OCTOBER- DECEMBER 2012

PROGRAM UPDATE

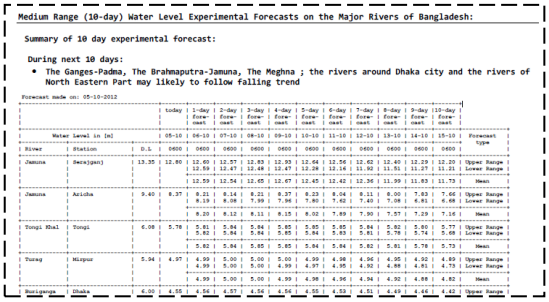
ENHANCE EARLY WARNING SYSTEM FOR COMMUNITY BASED RESPONSE IN BANGLADESH

A. 1-10 DAY FLOOD FORECASTS

Operationalize and dissemination of 1-10 days Flood Forecasts

October 2012

The 1-10 days operational flood forecasts for the three river basins (Ganges, Brahmaputra & Meghna) continued till 30th October 2012. This year model provided skillful forecast for 1-10 days and successfully disseminated to the community though SMS and Union Information Center via e-mail. An evaluation for the 2012 forecasts is going on. The report will be shared with the Government and CARE Bangladesh in next quarter. In November 2012, an qualitative assessment was conducted on the dissemination procedure, accessibility and community understanding on the 10 days forecasts products. Discussions was conducted with the chairman of the pilot areas. The chairman informed that, 'UDMC are well aware of the forecasts products it empowers individuals and flood vulnerable communities to respond appropriately'. The information also reach to other sectors (i.e. agriculture, fisheries, livestock and poultry, households and homestead, local business, heath, water sources and sanitations and communication) and had a good influences on decision making.



Medium Range (10-day) Water Level Experimental Forecasts on the Major Rivers of Bangladesh:

Summary of 10 day experimental forecast:

During next 10 days:

- The Ganges-Padma, The Brahmaputra-Jamuna, The Meghna ; the rivers around Dhaka city and the rivers of North Eastern Part may likely to follow falling trend

Forecast made on: 05-10-2012

River	Station	D.L	today 05-10	1-day fore-cast 06-10	2-day fore-cast 07-10	3-day fore-cast 08-10	4-day fore-cast 09-10	5-day fore-cast 10-10	6-day fore-cast 11-10	7-day fore-cast 12-10	8-day fore-cast 13-10	9-day fore-cast 14-10	10-day fore-cast 15-10	Forecast type
Water Level in (m)														
Jamuna	Serajganj	13.35	12.80	12.69	12.57	12.83	12.93	12.64	12.56	12.62	12.40	12.29	12.20	Upper Range
				12.59	12.47	12.48	12.47	12.28	12.16	11.92	11.51	11.27	11.21	Lower Range
				12.59	12.54	12.65	12.67	12.45	12.42	12.36	11.99	11.83	11.73	Mean
Jamuna	Aricha	9.40	8.37	8.21	8.14	8.21	8.37	8.23	8.04	8.11	8.00	7.83	7.66	Upper Range
				8.19	8.08	7.99	7.96	7.80	7.62	7.40	7.08	6.81	6.66	Lower Range
				8.20	8.12	8.11	8.15	8.02	7.89	7.90	7.57	7.29	7.16	Mean
Tongi Khal	Tongi	6.08	5.78	5.81	5.84	5.84	5.85	5.85	5.85	5.84	5.82	5.80	5.77	Upper Range
				5.82	5.84	5.84	5.85	5.84	5.83	5.81	5.78	5.74	5.68	Lower Range
				5.82	5.84	5.85	5.85	5.84	5.84	5.82	5.81	5.78	5.73	Mean
Turag	Mirpur	5.94	4.97	4.99	5.00	5.00	5.00	4.99	4.98	4.96	4.95	4.92	4.89	Upper Range
				4.99	5.00	5.00	4.99	4.97	4.95	4.92	4.88	4.81	4.73	Lower Range
				4.99	5.00	5.00	4.99	4.98	4.96	4.94	4.92	4.88	4.82	Mean
Buriganga	Dhaka	6.00	4.55	4.56	4.57	4.56	4.56	4.55	4.53	4.51	4.49	4.46	4.42	Upper Range

Figure: 1-10 day flood forecast

Site profiling and field data collection

November 2012

Figure: UDMC meeting at Maijbari, Kazipur, Serajganj

FFWC together with RIMES staff visited the 2 pilot sites (Maijbari, Kazipur, Sirajganj on 14 November 2012 and Haturia Nakalia, Bera, Pabna on 15 November 2012) to collect biophysical and socioeconomic data. Early warning system audit was conducted for assessing current early warning system, gaps and needs. A meeting also conducted together with the Union Disaster Management Committee (UDMC), Sub Assistant Agriculture Officer and local elites

for familiarization with local demographic condition, possible way to early warning dissemination process, using early warning in different sectors and installation of local water level gauges and maintenance. Moreover, a reconnaissance was conducted for assessing the socio-economic data collection. Finally a site visit conducted to be familiarized with flood zones in model input; existing water gauge condition and probable site for installing new gauge. Some findings in the field visits were:

- Both Maijbari and Haturia Nakalia are affected by river flood and erosion every year and the most affected sector in river flooding in both areas is agriculture. Flood often strikes in both areas in the vegetative stage of transplant Aman and pre-harvesting stage of jute, reproductive stage of broadcast Aman, ripening stage of Boro and vegetative stage of vegetables;
- Maijbari UDMC has their own technique to disseminate flood forecast to the low-lying areas. They collect information from local Bangladesh Water Development Board officials and they disseminate it though different flagging system. Haturia Nakalia UDMC mostly rely on local perceptions and sometimes use information in TV, Radio etc but the acceptability is very low;
- In field visit and reconnaissance survey, it was found that the river bank near Maijbari is not stable and it is very much vulnerable and susceptible to flood. In Haturia Nakalia, the river bank is very much stable and well protected by Bangladesh Water Development Board embankment.

B. FLASH FLOOD FORECASTING AND APPLICATION

Flash Flood Forecast Model

October-December 2012

RIMES is developing flash flood model using Arc SWAT based on ECMWF rainfall forecasts, other Numerical Weather Prediction System, hydrological model data as well as historical rainfall pattern. The web based flash flood guidance is in development stage and will be operationalize in coming March 2013. The IWM with support from CDMP is working on to extend the 2-3 days deterministic model up to 5 days and development of flash flood forecasting system.

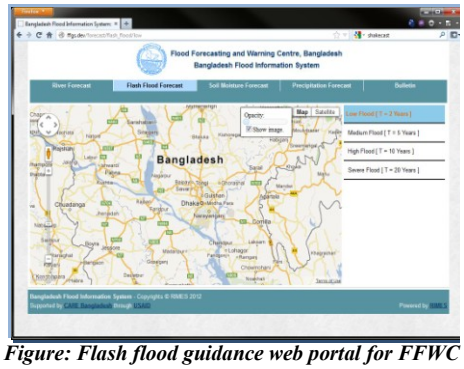


Figure: Flash flood guidance web portal for FFWC

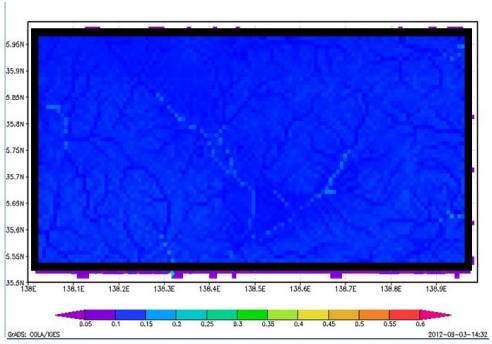
RIMES has attended their last progress meeting held in BWDB on 24 December 2012 and shared the technique and methodology on the flash flood model. There is no overlapping on the project though. It has to be mentioned here that IWM will be using RIMES rainfall product to run their hydrological model for the flash flood. Whereas, RIMES follows data-based approach to estimate threshold rainfall based on past rainfall and flash flood records. The rainfall events corresponding to flash flood events at different times have been selected and analyzed further to identify the threshold values of different intensity to generate flash floods in the area. This is a site-specific method which is better suited to develop threshold-based flash flood early warning system in that particular area. These threshold values will be stored in the database. When there is a rainfall forecast, the forecast rainfall depths are compared with the threshold values and if the rainfall is

greater than or equal to the threshold value, then warning is issued for that location. This method is called the Threshold-Runoff Mapping. Two models could be enhance the confidence level of the forecasts.

C. OPERATIONALIZE 20-25 DAY AND SEASONAL FORECASTS

Seasonal Forecasts Model

October-December 2012

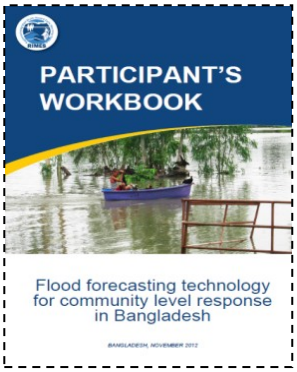


To provide the river basin outlook 1K FRM model has been operationalize. This model will be handover to FFWC in May 2013. The model provide river basin outlook for 1-30 days. The forecasts information will be sent to 15 pilot unions as based on the discussions with the participants in the training. Everyone has expressed interest to receive the information even though it is 40-50 percent probabilistic. The Government is keen to formally launching the different scheme of forecasts products by the Hon'ble Prime Minister. This is still under discussions.

D. TRAINING

Community level training for enhancing early warning

December 2012



Two training was conducted in Kurigram and Shahzadpur on 26 and 27 December based on the newly training manual prepared for flood forecasting technology and application at community level. The training modules covers Bangladesh flood pattern; different early warning systems and its use; community level flood forecasting and preparedness, etc. The manual is also translated into Bengali. a total 30 participants from local government, CARE partners and BWDB were attended the training. The training proceeding report, Revised training manual (Bangla and English) will be shared with Government of Bangladesh (GoB) and CARE Bangladesh within January 2013. The training provided an in-depth knowledge to understanding of flood hazards, vulnerability, risk assessment, and management methods; appreciation of the role that local knowledge and community level perspectives can play in flood risk management; introduction to social hazard mapping techniques, valuing the process of community participation; introduction to various forecasting agencies; their forecasting tools and their use ; better understanding of ensemble forecast products. Also the format of the SMS has been changed based on the discussions with the participants from this year.

E. TRAVEL

RIMES staff has been traveled to Bangladesh to conduct the community level training and meeting with CARE and FFWC.

F. UPCOMING ACTIVITIES: January-March 2012

1. Evaluation report for flood 2012.
2.Training at FFWC staff on flood forecasting models for 2013 and seasonal forecasting technology in Bangladesh.
3. Operational and functional flash flood forecast.