



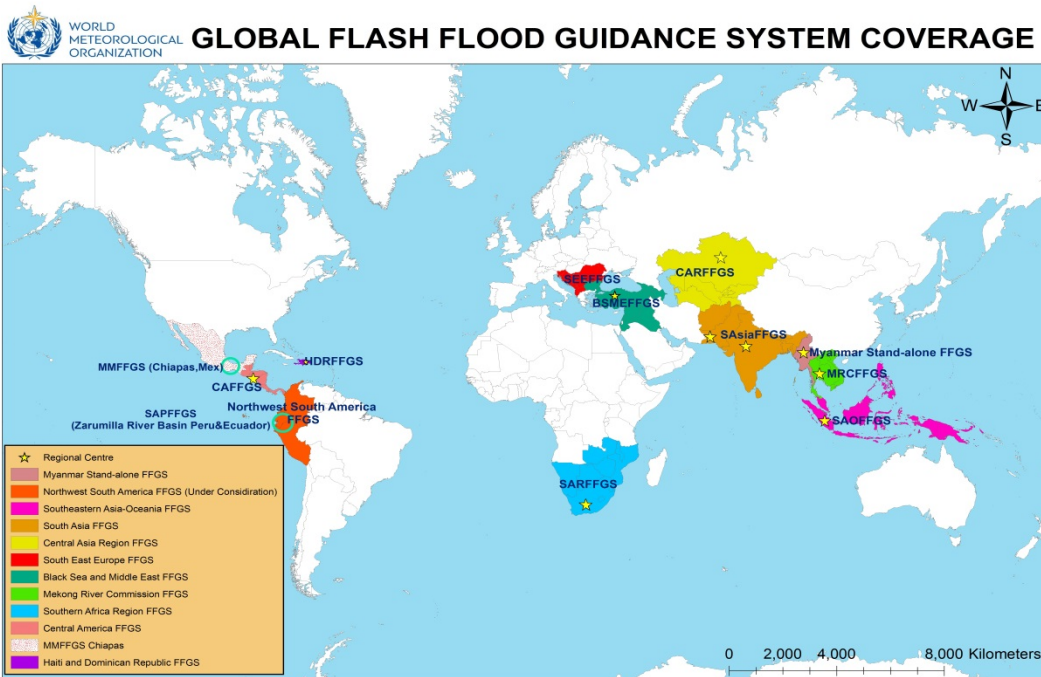
World Meteorological Organization

Weather • Climate • Water

Overview of the BSMEFFGS and Purposes of Multi-Agency Meeting of the Harsit Riverine Routing



Flash Flood Guidance (FFG) System



The WMO Commission for Hydrology (CHy) jointly with the WMO Commission for Basic Systems (CBS) and in collaboration with the US National Weather Service, Hydrologic Research Center (HRC), and USAID/OFDA have developed the concept of the Flash Flood Guidance System (FFGS) with global coverage. The concept has been endorsed by the Fifteenth WMO Congress and is being implemented through a series of regional projects with funding from USAID.

Flash Flood Guidance System with global coverage (Resolution 21, World Meteorological Congress-XV) enhances early warning capabilities of the NMHSs, currently covers fifty two (52) countries and more than two billion people around the world saving lives and decreasing economic losses.



FFGS Regional Projects

The following regional Flash Flood Guidance (FFGS) projects are implemented or under implementation or under consideration:

- **Central America FFG (CAFFG)** (Operational): Costa Rica (Regional Centre (RC), Belize, Guatemala, Honduras, El Salvador, Nicaragua and Panama;
- **Southern Africa Region FFG (SARFFG)** (Operational): South Africa (RC), Botswana, Lesotho, Malawi , Mozambique, Namibia, Swaziland, Zambia, and Zimbabwe;
- **Mekong River Commission FFG (MRCFFG)** (Operational): Cambodia (RC), Lao PDR, Thailand, and Viet Nam;
- **Black Sea and Middle East FFG (BSMEFFG)** (Operational): Armenia, Azerbaijan, Bulgaria, Georgia, Iraq, Israel, Jordan, Lebanon, Syria, and Turkey (RC);
- **South East Europe FFG (SEEFFG)** (Operational): Albania, Bosnia and Herzegovina, Croatia, Moldova, Montenegro, Romania, Serbia, Slovenia, The Former Yugoslav Republic of Macedonia, Turkey (RC);



GFFGS Regional Projects (cont.)

- **South Asia FFG (SAsiaFFG)** (under implementation): Afghanistan, Bangladesh, Bhutan, Nepal, Pakistan, Sri Lanka, and India;
- **Central Asia Region FFG (CARFFG)** (under implementation): Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan;
- **South America Pilot FFG** (Operational): Zarumilla River Basin (Peru and Ecuador);
- **Haiti-Dominican Republic FFG (HDRFFG)** (under implementation): Dominican Republic and Haiti;
- **South Eastern Asia Oceania FFG (SAOFFG)** (under development): Brunei, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, and Timor Leste.



Objectives of the FFGS with Global Coverage

The main objectives of the Flash Flood Guidance System with global coverage are to:

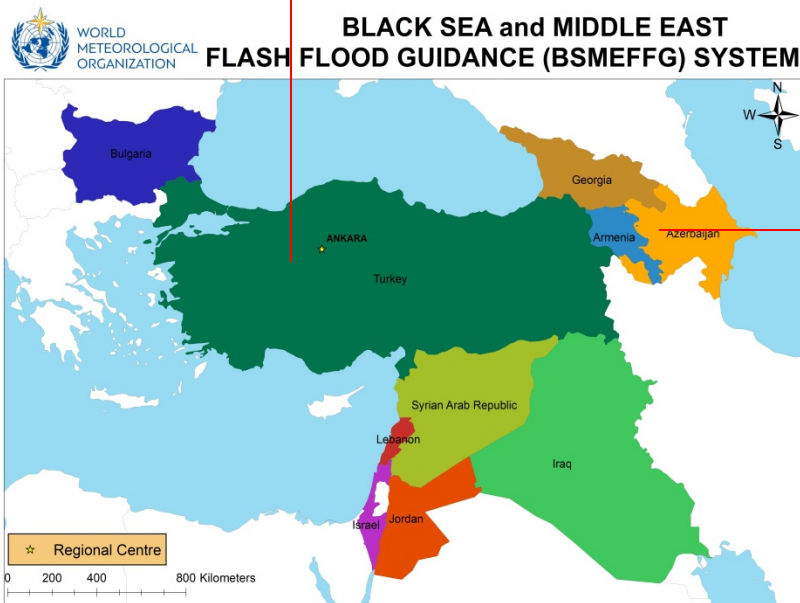
- Enhance NMHSs capacity to issue flash flood warnings and alerts;
- Mitigate adverse impacts of hydrometeorological hazards;
- Enhance collaborations between NMHSs and Emergency Management Agencies;
- Generate flash flood early warning products by using state-of-the-art hydrometeorological forecasting models;
- Provide extensive training including on-line training to the hydrometeorological forecasters;
- Foster regional developments and collaborations; and
- Support WMO Flood Forecasting Initiative.



Regional Components

The Regional Centre:

- Maintain FFG servers to provide products and data to the participating countries,
- Collaborate with WMO to implement flash flood hydrometeorologist training programme,
- Evaluate FFG products from the regional perspective and conduct verification study in collaboration with participating countries,
- Have good internet connection to download and exchange data.

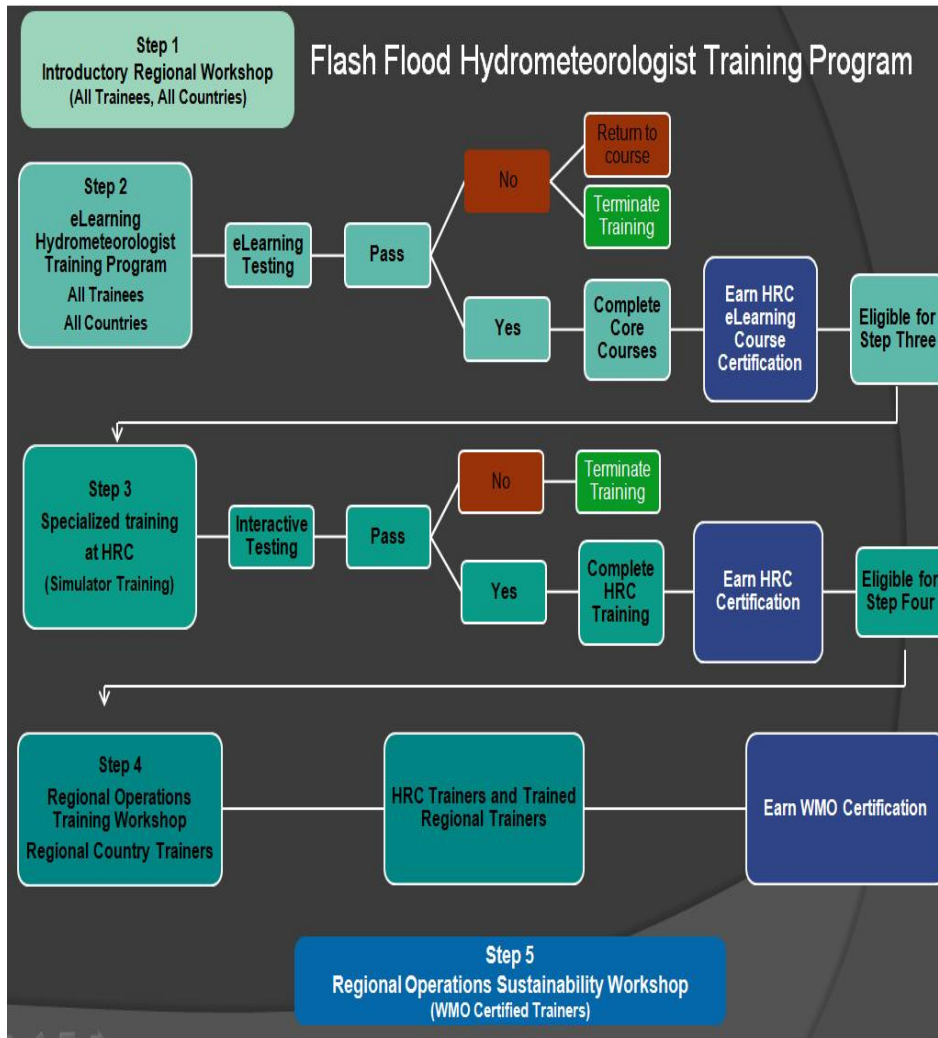


Participating NMHSs:

- Have good cooperation, collaboration, communication with the Regional Centre for the implementation of the project,
- Provide historical and in-situ local data to the FFG system developer through the RC,
- Prepare and issue flash flood warnings and alerts to the public and national agencies including Emergency Management Authorities,
- Participate in the Flash Flood Hydrometeorologist Training Programme (Steps 1-5),
- Conduct verification studies.



Flash Flood Hydrometeorologist Training Programme



Training is and integral part of regional FFG Systems and consists of five steps:

Step-1: Introductory in-country workshops and meetings such as Steering Committee Meetings;

Step-2: On line eLearning comprises elements of meteorology, hydrology, flash flood guidance, GIS, and remote sensing;

Step-3: Advanced operations and interactive simulator training at the Hydrologic Research Center (HRC), USA;

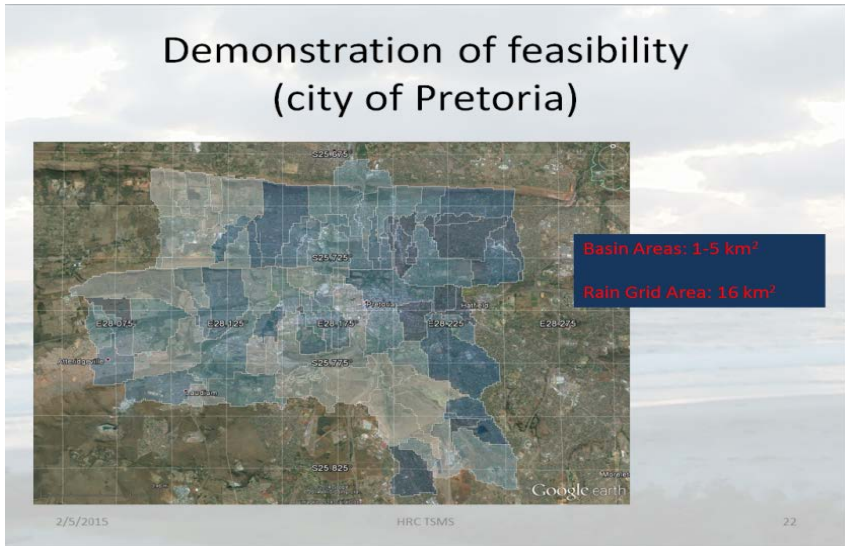
Step-4: Regional operations training workshop toward qualification of WMO flash flood trainer certificate;

Step-5: Regional operation sustainability workshop provided by the WMO certified trainer.

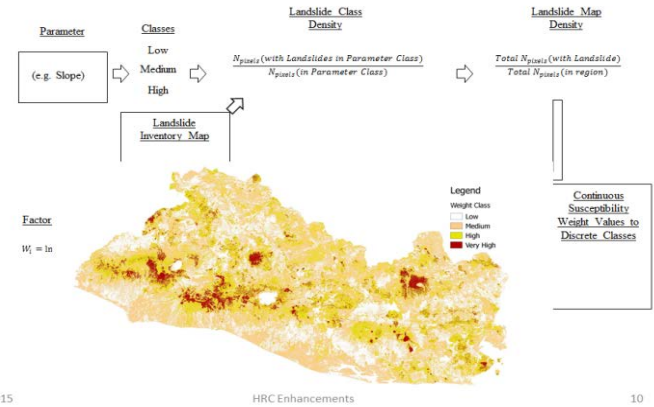


Advances

Demonstration of feasibility (city of Pretoria)

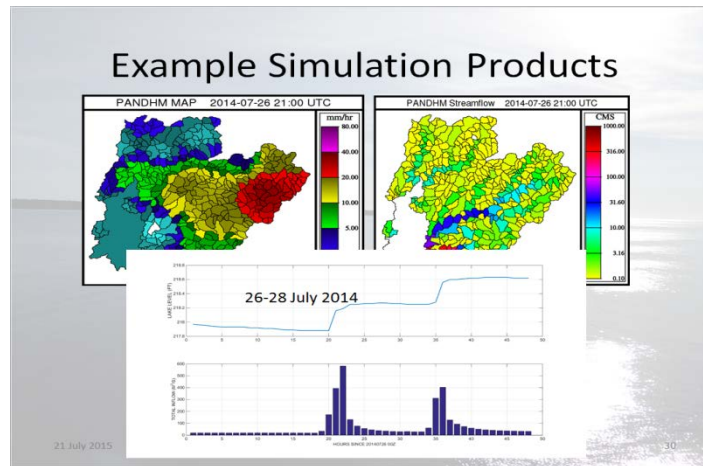


C.1 Susceptibility Mapping



Urban Flash Flood Early Warning System

Landslide Susceptibility Mapping



Expandable and Scalable Riverine Routing

Objectives of This Meeting

Objectives of the Multi-Agency Harsit Riverine Routing are:

- Review data requirements for the development and implementation of Harsit Riverine Routing;
- Review the availability of Hydrometeorological and infrastructure data for the study area;
- Supplementary hydromet data requirements and possible hydromet network expansion in study area;
- Conduct a site visit to the study area for the assessment of actual local conditions; and
- Become familiar with the DSI and TSMS Regional Directorates activities.



Further Information

More information about the regional implementations of the FFG system is available at the following WEB portals:

<http://www.wmo.int/ffgs> and <http://www.hrcwater.org>





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Thank you for your attention

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