



MONSOON MONITORING & EARLY WARNING

Issue 12/ 2008

16 September 2008

HIGHLIGHTS

- The risk of significant new flooding for the coming days is low.
- The overall flood situation in the Central and Northern part of the country has improved significantly in recent days.
- As of this morning, only two FFWC river level monitoring stations were at or above danger level and twelve were at warning level or higher. Out of a total of 73 stations, 8 reported rising trends, 58 falling, and 7 steady.
- As of mid-day, India's Central Water Commission was reporting only two river stations upstream and not far from Bangladesh above danger level; one in each of the states of Assam and Bihar. Five other stations were at or above warning level; four in Assam and one in West Bengal.
- In comparison to last year (2007), river levels this year in Bangladesh have less frequently reached danger level during the period 1st June thru 15th September.

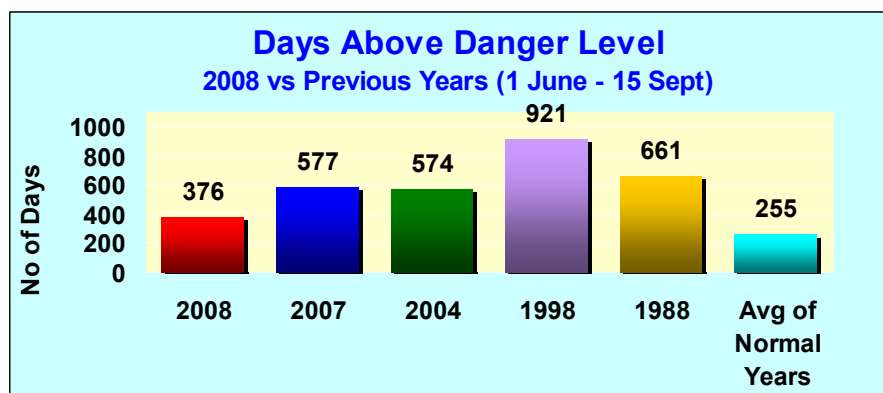
Historical Perspective Analysis: 2008 River Levels vs Previous Years

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 15th September 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 fewer days (376 during 2008) when rivers reached danger level for the stations considered. In comparison, during last year (2007), there were many more days (577) 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 15 September). **It is noticeable that the number of days rivers reached danger level in 2008 is above the average of normal years but significantly below the past mega flood years. This indicates relatively lower risk of flooding this year.**

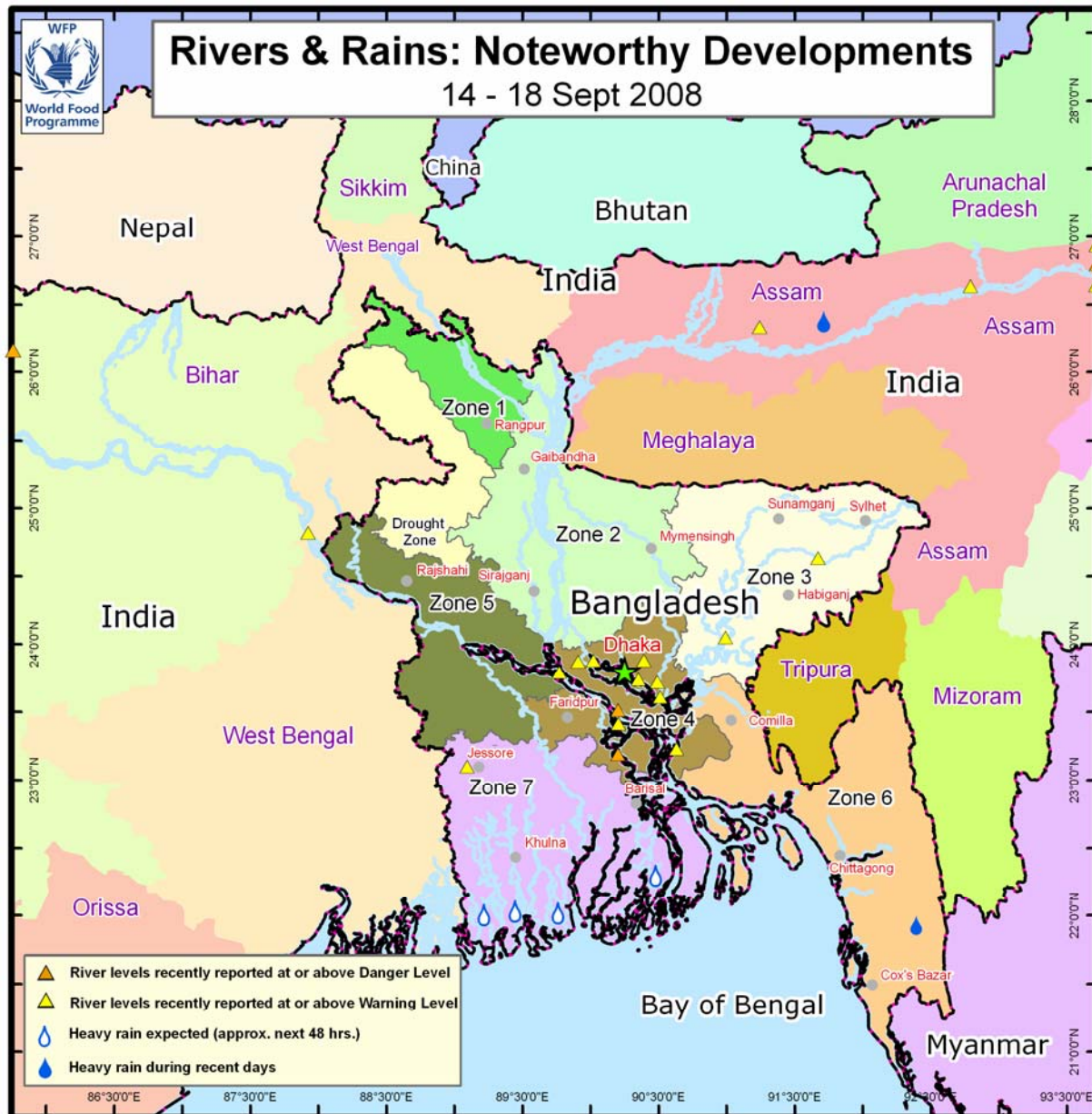
Note: 1) Period considered: 1st June thru 15th Sept, (2) Normal Years: 1986, 1987, 1989-1997, 1999-2003, 2005, 2006
3) Mega Flood Years: 2007, 2004, 1998, 1988, (4) Analysis based on 61,204 (26 x 107 x 22) river level observations during previous years.

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Monsoon 2008: Situation Map




- Within Bangladesh, two FFWC river monitoring stations, in the districts of Madaripur and Munshiganj are presently at or above danger level. Twelve other stations are at or above warning level, while the remaining 59 stations reported normal status.
- Upstream, in the neighboring Indian states of Assam and Bihar, two stations were above danger level. Five were at or above warning level; four in Assam and one in West Bengal (Note: not all stations are shown in the map above because of the map frame used).
- Heavy rain (70 mms or more in a day) recently fell within Bangladesh in the district of Bandarban as well as in the upstream neighboring Indian state of Assam.
- Moderate to heavy rains are expected during the next 48 hours in the Southwest districts of Satkhira, Khulna, Bagerhat, Pirojpur, Barguna, Patuakhali and Bhola. Outside Bangladesh, light to moderate rain is expected in the upstream Indian states of Assam, Meghalaya, West Bengal and in Bhutan.

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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	L	L	L	L	L	Low
Zone 2 North Central	Kurigram Gaibandha Jamalpur Sherpur Bogra Sirajganj Mymensingh Tangail	Brahmaputra/ Jamuna	L	L	L	M	L	Low
Zone 3 North East	Sylhet Sunamganj Netrokona Kishoreganj Habiganj Moulavibazar Narsingdi Brahmanbaria	Meghna	L	L	L	L	L	Low
Zone 4 Central	Dhaka Gazipur Manikganj Munshiganj Narayanganj Faridpur Madaripur Shariatpur Chandpur	Convergence of Brahmaputra, Padma and Meghna	L	L	H	L	L	Medium
Zone 5 West Central	Rajshahi Nawabganj Natore Pabna Kushtia Meherpur Chuadanga Jhenaidah Magura Rajbari	Padma/ Ganges	L	L	L	L	L	Low
Zone 6 South East	Comilla Lakshmipur Noakhali Feni Chittagong Khagrachari Rangamati Bandarban Cox's bazar	Lower Meghna	L	L	L	H	L	Low
Zone 7 South West	Jessore Narail Gopalganj Satkhira Khulna Bagerhat Pirojpur Barisal Jhalokati Patuakhali Barguna Bhola	Coastal	L	L	L	H	M	Medium

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 5 - 10 mms total in the next 2-3 days, while others are forecast to receive as much as 75 - 100 mms. A value of “low” in the table on page 3 will be closer to the low end of this range, a value of “medium” 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>

Flood Situation and Humanitarian Response:

WFP Bangladesh Sub-Offices and GoB DMB Disaster Management Information Center (DMIC)

- 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