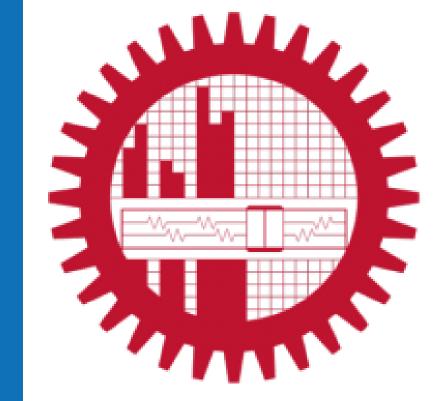


### Community-led Anticipatory Actions for Flash Floods: Lessons Learned from the Last-mile Community during 2022 Extreme Event in North-Eastern Bangladesh

Md Rayhan, Md. Hasanur Rahman, Rashel Dewyan, Shampa\*, Sonia Binte Murshed, Shammi Haque Institute of Water and Flood Management (IWFM), Bangladesh University of Engineering and Technology (BUET)



#### 1. Introduction

Forecast-Based Early Action (FbA) is a promising disaster risk reduction technique where communities take proactive steps with the help of accurate forecasting before a disaster strikes. Timely FbA can save more lives and minimize impacts on communities in emergency and recovery stages. However, the FbA needs some specific forecast window (e.g., 7 to 9 days) from impact identification to intervention deployment. For cases of rapid on-set disasters like flash floods (FF), such forecast windows is difficult to identify as these disasters occur within 5/6 hours.

In this study, we focus on how the last mile community takes anticipatory action (AA) in such cases.

#### 2. Objectives

- To investigate how to improve more effective & inclusive forecasting.
- To investigate community-led AA during normal & extreme FF events.

# 3. Background & Study Area Water Level vs Date (Laurergarh Saktiarkhola)

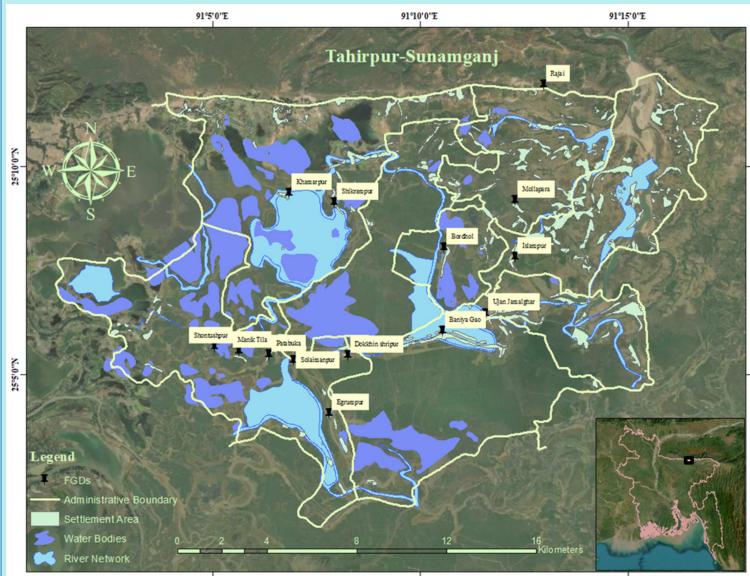
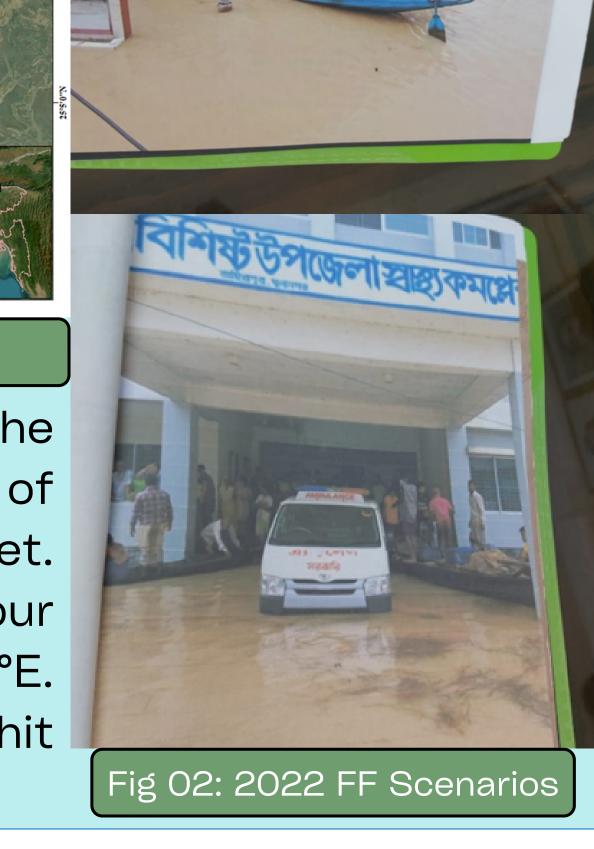


Fig 01: Tahirpur Upazila, Sunamganj Tahirpur is an upazila in the District Sunamganj Bangladesh's Division of Sylhet. The coordinates for Tahirpur Upazila are 25.0917°N 91.1750°E. It was one of the worst hit regions in 2022 FF.



# Qualitative Survey Bangladesh Meteorological

Agriculture

<u>imitations</u>

messages.

## 4. Methodology Focus Group Discussion (FGDs)

Flood Forecast 8

Warning Center

(FFWC)

District

4. ManikTila

5. Patabuka

7. Egrumpur

**National Level** 

**Local Government Level** 

**Locality Level** 

Miking (

The Miking System not being executed

village which disrupts spreading news

Short period to take action or receive

Upazila Nirbahi

Participants (Persons) 1. Village Community(12) 8. Dokkhinshripur 2.Old People(10) 2. Khamarpur 3.Cluster(7) 3. Shontushpur 10. UjanJamalghar 4. Fisheries (8)

11. Baniya Gao 5. Farmer(11) 12. Bordhol 6. Bazar Community(10) 13. Islampur 7. Female & Disable 14. Mollapara People(12)

1.BDRCS Official 8. Young Farmers(13) 2.BDRCS Volunteer 9. Day Labor(10) 3.Upazila Chairman 10. Farmer(15) 11. Mixed(8) 12. School Personnel(14)

4.Upazila Health Officer 5. Secretary of Business Association 6. UNO Employee

7. Upazila Agricultural Officer 8. Upazila Education Officer 9. LGED Sub Assistant Engineer 10. Official of CNRS 11. Former UNO 12. Upazila Agricultural Office

Key Informant Interviews (Klls)

Government and Private Official

Fig 03: Focus Group Discussions

Field Work



#### 5. Findings Early Warning Message Spreading Frame Work

# Indigenous Knowledge

People in Tahirpur Upazila can observe Waterfall in Indian Hills from Bangladesh side & predict FFs subsequently.

13. Male and Female(11)

14. Female(9)

- Similarly, they observe Rainfall and flow of water in upper Indian side to assume the arrival of monsoon flash floods.
- Residents attentively investigate clouds in the sky and note the presence of stormy winds, particularly southwesterl winds blowing from India.
- During monsoon, people constantly monitor the water levels in the Jadukata and Patlai Rivers.
- According to a few elderly fishermen, excessive with cool temperature water in the Jadukata and Patlai rivers implies a post-monsoon
- Discernible distance from village to Residents stated that closure water levels and sluice gate water levels assist them in forecasting imminent FFs.

# Local Anticipatory Actions Taken by the Inhabitants

- Raise Plinth Level of their House with sand bags & bamboo sticks and seldom with CC blocks.
- Install lofts in homes to raise household items (beds & tables).
- Plant Protective Plants (Hijal, Karach, and Haor forests) to protect homes from Apal (the flood wave). • Build Storage platforms (Macha) to store dry foods &
- craft Portable stoves. Fill Cement bags with soil or sand to use as protection
- Use bricks to raise the height of household items such as beds and tables.
- Raise Latrines & Sanitation System levels for protecting from contamination & continuing usability.

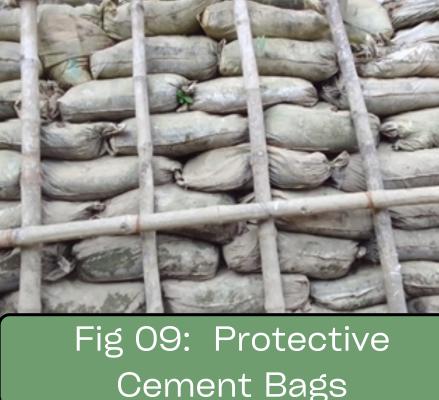






against waves.





#### 6. Discussion & Conclusion

- Conducted FGDs and KIIs concluded that the local people have some indigenous knowledge that they use to predict the occurrence of flash floods.
- Additionally, The community people take some adaptive actions (AAs) before any FF happens. These actions and techniques used by the local people can be beneficial for other parts of the world to learn from, particularly as the world experiences more FFs due to climate change.
- By implementing indicator systems with scientific knowledge, the damage caused by flash floods can be minimized.
- The Northeast region of Bangladesh has a long history of flash floods, so the solution developed could be helpful for other flood-prone areas.