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MONSOON MONITORING & EARLY WARNING

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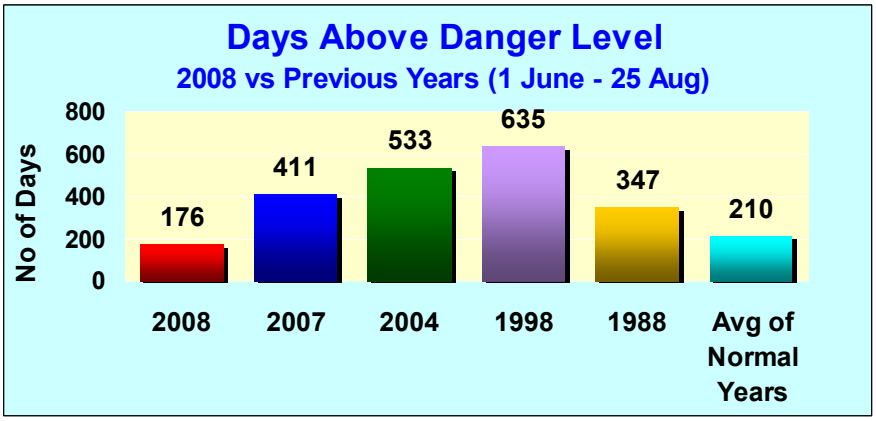
HIGHLIGHTS

- The risk of a large scale flood for the coming week is moderate.
- At sub-national scale; flood risk is higher for the North-Central and Central regions.
- As of this morning, ten FFWC river level monitoring stations were at or above danger level and seventeen were at warning level or higher. Out of a total of 73 stations, only 24 reported rising trends, 46 falling, and 2 steady.
- As of mid-day, India's Central Water Commission was reporting twelve river stations upstream and not far from Bangladesh above danger level; five in Assam, six in Bihar and one in West Bengal. Seventeen other stations were at or above warning level; six in Assam and eleven in Bihar.
- In comparison to last year (2007), river levels this year in Bangladesh have less frequently reached danger level during the period 1st June thru 25th August.

Historical Perspective Analysis: 2008 River Levels vs Previous Years

Each of the river level monitoring stations of Bangladesh's Flood Forecasting and Warning Center/ FFWC has its own designated "danger level". The number of days rivers flow at or above danger level at these stations can serve as a useful indicator for flood monitoring. The following analyses, conducted for the period 1st June thru 25th August for 26 key monitoring stations North of Dhaka, focuses on the following questions:

How many days have water levels been at or *above* danger level for 2008?
How does 2008 compare with the previous "mega flood years" of 2007, 2004, 1998, & 1988?
How does 2008 compare with the "normal years"?



The graph above shows relatively few days (176 during 2008) when rivers reached danger level for the stations considered. In comparison, during last year (2007), there were many more days (411) when these same rivers touched danger level or higher. Readers should be aware that results presented above, represent only a snap-shot in time (i.e., for the period 1 June thru 25 August). Using the FFWC data, WFP will update this analysis weekly through the 2008 Monsoon season. Results will change significantly (i.e., the inter year comparisons) as the season progresses. It is noticeable that the number of days rivers reached danger level in 2008 is below the average of normal years (210).

Note: 1) Period considered: 1st June thru 25th August, (2) Normal Years: 1986, 1987, 1989-1997, 1999-2003, 2005, 2006
3) Mega Flood Years: 2007, 2004, 1998, 1988, (4) Analysis based on 49,192 (26 x 86 x 22) river level observations during previous years.

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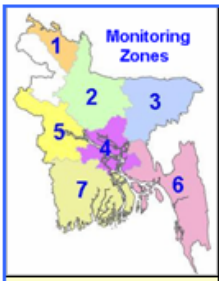
Monsoon 2008: Situation Map

- Within Bangladesh, ten FFWC river monitoring stations, in the districts of Sylhet, Manikganj, Madaripur, Munshiganj, Narayanganj, Rajbari and Nawabganj are presently at or above danger level. Seventeen other stations are at or above warning level, while the remaining 46 stations reported normal status.
- Upstream, in the neighboring Indian states of Assam, West Bengal and Bihar, twelve stations were above danger level. Seventeen were at or above warning level; six in Assam and eleven in Bihar (Note: not all stations are shown in the map above because of the map frame used).
- Moderate to heavy rain (70 mms or more in a day) recently fell within the districts of Jamalpur, Sunamganj and Panchagarh in the North. The same is true for the upstream neighboring Indian states of Assam, West Bengal and Bihar.
- Heavy to very heavy rains are expected during the next 48 hours in the Northern districts of Sylhet, Sunamganj, Netrokona, Mymensingh, Sherpur, Jamalpur, Kurigram, Rangpur and Nilphamari and in the Southeast near Chittagong. Outside Bangladesh, similar rain is also expected in the upstream Indian states of Assam, Meghalaya, West Bengal, Bihar, Tripura and in Bhutan.

Flood Risk Analysis

	Districts	River Basin	Heavy Rainfall events last 2 days (within zone)	Heavy Rainfall events last 2 days (upstream Basin)	River Levels (within zone)	River Levels (upstream basin)	Rainfall Forecast (next 48 hours)	Overall Flood Risk
Zone 1 North West	Panchagarh Nilphamari Lalmonirhat Rangpur	Tista	M	H	L	L	H	Low
Zone 2 North Central	Kurigram Gaibandha Jamalpur Sherpur Bogra Sirajganj Mymensingh Tangail	Brahmaputra/ Jamuna	M	H	M	M	H	High
Zone 3 North East	Sylhet Sunamganj Netrokona Kishoreganj Habiganj Moulavibazar Narsingdi Brahmanbaria	Meghna	M	L	H	L	H	Medium
Zone 4 Central	Dhaka Gazipur Manikganj Munshiganj Narayanganj Faridpur Madaripur Shariatpur Chandpur	Convergence of Brahmaputra, Padma and Meghna	L	M	H	M	M	High
Zone 5 West Central	Rajshahi Nawabganj Natore Pabna Kushtia Meherpur Chuadanga Jhenaidah Magura Rajbari	Padma/ Ganges	L	L	M	H	M	Medium
Zone 6 South East	Comilla Lakshmipur Noakhali Feni Chittagong Khagrachari Rangamati Bandarban Cox's bazar	Lower Meghna	L	L	L	H	H	Low
Zone 7 South West	Jessore Narail Gopalganj Satkhira Khulna Bagerhat Pirojpur Barisal Jhalokati Patuakhali Barguna Bhola	Coastal	L	L	L	H	L	Low

Methodology Used for Flood Risk Analysis (see matrix previous page)

Five simple indicators were used to estimate flood risk for seven zones within Bangladesh (see small inset map p-3). The indicators used are :

(a) Heavy rainfall events during the last 2 days within the zone.

(b) Heavy rainfall events during the last 2 days upstream from the zone

(c) River levels within the zone

(d) River levels upstream from the zone (either outside Bangladesh or inside)

(e) Rainfall forecast/expected within approximately the next 48 hours.

The threshold used for defining “heavy” rainfall was 70 mms or more within a 24 hour period. Regarding river levels, only those cases where rivers were “at warning level or above”, were considered. The amount of rainfall expected/ forecast varied both across and within zones. Some areas are expected to receive as little as 20-30 mms total in the next 2-3 days, while others are forecast to receive as much as 150 mms. A value of “low” in the table on page 3 will be closer to the low end of this range, a value of “high” will be closer to the high end.

All 5 indicators were used as inputs to determine “overall flood risk”. In order of importance, more consideration was given to “river levels within the zone”, moderate importance was given to river levels upstream and to recent rainfall upstream. Relatively lower consideration was given to rainfall in the zone and to the rainfall forecast.

Data and Information Sources

Rainfall Recent Past:
BMD/ Bangladesh Meteorological Department
FFWC/ Flood Forecasting and Warning Center: http://www.ffwc.gov.bd/
IMD/ Indian Meteorological Department: http://www.imd.gov.in
NASA TRMM/ Tropical Rainfall Measuring Mission: http://trmm.gsfc.nasa.gov/publications_dir/potential_flood.html

Rainfall Forecast:
CPC/ Climate Prediction Center: http://www.cpc.ncep.noaa.gov
IMD/ Indian Meteorological Department: http://www.imd.gov.in

River Levels:
FFWC/ Flood Forecasting and Warning Center: http://www.ffwc.gov.bd/
CWC/ Central Water Commission, India: http://www.india-water.com/ffs/index.htm

Note: 1. This Bulletin is available at WFP Bangladesh website at www.wfp.org/bangladesh and LCG DER Website at http://www.lcgbangladesh.org/derweb/index.php
2. Comments on this bulletin should be sent to mmew.bangladesh@wfp.org