Data Requirements

For the development and operation of Flash Flood Guidance System, local historical and/or climatological hydrometeorological and geomorphologic, and real-time data are required. They are used for, among others, model parameterizations, calibrations, bias adjustments. Use of the higher resolution spatial and temporal local data in the FFG models is critical for the system performances. At the absence of local data, they will be obtained from international organizations like soil data from FAO (Food and Agricultural Organization). Therefore, participant countries are advised to collect, arrange and provide the following data types in required formats, depending on the availability of them.

A.   NMHS Capacity Information

Institutional capacities, responsibilities:

- Hydrometeorological observation network, data processing and visualization tools;
- River and flash flood forecasting and early warning tools;
- Nowcasting tools;
- QPE/QPF tools and models;
- IT capabilities; and
- Organization structure (forecasting department, regional offices etc.,).

B.   Spatial GIS Data, Maps

- Digital terrain elevation data (quality controlled);
- Stream network;
- Lakes/reservoirs/wetlands;
- Soil type, texture and depth;
- Vegetation cover, and land usage; and
- Monthly climatological maps of precipitation, temperature and potential evapotranspiration.

C.   Spatial GIS Data, Maps

Channel cross-sectional Information for natural channels with drainage areas less than 2,000 km^2. The following hydrometeorological data, 5-20 years in record length, preferable in digital format:

- Precipitation (hourly, daily, monthly), covering at least past 5 years as much as available;
- Surface air temperature (hourly, daily, monthly);
- Evapotranspiration/pan-evaporation (daily, monthly);
- Top soil moisture (daily, weekly, monthly);
- Streamflow discharge for local streams with drainage areas less than 2000 km^2 (hourly, daily, monthly);
- If streamflow discharge data are unavailable, stream stage data (hourly, daily, monthly) and associated stage-discharge curves (rating curves), also for local streams;
- Snow depth, snow water equivalent (SWE) and snow coverage (hourly, daily monthly);
- Flood frequency analysis (regional and local);
- Flash flood occurrences (regional and local);
- Stream geometry studies for small streams;
- Climatological precipitation and flood studies; and
- Karst flow measurement studies.

If above data are unavailable, such hydro-meteorological and climatological data as monthly precipitation; surface air temperature; pan-evaporation/evapotranspiration; soil moisture; stream flow; radiation; wind and humidity; snow depth, coverage and SWE should be provided.

D.   Real-Time Data Requirements

FFG system uses real-time meteorological observations in WMO synop format that are disseminated through WMO GTS, including the following parameters, among others:

- Precipitation;
- Surface temperature, humidity, wind speed/direction, pressure, solar radiation;
- Snow depth and SWE; and
- Snow moisture.

Besides the synoptic reports, if additional hydrometeorological observations are available, that would be transferred to the regional centre through ftp services, may improve the system performances.