

Economic and Social Commission for Asia and the Pacific

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**Review of issues pertinent to the subsidiary structure of
the Commission, including the work of the ESCAP
regional institutions: Disaster risk reduction**

Report of the Panel on Tropical Cyclones*

Note by the secretariat

Summary

The Secretariat transmits to the Commission an executive summary of the report of the Thirty-ninth Session of the World Meteorological Organization (WMO)/ESCAP Panel on Tropical Cyclones (5-9 March 2012, Nay Pyi Taw, Myanmar).

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* This document has been issued without formal editing.

I. INTRODUCTION

The WMO/ESCAP Panel on Tropical Cyclones (PTC) is an inter-governmental regional body jointly established by World Meteorological Organization (WMO) and United Nations Economic and Social Commission for Asia-Pacific (UNESCAP) in 1972 and associated with the Tropical Cyclone Programme of WMO. Its first session was held in Bangkok, Thailand in 1973. The thirty-ninth session of PTC was held in Nay Pyi Taw, Myanmar from 5 to 9 March 2012.

The main objective of the WMO/ESCAP Panel on Tropical Cyclones is to promote measures to improve tropical cyclone warning systems in the Bay of Bengal and the Arabian Sea, including dissemination of technical information on tropical cyclone research and forecasting operations to mitigate the socio-economic impacts of tropical cyclone-related disasters. The Panel develops activities under five components: Meteorology, Hydrology, Disaster Prevention and Preparedness (DPP), Training and Research.

II. REVIEW OF TECHNICAL ACTIVITIES

The Panel reviewed the 2011 cyclone season and also reviewed and evaluated its activities undertaken at national and regional level during 2011 under the main five components of Coordinated Technical Plan 2009-2011 which include meteorology, hydrology, disaster prevention and preparedness, training and research. The Panel also reviewed the Coordinated Technical Plan and held extensive discussion to develop the work programme for the next four years for the Coordinated Technical Plan 2012-2015 and to develop the Annual Operating Plan (AOP) for 2012 for the five components to achieve the goals and objectives of the Coordinated Technical Plan. The Panel stressed on the importance of the feedback from Members about their activities relevant to each of the Expected Results of various components of Coordinated Technical Plan during annual sessions. The Panel also established the Working Group on Meteorology and interim Working Group on Hydrology. Earlier, there was only one PTC Working Group on Disaster Prevention and Preparedness (DPP). The side meetings of three Working Groups (Meteorology, Hydrology and DPP) were also held to have deliberate discussions and formulate the AOP for 2012 in the respective components.

Review of the 2011 Cyclone Season

The Regional Specialized Meteorological Center (RSMC) New Delhi presented a detailed review of the 2011 cyclone season to the Panel. The Panel was informed that the north Indian Ocean and adjoining land surface witnessed the formation of ten cyclonic disturbances during the year 2011. Out of ten disturbances five cyclonic disturbances formed over the Bay of Bengal, four over the Arabian Sea and one over land. Out of the five cyclonic disturbances over the Bay of Bengal, one intensified to the stage of very severe cyclonic storm THANE, two to the stage of deep depression and rest two to the stage of depression. Out of four cyclonic disturbances formed over the Arabian Sea, one intensified to the stage of cyclonic storm KEILA, two to the stage of deep depression and one to the stage of depression. The Panel also reviewed the activities of its Members regarding their tropical cyclone early warning systems and the impact of tropical cyclones. The Panel expressed its appreciation to the RSMC New Delhi for its continued valuable support to the Members and urged for enhanced

collaboration between the Members' Early Warning Centres and RSMC New Delhi.

Meteorology

Under the meteorological component, the Panel reviewed the activities of its Members, WMO and UNESCAP. The representatives of the Members reported the activities of their respective countries. The Panel was pleased to note that in 2011 several important improvements in the meteorological component had been made in the Members especially concerning weather forecasts, telecommunication system, numerical weather prediction etc.

The representative of WMO informed the Panel that according to the Integrated WWW Monitoring (IWM) carried out on a quarterly basis from July 2010 to April 2011, the average availability of Surface Synoptic Observations (SYNOP) reports ranged from 9 per cent to 96 per cent during this period in the Panel region. The availability of SYNOP reports continued to be more than 70 per cent for all countries, except for the Maldives, which continued to show a negative trend decreasing further to 9 per cent of availability. Overall, the total availability of reports increased to 88 per cent during this period from 86 per cent in the previous year. Average availability of TEMP reports ranged from zero to 49 per cent with decreased availability in most countries. As during the previous period, the availability is around 11 per cent for the Maldives with Myanmar not reporting TEMP. Overall, with the reduction in the number of reports received from a majority of Panel Members, the average percentage of the total number of TEMP reports received declined from 45 per cent in the previous year to 38 per cent during this period.

The Panel was informed that WMO Information System (WIS) has been operational from January 2012, with an initial three Global Information System Centres (GISCs) (Beijing, Offenbach and Tokyo) offering the initial service. More GISCs are planned, including one in New Delhi. It is expected that GISC New Delhi will take the leading role in ensuring Members of the Panel on Tropical Cyclones also implement and benefit from the new functionality of WIS.

The representative of WMO informed the Panel about the usefulness of Common Alerting Protocol (Common Alerting Protocol (CAP), International Telecommunication Union (ITU) Recommendation X.1303) as a content standard designed for all-hazards and all-media public alerting. CAP is used in the disaster response community for delivering information about a large variety of events, and it is suitable for the dissemination of weather, climate and water related alerts and warnings. Thus CAP will now be supported in the virtual all hazards network within the WIS-Global Telecommunication System (GTS). The Panel Members were encouraged to consider early implementation of CAP for their warning services.

The WMO Secretariat also briefed the Panel on the Severe Weather Forecasting Demonstration Project (SWFDP), including its overall framework, the experience of developing other SWFDP regional projects. The meeting noted that the development of an Implementation Plan for an Severe Weather Forecasting Demonstration Project (SWFDP) for the Bay of Bengal (South Asia) should follow the procedures as described in the Guidebook, with the required adjustments to address particular aspects of

the region. The Panel further noted that the Implementation Plan, when developed, is required to be reviewed by the Steering Group for the SWFDP, and approved by the Regional Association, prior to its implementation to ensure that the required procedures had been properly addressed.

The Panel was also pleased to note that a WMO/Regional Integrated Multi-Hazard Early Warning System (RIMES) joint regional project for “Reducing risks of tsunami, storm surges, large waves and other natural hazards in low elevation coastal zones” has been implemented within the UNESCAP Tsunami Regional Trust Fund.

Hydrology

Under the hydrological component, the Panel reviewed the activities of its Members, WMO and UNESCAP. The representatives of the Members reported the activities of their respective countries. The Panel was pleased to note that in 2011 several important improvements in the hydrological component had been made in the Members especially concerning weather radars, telecommunication, flood monitoring and forecasting system etc.

The Panel especially reviewed the activities related to worst floods in Thailand and Pakistan due to exceptionally heavy rainfall events during summer monsoon 2011 which caused severe flooding in Thailand and southern Pakistan.

The Panel noted that in order to make best use of meteorological forecasting products for hydrological purposes it is generally recognized in RA-II that the Quantitative Precipitation Estimation (QPE) and the Quantitative Precipitation Forecasting (QPF) products are very important to improve hydrological service delivery. However, QPE/QPF has not been extensively used in real-time hydrological modeling. Therefore, Panel urged the Members that QPE/QPF could be strengthened through enhanced coupled modeling and an end-to-end evaluation on QPE/QPF quality and impacts on flood and stream flow products for basins of diverse size and topography. To improve QPE and QPF, hydrologists could be encouraged to work with QPE/QPF groups to ensure that hydrological requirements for precipitation (QPE/QPF) could be considered.

The Panel was informed about the progress made in the implementation of World Hydrological Cycle Observing System (WHYCOS) projects, and in particular the Mekong- Hydrological Cycle Observing System (HYCOS) that will end by November 2012 and the Hindu Kush Himalayan (HKH) HYCOS projects that is currently being implemented. The objective of both HYCOS projects is the establishment of regional flood information systems.

With regards to WMO Flood Forecasting Initiative (FFI), progress was achieved on establishing Flash Flood Guidance Systems. Further activities under WMO-FFI implemented in 2011 include: Workshop on the inter-comparison of flood forecasting models currently in use in the various WMO Regions to help the countries in identifying the most suitable models to serve their requirements (Koblenz, Germany September 2011); Workshop on the development of a framework for the assessment of service delivery capabilities of hydrological services in flood forecasting (Geneva, October 2011); and the Regional workshop-cum-training in flood forecasting (Nanjing, China, October 2011).

The Panel was also informed that the Associated Programme on Flood Management (APFM) that promotes the concept of Integrated Flood Management practices has progressed largely and in particular the development of Tools on a wide variety of flood management issues and the HelpDesk established under the programme since June 2009. A regional training workshop had been held in Hanoi in April 2011 in cooperation with the Mekong River Commission Secretariat. Workshops to establish a National Integrated Flood Management Strategy had been held in Pakistan during 2011 and two national workshops are scheduled for Thailand and Laos PDR during 2012. A considerable number of tools have also been developed under the APFM that can be downloaded from www.FloodManagement.info. Efforts are also underway to establish an Integrated Drought Management Programme which was seen as highly relevant for the region.

With regard to activities of the WMO Commission for Hydrology, the following achievements and on-going activities of the Commission are reported: WMO Quality Management Framework (QMF) – Hydrology aims at improving all aspects of operations and activities of National Hydrological Services (NHSs)/National Meteorological and Hydrological Services (NMHSs). The WMO QMF guidance will be finalized during 2012 to make it ready for Commission for Hydrology (CHy)-XIV. It involves two stages of activities: Produce Guides and Manuals to improve operations of NHSs/NMHSs; Encourage NHSs/NMHSs to adopt and implement Quality Management Systems (QMS) and finally obtain ISO certification. The Manual on Flood Forecasting and Warning has also been published in 2011 and being distributed. Likewise, under the guidance of Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM), the Guide to Storm Surge Forecasting has also been published in 2011.

For capacity building activities, WMO, in collaboration with COMET and National Oceanic and Atmospheric Administration (NOAA), delivered a first International Basic Hydrological Sciences Distance Learning Course in 2009. In 2011, a Training of Trainers Workshop on Distance Learning Delivery of Hydrology Courses was held in COMET's headquarters in Boulder, USA, from 29 November to 9 December 2011, with participants covering all WMO regions. Together with NOAA/National Weather Service, the Hydrologic Research Center (HRC), San Diego, USA as technical partner, and funding from United States Agency for International Development (USAID), elements of the Flash Flood Guidance System (FFGS) with Global Coverage have been established in the region. The Mekong FFGS is being operational and likewise, an advanced proto-type FFGS has been established in Pakistan. With further funding become available from USAID, a kick-off meeting will be held later in 2012 in Kathmandu, Nepal for the establishment of a FFGS in the Hindu Kush Himalayan region and – in extension to the system existing at the Mekong River Commission (MRC), an FFGS is planned to be established in Myanmar, starting in 2012.

Disaster Prevention and Preparedness (DPP)

Under DPP component, the Panel reviewed the activities of its Members and discussed the related activities of WMO and UNESCAP. The Panel noted that National Disaster Management Centres or Authorities have been established in many of the Member countries in the aftermath of December-2004 tsunami. Some Members also have separate Ministries for Disaster Management.

The Panel was informed that a complete list of the DPP focal points/ experts for Working Group on DPP (WG-DPP) had been prepared by the PTC Secretariat and was sent to all focal points including Chair and Vice-chair of WG-DPP and the same had also been uploaded on PTC website and a work space for the WG-DPP had also been developed on the PTC website for affective coordination among DPP experts as well as among Members.

The Panel organized a brief parallel meeting of the WG-DPP during the plenary session to review progress and challenges in DPP component of Coordinated Technical Plan 2012-2015, discuss a realistic Annual Operating Plan for the year of 2012. The Meeting was attended by the Oman, Thailand and ESCAP. The meeting agreed on a proposal that Thailand to chair and Oman to co-chair the WG-DPP. Recognizing the need to establish a close working relationship between Members of the WGDPP and based on the list of WGDPP focal points to be provided by PTC, the working group agreed to set up online group and a mailing list to enhance communication frequency and effectiveness. The working group agreed that the strategic goals of the Coordinated Technical Plan 2012-2015 should remain and the activities for 2012 will need to be realistic.

Training

The Panel expressed appreciation to its Member countries, which offered their national training facilities to other Members under bilateral and cost-sharing arrangements. These national training institutions in the Region contribute significantly to the training of meteorological personnel and the cooperative efforts by the Panel Members have been found by the recipient countries to be very useful. The Panel strongly recommended that such endeavors should continue in the future and be strengthened.

The Panel also reviewed the involvement of its Members in various education and training activities supported under WMO Voluntary Cooperation Programme (VCP), Regular Budget (RB), United Nations Development Programme (UNDP) and TCDC arrangements. The Panel noted the training events and workshops which were organized in 2011 and the forthcoming training events planned for 2012 for the benefit of its Members. The Members were encouraged to make maximum benefit of the training seminars, workshops and courses to be organized or co-sponsored by WMO. The Panel noted that WMO fellowships for long-term and short-term training continued to be granted to the Member countries of the Panel under the various WMO programmes.

The attachment of tropical cyclone forecasters at the RSMC, New Delhi and the attachment of storm surge experts at Indian Institute of Technology (IIT), New Delhi is a regular annual programme of the Panel and two participants for each of the training programme are invited from the Panel Members on rotational basis. The Panel expressed appreciation to RSMC New Delhi and IIT Delhi for providing Members with such valuable

opportunities of training during 2011-2012. It requested the RSMC New Delhi and IIT Delhi to continue this training activity for the Members. RSMC and IIT New Delhi agreed to the request by the Panel.

Research

Under research component, the Panel reviewed the activities of its Members and discussed the related activities of WMO and UNESCAP. The Panel noted that a number of research projects were initiated and completed in the Member countries. These projects include: Forecast Demonstration Project (FDP) on land falling tropical cyclones (India); and Collaborative Climate Research in Addu City – a scientific project in the Indian Ocean to better understand Global Climate & Weather Systems (Maldives). The Panel noted that scientists of the Panel Members carried out various small research projects related to tropical cyclones, climate change, and extreme events etc. and contributed in several research papers which were published in international research journals.

The Panel was informed about the preliminary report of the Adhoc Group on the collection of available knowledge and research papers on the impact of climate change on tropical cyclones in the Panel region by Dr Chaudhry, Secretary of PTC and the Chair of Adhoc Group. In view of the importance of the issue and considering growing concern about this issue in the region, PTC Members were requested to again search for the knowledge and research papers on the impact of climate change on tropical cyclones available in their respective countries and updated feedback and research papers/reports on the issue be again sent to the PTC secretariat during 2012. The Panel urged the Members to participate in this activity affectively for further research on the issue.

The Panel was informed of the activities of the WMO World Weather Research Programme (WWRP) in 2011 and its plan for the future. It noted with pleasure that the International Workshop on Rapid Change of Tropical Cyclone Intensity and Movement was successfully held in Xiamen, China from 18 to 20 October 2011. The 3-day training session on Tropical Cyclone Ensemble Forecast was conducted from 14 to 16 December 2011 at the WMO Regional Training Centre in Nanjing, China. It was held in conjunction with the 2-week International Training Course on Tropical Cyclones organized by Chinese Meteorological Agency (CMA) during 5-16 December 2011.

The Panel noted that WWRP and TCP jointly organized the Second International Conference on Indian Ocean Tropical Cyclones and Climate Change in New Delhi, India during 14-17 February 2012. The major objectives of the conference are to review and discuss current status of the operational tropical cyclone forecasting and warning system, climate change and tropical cyclones, tropical cyclone risk, vulnerability assessment and tropical cyclone disaster preparedness, management and reduction. The WMO WWRP also organized the International Conference on Opportunities and Challenges in Monsoon Prediction in a Changing Climate in Pune, India from 21 to 25 February 2012. The Conference was dedicated to the Monsoon prediction in a changing climate. The WWRP and TCP also plan to organize the International Workshop on Unusual Tropical Cyclone Behaviour tentatively in Guangzhou, China in November 2012. The workshop will focus on unusual behaviour of tropical cyclones, especially on motion, evolution, intensity, precipitation patterns and structure.

Publications

Panel News

“Panel News” is a biennial PTC newsletter published by PTC Secretariat. During 2011, two issues of “Panel News” (No.31 and 32) were published for distribution among the PTC Members, WMO, ESCAP and other concerned. The electronic versions of the PTC newsletter have also been made available on the PTC website on the web link: <http://www.ptc-wmoescap.org/newsLetters.htm>. The Panel News issues No. 31 and 32 are scheduled to be published during 2012. The Panel therefore, requested the Members to kindly provide their contributions in the form news material related to development activities, science news, training workshops, research reports etc. in the respective countries to PTC Secretariat. The Panel urged the Members to consider provision of news material for PTC newsletters in more pictographic format and having policy information and development activities in order to target the policy makers and planners.

III. REVIEW OF THE TROPICAL CYCLONE OPERATIONAL PLAN

The Tropical Cyclone Operational Plan (TCOP) contains an explicit formulation of the procedures adopted in the Bay of Bengal and the Arabian Sea region for the preparation, distribution and exchange of information and warnings pertaining to tropical cyclones. Experience has shown that it is a great advantage to have an explicit statement of the regional procedures to be followed in the event of a cyclone and this document is designed to serve as a valuable source of information to be readily available for reference by the forecasters and other users.

TCOP is reviewed by the Panel on regular basis. Mr. B. K. Bandayopadhyay, Director, RSMC, New Delhi and rapporteur of TCOP, presented a comprehensive review made to produce the 2011 version of the TCOP. He suggested that along with the naming of cyclones, its meaning should also be given by the respective countries. Further, he made a few comments to make the Plan more effective. The Panel appreciated Mr. Bandayopadhyay for his devotion to the TCOP during last year, noting in particular the heavy workload of the update process. It requested Mr. Bandayopadhyay to continue to serve as the rapporteur for 2012. The 2011 Edition of TCOP is available on both WMO TCP and PTC websites. For the early issuance of the 2012 Edition of TCOP, the Panel urged the Members to communicate their amendments, if any, to Mr. Bandayopadhyay as early as possible.

To secure the close communication between operational forecasters of the RSMC New Delhi and the Member countries, the Panel requested the rapporteur to pay special attention to reestablishment of the list of focal points of the forecast centers with the support of the PTC Secretariat.

IV. PANEL ON TROPICAL CYCLONES TRUST FUND (PTCTF)

The establishment of the Panel on Tropical Cyclones Trust Fund (PTCTF) indicated a step towards achieving self-reliance of the Panel. At the moment, the Fund is being used not only for the provision of institutional support but also as funding support to the representatives of Panel Members attending training events/conferences on tropical cyclones forecasting and storm surge modeling etc.

The Panel endorsed the use of the PTCTF for 2012 for the specific activities. Members were urged to continue to enhance their contributions to the PTCTF as a substantial support for the Panel's activities.

V. ISSUES FOR CONSIDERATION

The Commission may wish to provide the Panel with advice for further improvement in risk management of tropical cyclone-related disasters to contribute to the overall objectives of UNESCAP in disaster risk reduction.
