



World Meteorological Organization

Weather • Climate • Water



Development and Implementation of the Regional Flash Flood Guidance System for Southeastern Asia-Oceania

Overview and Purpose of the Workshop

WMO Flood Forecasting Initiative

- To enhance the capacities of the National Meteorological and Hydrological Services (NMHSs) to jointly deliver timely and more accurate products and services required in flood forecasting and warning and to further collaboration with disaster managers;
- Improve weather forecasting products and their availability for flood forecasting;
- To apply medium-range weather forecasting and climate prediction to extend warning lead times;
- To enhance NMHSs cooperation in flood forecasting;
- To provide available information to those responsible for disaster preparedness and mitigation.



Flood Forecasting Initiative

Addressing communication gaps between meteorological and hydrological services:

- Information and forecasts not provided in a form usable for hydrological forecasting;
- Non-standardized data archiving, data formats and transmission protocols;
- Use of different forecasting concepts, methods and technical language.

And between forecasters and forecast users:

- Forecasting is often not objective-driven;
- Use of technical vocabulary in forecast and warning dissemination.



Flash Floods in Perspective

- “Recent findings of the WMO country-level survey where of the 139 countries, 105 indicated that flash floods were among the top two most important hazards around the world and require special attention”.
- “On the average, these events kill more people worldwide than any other [weather-related] natural disaster – in an average year, flash floods kill over 5,000 unsuspecting people and cause millions of dollars of property damage”(WMO 2008)



Background of the FFGS project

- The WMO Congress XV in 2007 approved the implementation of a Flash Flood Guidance System (FFGS) project with global coverage, developed by Commission for Hydrology (CHy) jointly with WMO Commission for Basic System (CBS) in collaboration with the US National Weather Service, the US Hydrologic Research Center and USAID/OFDA.



Main Objective of the FFGS project

- To contribute towards reducing the vulnerability of regions around the world to hydrometeorological hazards, **specifically flash floods**, by developing and implementing flash flood guidance systems to strengthen regional capacity to develop timely and accurate flash flood warnings.



Main Objectives of the SAOFFGS Planning Workshop

- To present and discuss the needs for flash flood forecasting in Southeastern Asia-Oceania, including flash flood forecasting and early warning system, dissemination procedures, and protocols for warning populations at risk, and coordination among the National Meteorological and Hydrological Services and the Disaster Management Agencies,
- To reach agreement with countries on their intent to participate in the project, including an understanding of their responsibilities, and the determination of a Regional Centre for the project.



Expected Outcomes of the SAOFFG Planning Workshop

- Understanding of local, regional and international cooperation among related institutions and organizations to reduce the adverse effects of flash floods,
- Understanding of flash flood guidance system concept, its implementation and data requirements among participants,
- Achieve a robust commitment by all participants to actively engage in the regional and national implementation of the project for the benefit of the region.



Expected Outcomes of the SAOFFG Planning Workshop

- Countries indicate their desire (or not) to be part of the SAOFFGS -- Brunei Darussalam, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, and Timor-Leste.
- Basic agreement on potential project plan and its implementation
 - Initially large focus on system development and implementation as well as undertaking extensive training.
 - System evaluation, fine tuning, and validation of system outputs.



Rational for the Selection of HRC Flash Flood Guidance Concept

- Based on the best available scientific and technological background on flash floods,
- Proven concept in many regional implementations,
- Robust and stable system,
- Adaptable to various regional and local conditions (environmental, institutional, technical),
- Dedicated capacity building components.



Flash Floods vs River Floods

River floods are caused by heavy rain (and snow melt) over long periods e.g., days, leading to rising water levels and flooding as the flood wave takes days to move down river.

Flash floods:

- WMO definition is “a flood of short duration with a relatively high peak discharge”;
- US NWS definition is “a rapid and extreme flow of high water into geomorphic low-lying areas – washes, rivers, dry lakes and basins, or a rapid water level rise in a stream or creek above a predetermined flood level”;
- Flash floods occur in less than six hours from the time of the causative event;
- A flash flood is a local hydrometeorological phenomenon that requires both hydrological and meteorological expertise for real-time forecasting and warning.



What is Flash Flood Guidance System?

- The Flash Flood Guidance System is designed to produce flash flood early warning products by using hydro-meteorological, geomorphologic and topographic data as well as quantitative precipitation forecasts (QPF), temperature, etc from numerical weather prediction model(s) making use of an internet-based user interface.



Disaster Management Integration

- The role of the local disaster manager is very important to mitigate the adverse effects of flash floods,
- Intensive collaboration is needed between NMHSs and DMAs to understand the needs of the disaster managers and how best to disseminate products to them efficiently and in a timely manner,
- Training workshops with forecasters and DMA staff;
 - To provide training to understand the products,
 - To develop operational procedures for use by DMAs, and
 - To finalize dissemination and communication procedures.



Items to be Addressed in this Workshop

- Role of various organizations including WMO, HRC, NOAA and USAIF/OFDA,
- NMHSs capabilities on flash flood/flood forecasting and early warning system and available infrastructures,
- Capabilities of National Disaster Agencies,
- Introduction to FFGS,
- Overview of FFGS products,
- Example of FFGS regional implementation - BSMEFFG,
- Severe Weather Forecast Demonstration Project ,
- Responsibilities of NMHSs,
- Data and implementation requirements,
- Need to make commitment for the project and selection of the Regional Centre,
- Any other business.





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Thank you for your attention

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