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Activities of ESCAP cooperative mechanisms on disaster risk reduction

Work of the Typhoon Committee and Panel on Tropical Cyclones

Note by the secretariat

Summary

The Typhoon Committee is an ESCAP-affiliated regional institution and a regional body of the Tropical Cyclone Programme of the World Meteorological Organization (WMO). The Panel on Tropical Cyclones is a regional body jointly established by WMO and ESCAP. The main objectives of the Typhoon Committee and the Panel on Tropical Cyclones are to promote measures to improve tropical cyclone warning systems in the north-western Pacific Ocean, and in the Bay of Bengal and the Arabian Sea, respectively. They develop activities under three substantive components, namely disaster risk reduction, hydrology and meteorology, as well as in the areas of training and research.

The present document summarizes key information from the reports on the forty-third session of the Typhoon Committee and the thirty-eighth session of the Panel on Tropical Cyclones in order to provide an overall picture of the framework of cooperation. The document describes actions which could enhance the effectiveness of collaboration with regard to the management of disaster risk reduction related to typhoons and tropical cyclones, in particular the socio-economic impacts of such disasters. The Committee on Disaster Risk Reduction may wish to provide the Typhoon Committee and the Panel on Tropical Cyclones with guidance on their future actions, particularly with regard to obtaining the support of international organizations and funding sources, and developing partnerships with other organizations.

Contents

	<i>Page</i>
I. Typhoon Committee	2
A. Introduction.....	2
B. Strategic plan	3
C. Components	4
D. Training and research.....	7
II. Panel on Tropical Cyclones	7
A. Introduction.....	7
B. Components	8
C. Training and research.....	11
D. Other activities	11
E. Operational plan.....	12
F. Trust fund.....	13
III. Issues for consideration by the Committee	13

I. Typhoon Committee

A. Introduction

1. The Typhoon Committee is an intergovernmental body that was officially established in December 1968 under the auspices of the Economic Commission for Asia and the Far East, the name of which was changed in 1974 to the Economic and Social Commission for Asia and the Pacific (ESCAP), and the World Meteorological Organization (WMO) in order to promote and coordinate the planning and implementation of measures required to minimize the loss of life and material damage caused by typhoons.

2. The Typhoon Committee is composed of 14 members: Cambodia; China; Democratic People's Republic of Korea; Hong Kong, China; Japan; Lao People's Democratic Republic; Macao, China; Malaysia; Philippines; Republic of Korea; Singapore; Thailand; United States of America; and Viet Nam.

3. Four similar institutions were set up to cover all the tropical cyclone basins around the world: the WMO/ESCAP Panel on Tropical Cyclones, the Regional Association I and Regional Association V Tropical Cyclone Committees (covering Africa and the south-western Pacific, respectively) and the Regional Association IV Hurricane Committee (covering North America, Central America and the Caribbean). The Typhoon Committee and the institutions mentioned above are regional bodies of the Tropical Cyclone Programme of WMO, which is tasked with establishing national and regionally coordinated systems to minimize the loss of life and the damage caused by tropical cyclones. The Programme is part of the WMO Weather and Disaster Risk Reduction Services Department.

4. The Typhoon Committee maintains and implements activities and projects under the umbrella of three substantive components: disaster risk reduction, hydrology and meteorology. The disaster risk reduction component was established for the purpose of making effective connections between civil protection services and meteorological and hydrological services so that the time gap could be reduced between the issuance of early warnings and the engagement of rescue brigades. Working groups are supported by the Committee's Advisory Working Group, Training and Research Coordination Group and Resources Mobilization Group, with assistance from the secretariats of the Typhoon Committee, ESCAP and WMO, and other agencies.

5. Annual sessions of the Typhoon Committee are convened by ESCAP and organized by the secretariats of ESCAP, WMO and the Typhoon Committee. At such sessions, the Typhoon Committee reviews the progress made since the previous session, as well as the implementation of its strategic plan and annual operating plan, and makes specific recommendations with a view to reducing the consequences of typhoon-related disasters.

6. The executive body of the Committee was originally known as the Joint Unit on Typhoons, which was located in Bangkok. In 1971, in response to an invitation from the Government of the Philippines, the unit was transferred to Manila and renamed the Typhoon Committee Secretariat. In February 2007, the Secretariat was officially transferred from Manila to Macao, China. The move entailed separate agreements between the Typhoon Committee and the Government of China and the government of Macao, China.

7. Since 2006, the Typhoon Committee has held annual integrated workshops on its three substantive components. At these workshops, discussions are held and recommendations made on measures relevant to those components.

B. Strategic plan

8. In its strategic plan, the Typhoon Committee identified the areas in the region and the activities on which it wished to focus, as well as the goals it intended to achieve in the period 2007-2011, with a view to continuing to produce meaningful results in its focus areas. The development of the strategic plan took into account various international and regional frameworks, protocols and strategic plans pertaining to tropical cyclone-related activities within the region, such as the Millennium Development Goals, the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters,¹ the WMO Long-term Plan, the Hashimoto Action Plan: Compendium of Actions,² the Beijing Declaration on Disaster Reduction in Asia³ and the statute of the Typhoon Committee, as well as the thematic areas addressed by ESCAP.

¹ A/CONF.206/6 and Corr.1, chap. I, resolution 2.

² A/C.2/61/4, annex I.

³ Adopted by the First Asian Ministerial Conference on Disaster Risk Reduction (Beijing, 2005), available from www.gov.cn/misc/2005-09/30/content_73398.

9. The Typhoon Committee has identified seven key result areas for the period 2011-2015:⁴

- (a) Reduced loss of life from typhoon-related disasters;
- (b) Minimized typhoon-related social and economic impacts;
- (c) Enhanced beneficial typhoon-related effects for the betterment of the quality of life;^{5,6}
- (d) Improved typhoon-related disaster risk management in various sectors;
- (e) Strengthened resilience of communities to typhoon-related disasters;
- (f) Improved capacity to generate and provide accurate, timely and understandable information on typhoon-related threats;
- (g) Enhanced typhoon committee effectiveness, efficiency and international collaboration.

10. To support the Strategic Plan 2011-2015,⁷ the Advisory Working Group prepares an annual operating plan, which is approved at each annual session of the Typhoon Committee. Each such plan describes the detailed actions and success indicators which would be employed that year to guide the Committee and its members towards achieving, by 2015, the strategic goals and activities contained in the strategic plan.

C. Components

1. Disaster risk reduction

11. The Working Group on Disaster Prevention and Preparedness is developing the Typhoon Committee Disaster Information System,⁸ which is intended to facilitate timely and efficient access to typhoon-related disaster information through the Internet to extend the effectiveness of multi-hazard early warning systems. It can also serve as a platform for members to share disaster data, knowledge, experiences, good practices and other information related to typhoon disaster risk reduction.

12. With regard to geographic information systems (GIS), the Republic of Korea is developing the Web GIS-based Typhoon Committee Disaster Information System to facilitate timely and efficient access to typhoon-related disaster information; it is being developed as an Internet platform through which members could share disaster data, knowledge, experiences,

⁴ See E/ESCAP/63/32.

⁵ A/CONF.206/6 and Corr.1, chap. I, resolution 2.

⁶ This key results area refers to proactive disaster management actions that can be taken potentially to use typhoon activity to improve the quality of life in certain places. For instance, in a region with severe drought, the construction of reservoirs could enable the excess water of a typhoon to be captured for later use.

⁷ www.typhooncommittee.org/43rd/docs/item8/SP2011v1.pdf.

⁸ For details, see: www.tcdis.org.

good practices and other information. Training in its operation will be provided in 2011.

13. Recent cooperation between Google Inc. and WMO has been aimed at increasing public awareness of active tropical cyclones around the world under the Google Onebox and Google Earth information programmes. Concise information from the Severe Weather Information Centre of WMO is made available through these programmes.⁹ A warning dissemination project was launched in Hong Kong, China, in 2010 through a pilot project of the Centre¹⁰ and community weather stations.

14. An integrated workshop was held in Macao, China, from 4 to 10 September 2010. The fifth and sixth workshops of the Working Group on Disaster Risk Reduction were held in the Republic of Korea, in October 2010 and May 2011, respectively.

2. Hydrology

15. The progress made by, and the future activities of, the hydrological projects of the Typhoon Committee are as follows:

(a) On-the-job training concerning flood forecasting has been carried out since 2008 among members of the Typhoon Committee. Four training courses have been conducted in Malaysia since that year;

(b) A meeting on a cross-cutting project on urban flood risk management, which was held in December 2010, involved the collaboration of three working groups of the Typhoon Committee linked with WMO and ESCAP; the project furnished expertise, guidance and advice on aspects of hydrology and disaster risk reduction in three pilot cities: Hat Yai, Thailand; Metro Manila, the Philippines; and Hanoi, Viet Nam, with support provided by China, Japan and the Republic of Korea;

(c) A half-day seminar on assessment of the socio-economic impacts of flood control measures was conducted by the Republic of Korea in January 2011 to assess the socio-economic impacts of water-related disasters on infrastructure. Japan led the component on hazard mapping for sediment-related disasters;

(d) A questionnaire survey to establish flood disaster preparedness indices was developed and launched in 2010 by the International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO);¹¹

(e) In December 2010, a workshop on space applications to reduce water-related disaster risks in Asia was jointly organized by ESCAP and ICHARM, in partnership with WMO and the Typhoon Committee, and with the support of the Japan Aerospace Exploration Agency and the Asian Development Bank. During the workshop, ICHARM provided the participants with training on the integrated flood analysis system;

⁹ For details, see: <http://severe.worldweather.wmo.int>.

¹⁰ Severe weather warnings in real time may be accessed from: <http://severe.worldweather.org/swidget/swidget.html>.

¹¹ For details, see: www.fdpi.jp/fdpi.

(f) A proposed implementation plan for a project on the assessment of the variability of water resources affected by climate change will be drafted and launched by the Philippines in 2011.

3. Meteorology

16. The Typhoon Committee Working Group on Meteorology has continued to develop a number of projects: (a) Typhoon Information Processing System; (b) quantitative precipitation estimates/quantitative precipitation forecasts; (c) South China Sea typhoon forecast; (d) a website under the North-Western Pacific Tropical Cyclone Ensemble Forecast Project; and (e) a forum on the Internet serving as a real-time communications platform for forecasters and researchers to share real-time observations, forecasts and warning information with regard to typhoons.

17. Typhoon Committee members have recognized as necessary the technology and knowledge transfer of the Typhoon Information Processing System, which facilitates the processing and display of prognostic information for either deterministic or probabilistic forecasts. Since the system is a powerful tool for early warning and only a few members have it, it is expected that the Typhoon Committee will address the needs of its members, particularly those that are less developed, and support them in their efforts to develop such a system.

18. It is planned that training programmes and a workshop on quantitative precipitation estimates/quantitative precipitation forecasts, especially for urban flood risk management, will be held in Japan in 2011 in conjunction with other working groups. To produce storm surge distribution maps and time-series charts, it is necessary to conduct training in the exchange of information on radar data and storm surge models for verification, as well as archive tidal and bathymetric data. Quantitative precipitation estimates/quantitative precipitation forecasts would provide numerical prediction methods for generating models representing states of the atmosphere and for complementing other forecasting methods. The more advanced members of the Typhoon Committee already employ such methods, and some can use the resulting information.

19. The South China Sea typhoon forecast pilot project is aimed at enhancing cooperation among members in the development of skills for forecasting tropical cyclones on the basis of the South China Sea typhoon model developed by China. The next-generation data broadcast system, known as CMACast, is a multimedia dissemination system based on second-generation digital video broadcast technology. The super ensemble typhoon track prediction system will begin operations in July 2011.

20. The website for the North-Western Pacific Tropical Cyclone Ensemble Forecast Project of WMO was created by Japan in May 2010. That website provides the Typhoon Committee with deterministic and ensemble forecast tracks, as well as strike probabilities derived from a specialized database¹² set up by several organizations; it enables users to

¹² The THORPEX Interactive Grand Global Ensemble database is available in a unified format, known as Cyclone XML, or CXML. THORPEX is a 10-year international research and development programme aimed at accelerating improvements in the accuracy of one-day to two-week high-impact weather forecasts for the benefit of society, the economy and the environment.

compare and verify the ensemble forecasts in order to improve their forecasting skills.

D. Training and research

21. A concept note on knowledge-based resource management has been developed by the Training and Research Coordination Group for members of the Typhoon Committee. In 2009, that group formulated the work plan for the period 2010-2013, which affords a sound basis for implementation activities. Guidelines for future activities will include the establishment of a training and research portal.

22. Research and training activities will focus on forecasting and warning (meteorology), flood forecasting and water management applications (hydrology) and impacts (disaster risk reduction).

23. A roving seminar, held in Ubon Ratchathani, Thailand, in November 2010, was hosted by the Meteorological Department of Thailand. In 2011, the roving seminar will be hosted by Malaysia with financial support from the Typhoon Committee Trust Fund.

24. Other activities carried out in 2010 were the following: (a) research fellowship programmes hosted by China, the Republic of Korea, and Hong Kong, China; (b) training attachment for forecasters from Singapore and Hong Kong, China, which was supported by Regional Specialized Meteorological Centre, Tokyo; and (c) a capacity-building initiative carried out continuously in 2010 with support from the Japan Meteorological Agency and the Tropical Cyclone Programme of WMO.

25. The Typhoon Committee Secretariat published both the twenty-second issue of the *ESCAP/WMO Typhoon Committee Newsletter* and the *Typhoon Committee Annual Review* in January 2010, disseminating them to members, including ESCAP and WMO, in electronic format (CD-ROM).

26. The Regional Specialized Meteorological Centre, Tokyo – the Typhoon Centre published *Technical Review No. 12* in March 2010 and the *Annual Report on the Activities of the RSMC Tokyo – Typhoon Centre in 2009* in December 2010.¹³

27. The Assessment Report on Tropical Cyclone Frequency and Intensity in the Typhoon Committee Region and the Report on Mountainous Flash Flood Forecast System Manual were published as part of a series of technical publications.

II. Panel on Tropical Cyclones

A. Introduction

28. The Panel on Tropical Cyclones, a regional body that was jointly established by WMO and ESCAP in 1973, is associated with the Tropical Cyclone Programme of WMO. The thirty-eighth session of the Panel was held in New Delhi from 21 to 25 February 2011.

¹³ For details, see www.jma.go.jp/jma/jma-eng/jma-center/rsmc-hp-pub-eg/annualreport.html.

29. The main objectives of the Panel on Tropical Cyclones are to promote measures to improve the warning systems for tropical cyclones in the Bay of Bengal and the Arabian Sea and disseminate technical information on operations to mitigate the socio-economic impacts of tropical cyclone-related disasters. The Panel develops activities under three substantive components: disaster prevention and preparedness, hydrology and meteorology, as well as training and research.

B. Components

1. Disaster prevention and preparedness

30. Details of the national organizations, plans and programme implementation of member countries of the Panel on Tropical Cyclones are described below.

31. In 2010, the Department of Meteorology and Hydrology of Myanmar issued early warnings from its Multi-Hazard Early Warning Centre, developed the Myanmar Action Plan on Disaster Risk Reduction 2009-2015, implemented both its disaster management training programme and its public education and awareness programme and published six articles on weather phenomena and the behaviour of storms.

32. The National Committee for Civil Defence of Oman is the government unit responsible for disaster preparedness and response in that country. The national plan for disaster management was activated during tropical cyclone Phet. The directives of the Government are to improve the national plan in order to establish a fully equipped emergency management centre and build up-to-date databases for civil establishments, roads, physical features and geographic information systems.

33. Most of the deaths due to the severe flooding that occurred in Pakistan in 2010 were caused by flash floods in the northern part of the country, especially in Khyber Pakhtunkhwa Province. Following that disaster, the National Disaster Management Authority prepared a national disaster management plan covering the period 2011-2021, which encompasses all aspects of disaster management policies, strategies and actions, and is meant to be used as a long-term, holistic policy document for national disaster risk management and for implementation of action programmes during the 10-year cycle of the plan. A project on a seismograph network was implemented for the purpose of strengthening the national seismic monitoring network in Pakistan.

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