Overview and Purposes of the Central Asia Region Flash Flood Guidance (CARFFG) System Follow-up Operational Workshop

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Flash Floods – The most deadly natural (weather-related) disaster in the world

- "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).

WMO OMM

Flash Flood Guidance (FFG) System

GLOBAL FLASH FLOOD GUIDANCE SYSTEM COVERAGE

Flash Flood Guidance System with global coverage (Resolution 21, World Meteorological Congress-XV) enhances early warning capabilities of the NMHSs, currently **covers more than 60 (sixty) countries** and **more than two billion people** around the world saving lives and decreasing economic losses.

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.

Regional FFGS Projects

The following regional Flash Flood Guidance (FFG) projects have been implemented or under implementation:

- **Central America FFG** (**CAFFG**) (Operational): Costa Rica (Regional Centre RC), Belize, El Salvador, Guatemala, Honduras, Nicaragua, and Panama;

- **Southern Africa Region FFG** (**SARFFG**): (Operational) Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa (RC), Swaziland, Zambia, and Zimbabwe;

- **Mekong River Commission FFG (MRCFFG**) (Operational): Cambodia (RC), Lao People's Democratic Republic, Thailand, and Viet Nam;

- **Black Sea and Middle East FFG** (**BSMEFFG)** (Operational)**:** Armenia, Azerbaijan, Bulgaria, Georgia, Israel, Jordan, Lebanon, and Turkey (RC);

- **South East Europe FFG (SEEFFG**) (Operational): Albania, Bosnia-Herzegovina, Croatia, Moldova, Montenegro, Romania, Serbia, Slovenia, The Former Yugoslav Republic of Macedonia, and Turkey (RC);

Regional FFGS Projects

- **Southeastern Asia-Oceania FFG (SAOFFG)** (under implementation): Brunei Darussalam, Indonesia (RC), Malaysia, Papua New Guinea, Philippines, Singapore, and Timor-Leste;

- **South Asia FFG (SAsiaFFG**) (under implementation): Afghanistan, Bangladesh, Bhutan, India (RC), Nepal, Pakistan (RC), and Sri Lanka;

- **South East Asia FFG (SEAFFG)** (under implementation): Cambodia, Lao PDR, Thailand, and Viet Nam;

- **Central Asia Region FFG (CARFFG)** (under implementation): Kazakhstan (RC), Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan;

- **South America Pilot FFG** (Completed): Zarumilla River Basin (Peru and Ecuador);

- **Haiti and Dominican Republic FFG** (**HDRFFG**) (being upgraded): Dominican Republic and Haiti;

- **Myanmar stand-alone FFG System** (under implementation**).**

Objectives of the FFGS with Global Coverage

The main objectives of the Flash Flood Guidance System with global coverage is 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 hydrometerological forecasting models;
- Provide extensive training including on-line training to the hydrometeorological forecasters;
- Foster regional developments and collaborations; and
- Support WMO Flood Forecasting Initiative.

WMO OMM

Regional Components
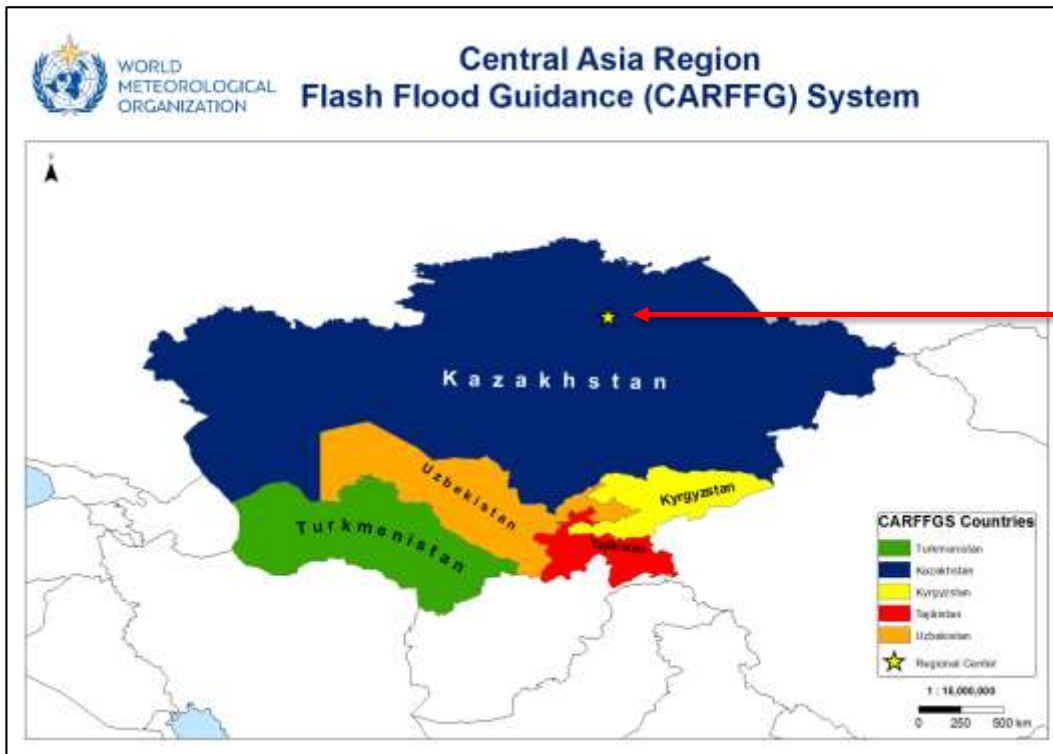

The Regional Centre is to:
- host FFGS servers to generate FFGS products and provide them to the participating NMHSs through internet,
- collaborate with WMO and its project partners to implement flash flood hydrometeorologist training programme,
- evaluate FFG products from the regional perspective and conduct verification study in collaboration with the participating NMHSs, and
- have good IT infrastructure for data exchange and internet connection.

The Participating NMHSs are to:
- Prepare and issue flash flood warnings and alerts to the public and national agencies including Disaster Management Agencies,
- provide historical and in-situ local data to the FFG system developer through the RC,
- participate in the Flash Flood Hydrometeorologist Training Programme (Steps 1-5), and
- conduct verification studies.

Flash Flood Hydrometeorologist Training Programme
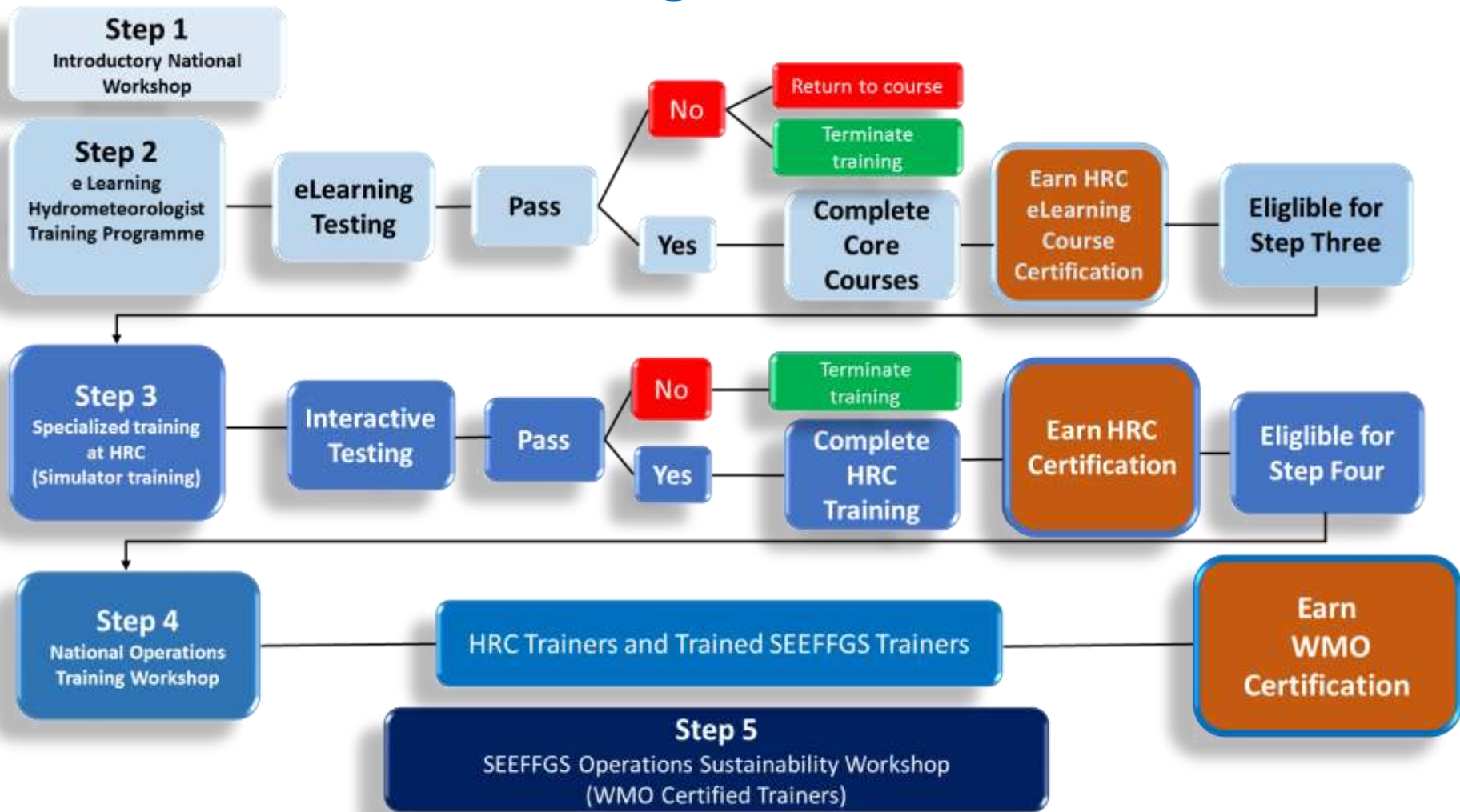
First Steering Committee Meeting

14-16 September 2015 in Astana, Kazakhstan

eLearning (On-line training) (Step 2)

Elements of Meteorology

- Factors necessary to produce heavy rainfall
- Elements necessary for deep moisture convection
- Characteristics of flash flood producing storms
- Examples of flash flood producing storms
- Meteorological processes that contribute to flash floods

Elements of Hydrology

- Water cycle
- Surface hydrology
- Sub-Surface hydrology
- Flash Floods-unique properties.

GIS

- Description of GIS-introduction of concepts and application of QGIS
- Applied use of GIS-as related to flash floods
- Manipulation of the Flash Flood Guidance products data using QGIS
- Practical exercises.

Remote Sensing

- Satellite rainfall
- Radar rainfall
- Land Surface Remote Sensing

FFG

- Description of FFGS concepts and applications
- Types of analysis available using the FFG model
- Practical exercises using the Flash Flood Guidance model.

WMO OMM

Operational Training at HRC (Step 3)

Country	Names
Kazakhstan	Adlet Jaxyeldinov
Kazakhstan	Gulmira Akisheva
Kyrgystan	Elvira Omorova
Kyrgystan	Makhbuba Kasymova
Tajikistan	Vohidjon Hamidov
Tajikistan	Dzhamila Baydulloeva
Uzbekistan	Sergey Myagkov
Uzbekistan	Irina Dergacheva
Lebanon	Abbas Obeid
Lebanon	Fadi Doumit

1-26 February 2016 in San Diego, USA

WMO OMM

Second Steering Committee Meeting

4-6 October 2016 in Astana, Kazakhstan

Major Achievements: i) implementation of Mudflow/Landslide and
Riverine Routing modules through the WB funding; and
ii) Temporary installation of the CARFFGS at Kazhydromet.

Objectives of the Workshop

- review the CARFFGS products;

- review and evaluate the CARFFG products for elected past events through case studies;

- conduct hands-on exercises of past flash flood events through FFGS simulator;

- Evaluate the performances of participants who successfully completed Step 2 and Step 3 training to be qualified for the WMO Certified Trainer.

COMPETENCY FRAMEWORK

i) Analyze and monitor continually the evolving meteorological and hydrological situation.

Competency Description: Observations and forecasts of weather parameters and significant weather phenomena are continuously monitored to determine the need for issuance, cancellation or amendment/update of forecasts and warnings according to documented thresholds and regulations.

ii) Forecast meteorological and hydrological phenomena and Parameters.

Competency Description: Forecasts of meteorological parameters and phenomena are prepared and issued in accordance with documented requirements, priorities and deadlines.

WMO OMM

Thank you

Paul Pilon

ppilon@wmo.int

Ayhan Sayin

asayin@wmo.int

Petra Mutic

pmutic@wmo.int

For more information please visit:	http://www.wmo.int/ffgs
	http://www.hrcwater.org

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale