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Flash Flood Wanting System For South Asian Countries

An aerial view shows submerged houses at a flooded area at Sonatola in the northern district of Bogra.
Source: *www.dhakatribune.com*

The India Meteorological Department (IMD) recently launched the South Asian Flash Flood Guidance System (FFGS), which is aimed at helping disaster management teams and governments make timely evacuation plans ahead of the actual event of flooding.

India is leading a delegation of nations, including Bhutan, Sri Lanka, Bangladesh and Nepal, in sharing hydrological and meteorological data towards preparing flash flood forecasts. India's National Disaster Management Authority and the Central Water Commission have also partnered in this system.

Data from World Meteorological Organisation (WMO) suggest that across the world, about 5,000 people die annually due to flash floods. Despite such high mortality, there is no robust forecasting or warning system for flash floods.

To tackle this challenge, the heads of meteorological and hydrological departments of the WMO and the five South Asian countries put forth their views and the urgent need for such a warning system, which has been developed by US-based Hydrologic Research Centre.

The Ministry of Earth Sciences (MoES), Government of India, highlighted that the frequency of extreme rainfall events has increased due to climate change and South Asia is highly prone to flash floods.

Forecasting flash floods is very difficult as an event can occur within three to six hours over a localised area and the water run-off quantity is very high. Flash floods can occur in cities and hilly regions.

As much as 80 per cent of natural disasters experienced in all these South Asian countries is contributed by erratic weather. Among these, flash floods… lead to heavy loss of lives and to property. In addition, the impact over South Asia increases many times due to varying topography — mountains, oceans, Eastern and Western Ghats, Myanmar hills and others.

Flash floods are sudden surges in water levels during or following an intense spell of rain, occurring in a short time duration over a localised area. The flood situation worsens in the presence of choked drainage lines or encroachments obstructing the natural flow of water.

The Flash Flood Guidance is a robust system designed by the IMD to provide the necessary products in real-time to support the development of warnings for flash floods about 6-12 hours in advance at the watershed level with a resolution of 4kmx4km for the Flash Flood prone South Asian countries -- India, Nepal, Bhutan, Bangladesh, and Sri Lanka.

IMD has tested the performance of the system during recent monsoon seasons in the preoperational mode and the Flash Flood Bulletins were issued to National Hydrological and Meteorological Services in the Region for its validation. The system has in-depth science, dynamics, and diagnostics to provide guidance for the possible occurrences of flash floods at the local level.

The System will give guidance for flash floods in the form of Threats (6 hours in advance) and Risks (24 hours in advance) will be provided by Regional Centre to National Meteorological & Hydrological Services, National and State Disaster Management Authorities, and all other stakeholders for taking necessary mitigation measures to reduce the loss of life and property in the South Asian Region countries. It will assist different stakeholders such as governments, re/insurers and various industries to manage their risks effectively.

Research suggests that the average annual overall loss from the many flash floods that occur every year is roughly equal to the loss from the rare but spectacular "once-in-a-century events" on major rivers.

Flash floods - in brief:

Cause	Threatened areas	Loss factors	Claims	Loss prevention
Mostly local/ regional heavy rain (thunderstorms)	Practically anywhere, even far away from rivers	- Mechanical impact of fast-flowing water - Possibly large amounts of sediment - Erosion	- High frequency (but not in the same place) - Relatively local	- Sufficient drainage systems - Suitable method of construction

The South Asia FFGS is funded by the United States Agency for International Development/Bureau for Humanitarian Assistance (USAID/BHA) and implemented by the World Meteorological Organization and the Hydrologic Research Center (HRC), while National Oceanic and Atmospheric Administration (NOAA) is a satellite data provider into the System.

It is part of a global FFGS which currently provides early warnings to three billion people – 40% of the world's population – across more than 60 countries.

In the latest incident involving flash floods, Hyderabad city in India was battered by heavy rain, resulting in massive flooding which inundated roads, earlier this month. As the city recorded 191 mm of rain within the span of a few hours,

Floodwater gushes through a street following Heavy Rains in Hyderabad, Oct 14, 2020 | Source: *www.indiatv.com*

the heaviest in 97 years recorded in October, several water bodies in Telangana's capital breached danger levels, worsening the overall flood situation.

A dedicated FFGS centre will be established in New Delhi, where weather modelling and analysis of rainfall data observations from member countries will be done.

Based on the rainfall and potential flooding scenario, flash flood warnings will be issued to respective nations. Flash flood threat warning will be issued six hours in advance, whereas flood risk warning will be issued 24 hours in advance. Warnings about watershed level will be issued 12 hours in advance.

The Indian Government officials urged the member nations to improve their weather observational networks so that more data, especially the soil moisture data, is available at the time of issuing warnings.

Source: *WMO, Munich Re, The Indian Express*