

Resolution 21 (Cg-XV)

**STRATEGY FOR THE ENHANCEMENT OF COOPERATION BETWEEN
NATIONAL METEOROLOGICAL AND NATIONAL HYDROLOGICAL SERVICES FOR
IMPROVED FLOOD FORECASTING**

THE CONGRESS,

Noting:

- (1) The Final Report of the Synthesis Conference of the WMO Flood Forecasting Initiative,
- (2) The Executive Summary of the Strategy and Action Plan for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting (see the annex to this resolution), prepared and adopted by the Synthesis Conference of the WMO Flood Forecasting Initiative, held in Geneva from 20 to 23 November 2006,

Noting further:

- (1) The wide participation of experts from National Meteorological Services and National Hydrological Services working in weather and hydrological forecasting in the eight regional workshops organized in the framework of the WMO Flood Forecasting Initiative, as well as the high level of expertise demonstrated by participants in the Synthesis Conference of the WMO Flood Forecasting Initiative,
- (2) The increased frequency of major flood-related disasters in recent years and the general international agreement about the effectiveness in shifting the emphasis from a policy of response to a policy of prevention,

Considering:

- (1) That improvements in collaboration between the meteorological and hydrological communities would result in improved flood forecasting practices in the most advanced as well as developing countries, and countries with economies in transition,
- (2) That despite the widespread agreement that such collaboration is needed, successful examples are the exception rather than the rule in some regions,

Decides to endorse the Strategy and Action Plan for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting;

Requests the Secretary-General, as appropriate and within the available budgetary resources:

- (1) To take all necessary actions to support the implementation of the Strategy;
- (2) To promote the review of various activities of relevant WMO Programmes whose contribution is essential and whose sphere of activities could have an influence on the improvement of flood forecasting practices for the implementation of the Strategy;
- (3) To support the implementation of demonstration projects such as the Flash Flood Guidance System with global coverage;

- (4) To establish a suitable coordination mechanism to develop a detailed plan of activities and address the issues of hydrology and meteorology covering, but not limited to, flash-flood forecasting and warning, including participants from the Commission for Hydrology, Commission for Basic Systems, World Weather Watch, Natural Disaster Prevention and Mitigation Programme, and Hydrology and Water Resources Programme;
- (5) To invite other relevant United Nations organizations and international agencies to participate in the implementation of the Strategy;

Requests the president of the Commission for Hydrology in coordination with presidents of other technical commissions, where needed:

- (1) To ensure that the Commission provides the technical expertise needed in supporting the development of new and improved flood, including flash floods, forecasting products;
- (2) To ensure that the necessary coordination with other technical commissions be established as required to keep the Strategy in review and further development and implementation of the implementation plan;

Invites Members:

- (1) To take all institutional, legal and financial measures to create the necessary enabling environment for the implementation of the Strategy at the basin, national and regional levels;
- (2) To ensure that National Meteorological Services and National Hydrological Services work in close collaboration and provide the required technical support to their disaster management authorities;
- (3) To contribute to the Voluntary Cooperation Programme Fund and the Hydrology and Water Resources Trust Fund in support of the implementation of the Strategy.

Annex to Resolution 21 (Cg-XV)

FLOOD FORECASTING INITIATIVE

Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting

Strategy and Action Plan

Executive Summary

General

1. Flood forecasting provides a valuable tool in reducing flood impacts, thereby contributing to national sustainable development. Advances in data collection, continual model development, calibration and verification, etc., contribute to improving the accuracy of forecasts. Recent enhancements in meteorological forecasting have made it possible to extend the lead time for flood forecasting. A timely and reliable forecast helps greatly in disaster risk management responses.

However, this requires a set of multidisciplinary (meteorology, hydrology and emergency management) collaborative efforts.

2. At present many National Meteorological Services (NMSs) and National Hydrological Services (NHSs) do not have adequate means or the necessary know-how to provide extended forecasting services in flood critical situations and to communicate effectively with disaster management authorities. A strategic/coordinated approach is therefore needed for NMSs and NHSs to work closely together, making use of the state-of-the-art forecasting technologies, to improve hydrological forecasting products and provide better services.

Scope

3. Recognizing the need to improve the capacity of NMSs in detecting flood-critical situations and to improve the capacity of NHSs in using meteorological forecasting information, the WMO Flood Forecasting Initiative was launched in April 2003. The major activities within the scope of this initiative included an overall analysis of the strengths and weaknesses of current flood forecasting systems in the Member countries through a series of regional workshops (eight) organized for different Regions, which were attended by hydrologists and meteorologists engaged in forecasting from 85 countries along with a number of regional and river basin organizations, technical institutions and experts.

4. As collaborative efforts between NMSs and NHSs will not only improve flood forecasting services in the countries but also other domains such as water resources assessment and use of climate prediction products in water management, the workshops provided a unique opportunity for meteorologists and hydrologists to exchange experiences and views on these issues, which came up strongly during some of the workshops. Similarly, lack of financial resources for the NHSs and NMSs also emerged as one of the major concerns in certain workshops, particularly involving countries from Region I (Africa).

Strategy and Action Plan

5. In order to fulfil the objectives of the Initiative, a Synthesis Conference of the WMO Flood Forecasting Initiative was organized by WMO in November 2006 with the aim to analyse the key challenge areas that would need to be addressed as identified during the regional workshops. The conference resulted in the establishment of an agreed Strategy and Action Plan to improve national and regional capacities for flood forecasting. The Strategy and Action Plan concentrates on the areas of collaboration between the NMSs and NHSs in the field of flood forecasting and other issues raised in the workshops as mentioned in paragraph 4 above.

6. The Strategy and Action Plan, once considered and endorsed by Fifteenth Congress, would serve as a guide to the technical commissions and WMO Secretariat in all activities related to improving flood forecasting capabilities worldwide. In developing the Action Plan the diversity of conditions of levels of development, capabilities and status of National Meteorological and Hydrological Services, the various possible user requirements and the possibilities of using advanced technologies were kept under consideration.

7. The Strategy and Action Plan identifies the following areas of activities that need to be addressed to improve the overall chain of hydrological forecasting:

- (a) Strengthening of observing and information systems;
- (b) Promoting data exchange at the national and international river basin levels;
- (c) Improvement of meteorological forecasting practices and products;
- (d) Improvement of hydrological forecasting practices and products;

- (e) Strengthening of institutional coordination, cooperation and integration between NMSs and NHSs;
- (f) Strengthening of cooperation and coordination of countries in issues related to flood forecasting and warning;
- (g) Promoting training and capacity-building in National Meteorological and Hydrological Services;
- (h) Formulating technical documentation and guidelines related to flood forecasting and warning;
- (i) Supporting disaster management;
- (j) Addressing climate variability and change in the light of extreme events;
- (k) Demonstrating the value of meteorological and hydrological data, information and products, including forecasts.

Activities under (c) to (h) would form the core of the Flood Forecasting Initiative, while the rest would be mainly addressed under, and in cooperation with, other programmes.

8. The Strategy and Action Plan promotes the preparation of national implementation plans. These would logically vary and have to be adapted in accordance with current national and regional flood forecasting capabilities, specific requirements and priorities of the corresponding National Meteorological and Hydrological Services. Access to information, reliability of forecasts and public trust are critical issues to be addressed when developing a modern flood forecasting system.

9. The Strategy and Action Plan suggests the implementation of demonstration projects at various levels (country-specific, subregional and regional projects). These would identify the technical and administrative difficulties in and showcase the value of an increased cooperation between NMSs and NHSs in flood forecasting. It is expected that the demonstration projects, at the national level, would assist National Meteorological and Hydrological Services in coping with their changing role in disaster risk reduction by means of a comprehensive suite of activities for the upgrading, modernization and strengthening of their flood forecasting and warning systems.

10. At the regional level, the Strategy and Action Plan advocates the establishment of a framework under which partnerships and development assistance could be provided and coordinated amongst the Members and the various contributing agencies while taking advantage of existing regional and international arrangements. Countries in a given region or river basin would be invited to collaborate on projects and activities to be undertaken to strengthen collaboration between NMSs and NHSs for improved flood forecasting and warning.

11. The Strategy and Action Plan also addresses requirements of well-established flood forecasting and warning systems for their further improvement through the development and use of new technology.
