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ACTIVITIES OF ESCAP COOPERATIVE MECHANISMS ON DISASTER RISK REDUCTION: PANEL ON TROPICAL CYCLONES

(Item 6 (b) of the provisional agenda)

Note by the secretariat[*]

SUMMARY

The Panel on Tropical Cyclones is a regional body jointly established by the World Meteorological Organization (WMO) and ESCAP and associated with the Tropical Cyclone Programme of WMO. The main objective of the Panel is to promote measures to improve tropical cyclone warning systems in the Bay of Bengal and the Arabian Sea. It develops activities under three substantive components (meteorology, hydrology, and disaster prevention and preparedness) as well as in areas of training and research.

The present document summarizes key information from the report on the thirty-fifth session of the Panel, in order to provide an overall picture of the framework of cooperation of the Panel and describe directions for action which could enhance the effectiveness of collaboration as regards the management of risks associated with disasters related to tropical cyclones.

The Committee may wish to provide the Panel with guidance on improving the management of risks associated with disasters related to tropical cyclones.

[*] The present report was prepared by the Technical Support Unit of the Panel on Tropical Cyclones and edited by the secretariat of ESCAP. The information contained within has been drawn from the "Final report on the thirty-fifth session of the WMO/ESCAP Panel on Tropical Cyclones", Manama, 5-9 May 2008.

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Introduction

1. The Panel on Tropical Cyclones is a regional body jointly established by the World Meteorological Organization (WMO) and ESCAP in 1973 and associated with the Tropical Cyclone Programme of WMO. The thirty-fifth session of the Panel was held in Manama from 3 to 5 May 2008; its thirty-sixth session has been tentatively scheduled to be held in Muscat from 2 to 6 March 2009.

2. The main objective of the Panel on Tropical Cyclones is to promote measures to improve tropical cyclone warning systems in the Bay of Bengal and the Arabian Sea, including the dissemination of technical information on tropical cyclone research and forecasting operations that can mitigate the socio-economic impacts of tropical cyclone-related disasters. The Panel develops activities under three substantive components: meteorology, hydrology, and disaster prevention and preparedness (DPP), as well as in areas of training and research.

I. TECHNICAL ACTIVITIES

3. The Coordinated Technical Plan and Work Programme, which has been pending since the last Panel session, urgently needs to be completed. The task has been assigned to the High Policy Working Group, which was set up during the thirty-fifth session of the Panel; the Working Group was requested to present a draft at the thirty-sixth session.

A. Components

1. Meteorology

4. According to the results of the Special Main Telecommunication Network (MTN) Monitoring exercises carried out in January, April, July and October 2006 and 2007, the availability of surface synoptic observations (SYNOP) reports from a total of 252 surface stations in the Regional Basic Synoptic Network of the Panel members ranged from 45 to 100 per cent. The availability was more than 74 per cent for most countries. The total availability in 2007 was similar to that of 2006; there was a significant increase in the number of reports received from Pakistan and a significant decrease in the number of reports received from Myanmar.

5. The availability of expected TEMP reports through the MTN, from a total of 53 upper-air stations in the Regional Basic Synoptic Network operated by the members, ranged from 0 to 58 per cent. The availability was less than 25 per cent for Bangladesh, Myanmar and Pakistan. There was a significant decrease in the number of reports received in 2007 in comparison with 2006, in particular from India and Pakistan.

6. Overall numbers of observations of Aircraft Meteorological Data Relay (AMDAR) aircraft ranged from 230,000 to 250,000 per day. However, there has been limited progress in the AMDAR programme in the Panel region, and an attempt to encourage national meteorological and hydrological services and airlines to participate actively is needed. The underlying infrastructure appeared to be excellent, with some regional airlines acquiring several new aircraft equipped with the Aircraft Communication Addressing and Reporting System (ACARS). However, a stronger commitment from national meteorological and hydrological services is needed to increase the practical application of AMDAR data.

7. As regards the water vapour sensor project, most of the sensors installed on a test basis are flown in the United States of America. The three aircraft testing the sensors as of May 2008 were used on short- and medium-haul runs. Further tests are being carried out, but significant funding issues must be resolved before a widespread installation of such sensors can be expected.

8. Panel members continue to provide extensive support for ocean observation initiatives, such as the Voluntary Observing Ship (VOS) programme, the Ship of Opportunity Programme, the Automated Shipboard Aerological Programme, the Global Sea Level Observing System, the Data Buoy Cooperation Panel, and the Argo profiling floats. Members also provide support to climatic projects, such as the Marine Climatological Summaries Scheme, the Global Temperature-Salinity Profile Program, and the VOS Climate Project.

9. Implementation of the Tropical Moored Buoy Network in the region has continued to expand, thanks to the prominent support of Panel members in the region. That marine observing network is being extended across the Indian Ocean (as of May 2008 15 of 47 sites had been deployed) to complete coverage of the equatorial regions of the Atlantic, Pacific and Indian Oceans, which act as the heat engine of global climate and weather patterns.

10. With respect to space-based observing systems, operational or research and development satellites are particularly useful for detecting and monitoring tropical cyclones, as well as for characterizing the structure and predicting the evolution of such cyclones. Observations of particular relevance are those provided by: (a) permanent high-resolution visible and infrared imagery from geostationary spacecraft; (b) microwave sounding from low earth orbit (LEO) satellites (such as with an Advanced Microwave Sounding Unit (AMSU)) that derive total precipitable water; (c) microwave imagery associated with active microwave sensors for precipitation rate (such as the Tropical Rainfall Measuring Mission and the future Global Precipitation Measurement project); and (d) scatterometry, altimetry and/or microwave imagery that derive ocean surface wind fields (for example with QuikSCAT, Jason-1, or the Advanced Scatterometer (ASCAT) of the Meteorological Operational Satellite programme (MetOp)) and sea state.

11. There is a possibility that sea surface wind observations by satellites could be discontinued over the next decade. As this data is indispensable to the monitoring and

forecasting of tropical cyclones, the Panel has urged relevant space agencies to consider continuing this service.

12. The Indian Institute of Technology (IIT) has reported that a demonstration forecast project is planned for 2009 to 2011, to be carried out by the India Meteorological Department with the support of the Indo-US Science and Technology Forum in New Delhi and the National Scientific Foundation in the United States. The objective of the project is to reduce error in landfall forecasts in the Bay of Bengal. Consolidated observations from aircraft, ships, space technology, data buoys and surface devices will be used in this project during cyclone periods.

13. Many Panel members have emphasized that the availability of numerical weather prediction products is essential for tropical cyclone forecast operations, and have indicated that the EPSgrams (an ensemble prediction system product) provided by the European Centre for Medium-Range Weather Forecasts are extremely useful in this regard.

2. Hydrology

14. In 2007, several important improvements under the hydrological component had been made by Panel members, including: (a) the development of integrated flood forecasting systems; (b) real-time monitoring of water level and rainfall; (c) risk mapping; and (d) participation of stakeholders in flood warning systems.

15. Panel members concerned with international river basins in the region have demonstrated a strong spirit of cooperation with regard to the exchange of hydrological data, especially for flood forecasting. In addition to saving lives, such cooperation in other international river basins could facilitate a conducive environment for economic development, thereby helping to build the trust required for major investment. Bangladesh and India have indicated that they might be able to organize a regional workshop to enable all the agencies involved in flood forecasting operations to discuss specific joint activities aimed at enhancing flood forecasting services for socio-economic development. The Panel has called on ESCAP, WMO and other international organizations to provide financial and technical assistance to support such a workshop. In this connection, the delegations of Bangladesh and India were to inform ESCAP and WMO through the Technical Support Unit of the Panel of the decisions by their respective Governments within six weeks following the Panel session.

3. Disaster prevention and preparedness

16. In view of the importance of DPP to the effectiveness of the Panel's activities, members have been urged to send their DPP experts to take part in future Panel sessions. In this connection, the Panel has re-established the Working Group on DPP and renewed its invitation for Thailand and Oman to assume Chair and Vice-chair respectively. As per a request made by the Panel at its thirty-fourth session,[1] ESCAP submitted a concept paper on multi-hazard early warning and a proposal for a draft work plan. The Panel endorsed the concept paper at its thirty-fifth session and requested the Chair of the Working Group on DPP to establish a task force through the Technical Support Unit to assist the Working Group in implementing the proposed multi-hazard early warning concept in cooperation with ESCAP and WMO. Most Panel members have continued their efforts to provide training to stakeholders to enhance awareness and participation.

[1] See World Meteorological Organization and ESCAP, "Final report on the thirty-fourth session of the WMO/ESCAP Panel on Tropical Cyclones, Male, 25 February-1 March 2007.

4. Training and research

17. Some Panel member countries have offered their national training facilities to other members. The Panel has strongly recommended that such endeavours should continue in the future and be strengthened, and has urged its members to make maximum use of such facilities.

18. There are ongoing initiatives to facilitate online access to training resources from around the world, as well as facilitate the exchange of meteorological case studies and related documentation between advanced and less advanced training institutions.

19. The temporary posting of tropical cyclone forecasters at the Regional Specialized Meteorological Centre (RSMC) New Delhi and storm surge experts at IIT Delhi was successful, providing members with valuable training opportunities. RSMC New Delhi and IIT Delhi have been requested to continue providing this training for members.

20. IIT Delhi will start a Master of Technology programme in July 2009. This programme is sponsored by the Ministry of Earth Science of the Government of India. The Ministry through its relevant units has proposed sponsoring up to five meteorologists and oceanographers for the programme. IIT Delhi has expressed its willingness to consider admitting meteorologists and oceanographers who are sponsored by members or WMO. The Master of Technology programme is two years (one year of course work and a one-year project). Candidates may be allowed to do their project in their respective countries.

B. Other activities

21. The Panel has endorsed the ESCAP proposal to develop an Integrated Hazard Awareness Display as a mechanism to promote the development of multi-hazard early warning systems in the Panel region. The Panel has also endorsed the proposal for the Technical Support Unit to develop a detailed project for submission to the ESCAP Multi-donor Voluntary Trust Fund on Tsunami Early Warning Arrangements in the Indian Ocean and Southeast Asia for possible funding.

22. The Panel has established a High-level Policy Working Group to discuss priority activities aimed at enhancing the effectiveness and visibility of the Panel. It has endorsed the terms of reference of that working group, and requested WMO, in cooperation with ESCAP and the Technical Support Unit to convene a meeting of the group before the thirty-sixth session of the Panel. It authorized WMO to use the Panel on Tropical Cyclones Trust Fund to organize the meeting; authorization was also given to use the Trust Fund for the participation of a maximum of four members of the Panel. Other Panel members are welcome to participate at their own cost. Dr. Qamar-uz-Zaman-Chaudhry, the Chair of the working group, has been requested to prepare all background documents in cooperation with WMO and ESCAP.

23. Two publications are issued under the programmes of the Panel. *Panel News* is a biennial newsletter published by the Technical Support Unit of the Panel. The twenty-fifth issue was published in April 2008 and distributed to Panel members during the thirty-fifth session of the Panel. Issue No. 26 has since been published and distributed to the members and other stakeholders concerned. Members have been requested to provide policy-related information to the Technical Support Unit for inclusion in subsequent issues.

24. The *Panel on Tropical Cyclones Annual* Review for the year 2006 was submitted to WMO in January 2008 for publication.

II. TROPICAL CYCLONE OPERATIONAL PLAN

25. The Tropical Cyclone Operational Plan is reviewed by the Panel on regular basis. Dr. Samarendra Karmakar, former Director of the Bangladesh Meteorological Department, served as rapporteur to finalize the 2007 edition of the Operational Plan. The basic purpose of the operational plan is to facilitate the most effective tropical cyclone warning system for the region with existing facilities. In doing so, the plan defines the sharing of responsibilities among Panel countries for the various segments of the system and records the coordination and cooperation achieved. The plan contains the agreed arrangements for the standardization of operational procedures, efficient exchange of various data related to tropical cyclone warnings, archiving of data and issuance of tropical weather outlooks for the benefit of the region, conducted from a central location having the required facilities (for example, RSMC New Delhi).

26. The operational plan 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. This document is designed to serve as a readily available reference for forecasters and other users.

27. Mr. B. K. Bandayopadhyay, Director of RSMC New Delhi, was designated rapporteur to prepare the 2008 edition of the Operation Plan. The Panel had requested the rapporteur to make a comprehensive review of the structure and format of the 2007 Operational Plan and offer suggestions for improvements at the following Panel session. The Plan was updated in the light of the inputs and comments sent by the members, and WMO issued the 2008 edition. This version includes the contact information of focal points of the forecast centre of each Panel member, to ensure communication with RSMC New Delhi.

III. PANEL ON TROPICAL CYCLONES TRUST FUND

28. The Panel on Tropical Cyclones Trust Fund, established as a step towards the self-sustainability of the Panel, is being used to provide institutional support as well as to provide members with funding support to enable representatives to attend training events and conferences. Members have been urged to continue to enhance their contributions to the Trust Fund, thereby providing substantial support for the Panel's activities.

IV. REQUEST FOR GUIDANCE

29. The Committee may wish to provide the Panel with guidance on improving the management of risks associated with disasters related to tropical cyclones.

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