tropical cyclone analysis and forecasting, storm surge prediction, flood forecasting modeling, rainfall runoff modeling, inundation mapping and flash flood forecasting, coupling of storm surge model with runoff model, flash flood model quantitative precipitation estimation (QPE), quantitative precipitation forecasting (QPF), storm surge forecasting and coastal multi-hazard risk assessment and analysis as well as analytical research on science and policy interfaces. The on-going TC project of real-time Operational System for Urban Flood Forecasting and Inundation Mapping (OSUFFIM) is a good example of how to integrate hydrology and meteorology components into the coastal multi-hazard risk management approach. The learning experience of OSUFFIM may be shared through the Cooperative Mechanism.
- 4. Operational Modality:** The proposed institutional arrangement is to engage the secretariats of TC and PTC with RSMCs, ESCAP and WMO to draw up a strategic framework with a programme of work, prioritize the activities and implement the plans/activities. The priority areas for capacity development as well as the trainees/participants/resource persons may be identified involving all the key stakeholders such as the secretariats of ESCAP, WMO, TC and PTC as well as RSMCs. ESCAP and WMO will work jointly to mobilize extra-budgetary resources for capacity

development activities and collaborate with PTC and TC to conduct the joint capacity development programme with support from RSMCs.

In the specific context of disaster risk reduction, ESCAP may help identify potential trainees, particularly targeting relevant officials from the member States as well as resource persons. ESCAP may also provide fellowships to the trainees in the form of return air ticket to enable their participation in the capacity development programme. The RSMCs as the host of capacity development training may consider providing local hospitality, including cost of training during the training periods. ESCAP has put in place a Network of Knowledge and Innovation Centres in Disaster Risk Reduction, supported by the Disaster Risk Reduction Section of the Information and Communications Technology and Disaster Risk Reduction Division (IDD), and intends to include the proposed TC/PTC capacity development programme as a part of this network.

- 5. Target Groups:** Official from National Meteorological and Hydrological Services (NMHS) and Disaster Preparedness Agencies/National Disaster Management Authorities.
- 6. Reporting Modality:** The annual session of TC and PTC will review the activities of proposed Cooperative Mechanism and provide the necessary guidelines and directions for organizing the Mechanism.