

**"2<sup>nd</sup> Session for Regional Association II – Asia (RA-II Asia) Working Group on Hydrological Services (WGHS)"**  
***Gyeongju, Republic of Korea, 14-16 April, 2015***

***Discussion of activities and adjustment of working plan in theme area:***

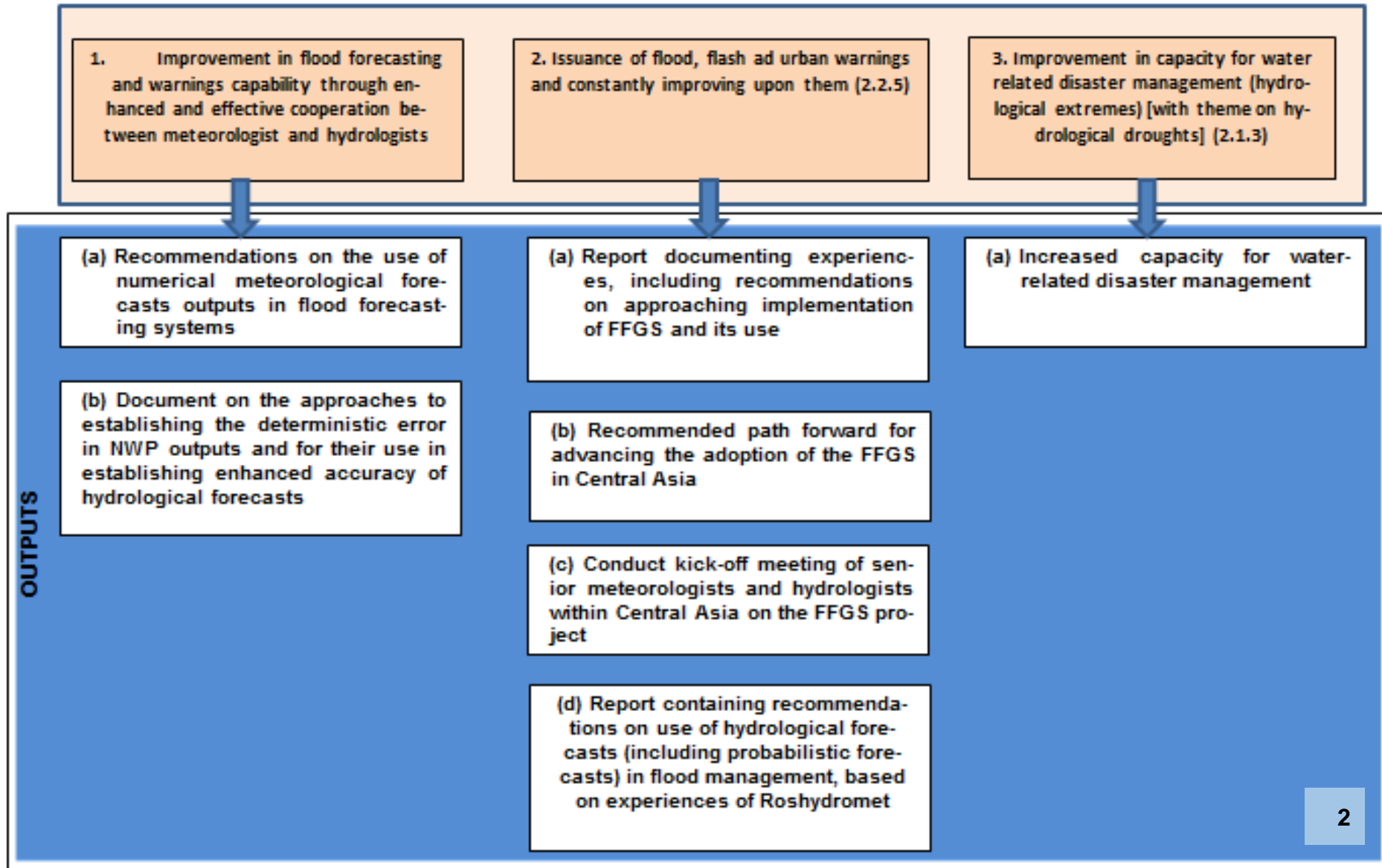
***"Flood forecasting"***

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The Amur River at Khabarovsk (August – September 2013)

There are three directions of activities in the Working Plan on the theme area “FLOOD FORECASTING”



## Activity Report for the period from October 2014 to March 2015

### 1. Improvement in hydrological warnings capability through enhanced and effective cooperation with other NMHSs

**Part (a).** *The background material and documents on the on the using of meteorological data and outputs of Numerical Meteorological Models in short-term hydrological forecasting were gathered. Here considered mainly the European experience. Documents on the experience of several countries in Asia are also available.*

*The following main problems will be studied in Recommendations:*

- 1. Goals and objectives of flood forecasting*
- 2. The methods and models used in floods forecasting*
- 3. Informational support of hydrological forecasting of floods*
  - 3.1. Hydro meteorological information that are needed in the design and use of hydrological methods and hydrological models for floods forecasting*
  - 3.2. Requirements to hydro-meteorological data during the development of methods and models to predict spring floods and rain floods in the plains and mountain basins*
  - 3.3. Requirements to hydro-meteorological data at release of hydrological forecasts*
  - 3.4. Requirements to accuracy and spatial and temporal resolution of meteorological models*
- 4. Recommendations on the use of outputs of numerical weather models in forecast of floods of different genesis (spring floods, rain floods in the lowland rivers, floods caused by typhoons and heavy rains, floods in mountain river basins)*

*- The preparing of first draft of Recommendations on the use of numerical weather prediction outputs in flood forecasting is in progress.*

## 1. Improvement in hydrological warnings capability through enhanced and effective cooperation with other NMHSs

**Part (b).** To prepare the Document on the approaches to establishing the deterministic error in NWP outputs and for their use in establishing enhanced accuracy of hydrological forecasts .

1. *Gathering of materials on the approaches to establishing the deterministic error in NWP outputs with the purpose for their use in establishing enhanced accuracy of hydrological forecasts is in progress.*
2. *In the Hydrometeorological Centre of Russia in 2013-2014 the automated system of flood forecasting in the basins of Amur, Kuban and the Black Sea coast Rivers were developed. This system is based on the use of outputs of meteorological models in flood forecasting technology. There are four meteorological models, which this system use – COSMO-RU, REGION, model NCEP (NWS USA) and model of UK Metoffice.*
3. *In 2015, during the period from June to September 2015 operational testing of the system will be conducted.*
4. *In a result of these tests the forecasting value of meteorological models, as well as the schemes of accounting the errors and uncertainties of meteorological models in floods forecasting will be considered .*
5. *The test results will be considered at a special meeting of the Hydrometeorological Center of Russia. Its can be the basis for the recommendations.*

## 2. Issuance of flood, flash and urban warnings and constantly improving upon them

**Part (a).** Report documenting experiences, including recommendations on approaching implementation of FFGS and its use

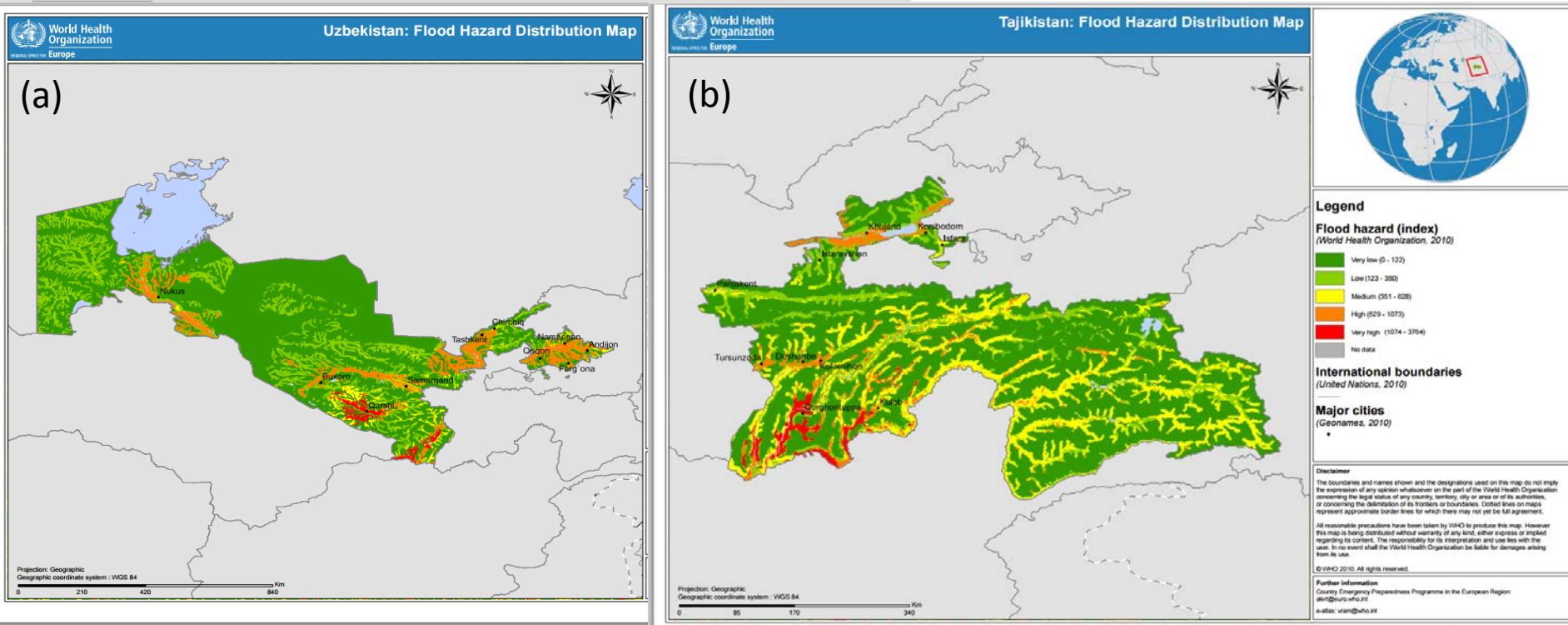
1. *The gathering of background material and documents on the FFGS and associated activities is in progress. The first draft of review on the experiences in the use of the Flash Flood Guidance System (FFGS) in some countries is in stage of developing.*
2. *Description of the system and its capabilities are prepared. Materials on the use of the system in different countries are collected and compiled.*

**Part (b).** To investigate the potential use of FFGS in Central Asian countries and facilitate its understanding by operational hydrologists in the region

1. *Under this theme, it is scheduled to prepare the recommendations on the potential use of the FFGS in the river basins of Central Asia. Materials about the division of the territory of Central Asian countries in terms of flood risk, the descriptions of river basin, where there are dangerous flooding, the mechanism of floods formation in Central Asia are gathering.*
2. *According Working plan the meetings with the experts of National Hydrological Services from the Central Asia countries on the FFGS use are provided. The first meeting will be held in May in Ankara (Turkey). Currently preparing for the meeting is held.*



2. Issuance of flood, flash and urban warnings and constantly improving upon them



**FLOOD HAZARD DISTRIBUTION MAP**  
 (a) – Uzbekistan; (b) - Tajikistan

2. Issuance of flood, flash and urban warnings and constantly improving upon them

**Part (c)** - To develop recommendations on use of hydrological forecasts (including probabilistic forecasts) in flood management

1. Recommendations for the use of short-term hydrological forecasts in various sectors of economy, including water management are prepared.
2. In 2015 Hydro-meteorological Centre of Russia the Recommendations on evaluation of skill and effectiveness of long-term, medium-term and short-term hydrological forecasts, as well as recommendations for the construction, testing and evaluation of effectiveness, efficiency forecasts issued in probabilistic form were prepared. The proposed rules and recommendations are based on the latest achievements in the field of statistical analysis of hydro-meteorological information. Their use allows to obtain an objective assessment of the quality of forecasting, choose from them the best options and charting the ways of their further improvement.

**3. Improvement in capacity for water related disaster management (hydrological extremes)**

**Part (c)** - To develop recommendations on use of hydrological forecasts (including probabilistic forecasts) in flood management

- 1. The development of plan and substantiation of expediency of carrying out of the Training session is in progress.*



Thank you for your attention!

