EXECUTIVE SUMMARY

Global Disaster Preparedness Center

Community-led Early Actions (EA)s on Flash Flood Events in North-Eastern Bangladesh

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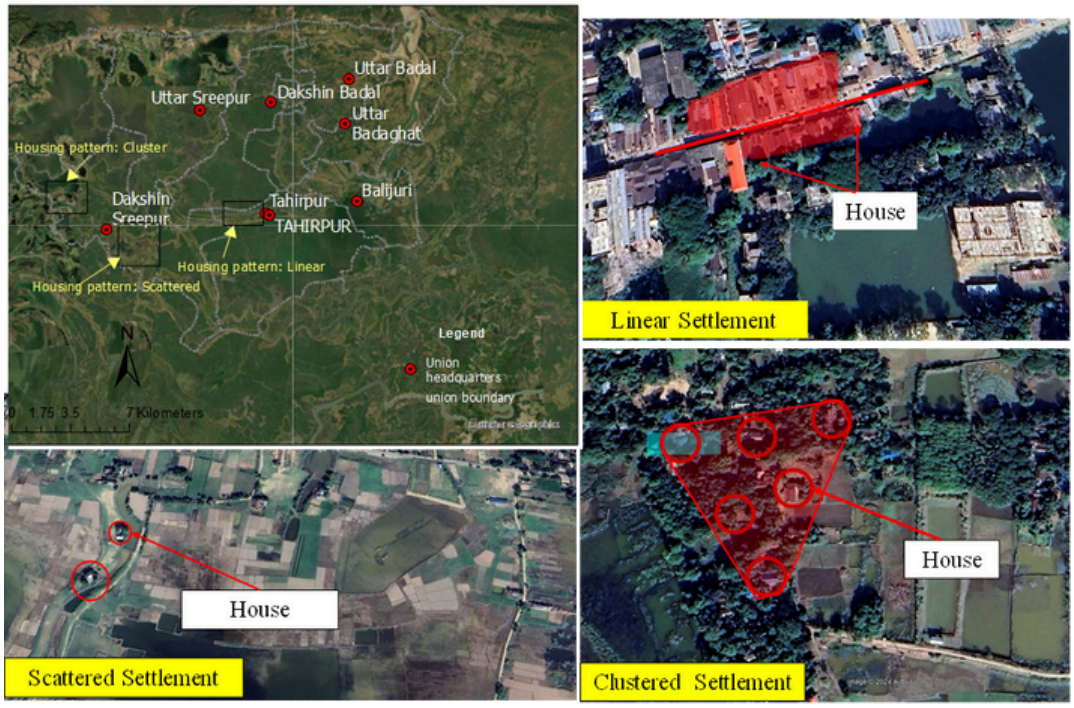
Flash flood forecasting and management present a significant global challenge. Critical factors such as risk perception, timely forecasting, effective communication, and the capacity to respond play key roles in reducing flash flood risks at the community level. Despite the availability of early warning messages (EWMs), they do not always lead to early actions (EAs) being taken. This study investigates community-led EAs during the 2022 flash floods in northeastern Bangladesh, focusing on how local solutions can enhance the accessibility, relevance, and inclusivity of EWMs for last-mile communities. Using both quantitative and qualitative data, the study focuses on Tahirpur, a region heavily impacted by the 2022 floods.

In Tahirpur, last-mile communities do not reside in distinct geographic areas but are spread across the same region, experiencing more social isolation due to scattered housing patterns, unlike settlements with more clustered or linear housing plans.

In these dispersed areas, residents often lack the close neighbors and social support available in more densely populated settlements, leaving them socially disconnected and with fewer community resources. **These isolated communities were less likely to receive official EWMs**—only 23% did during the 2022 floods.

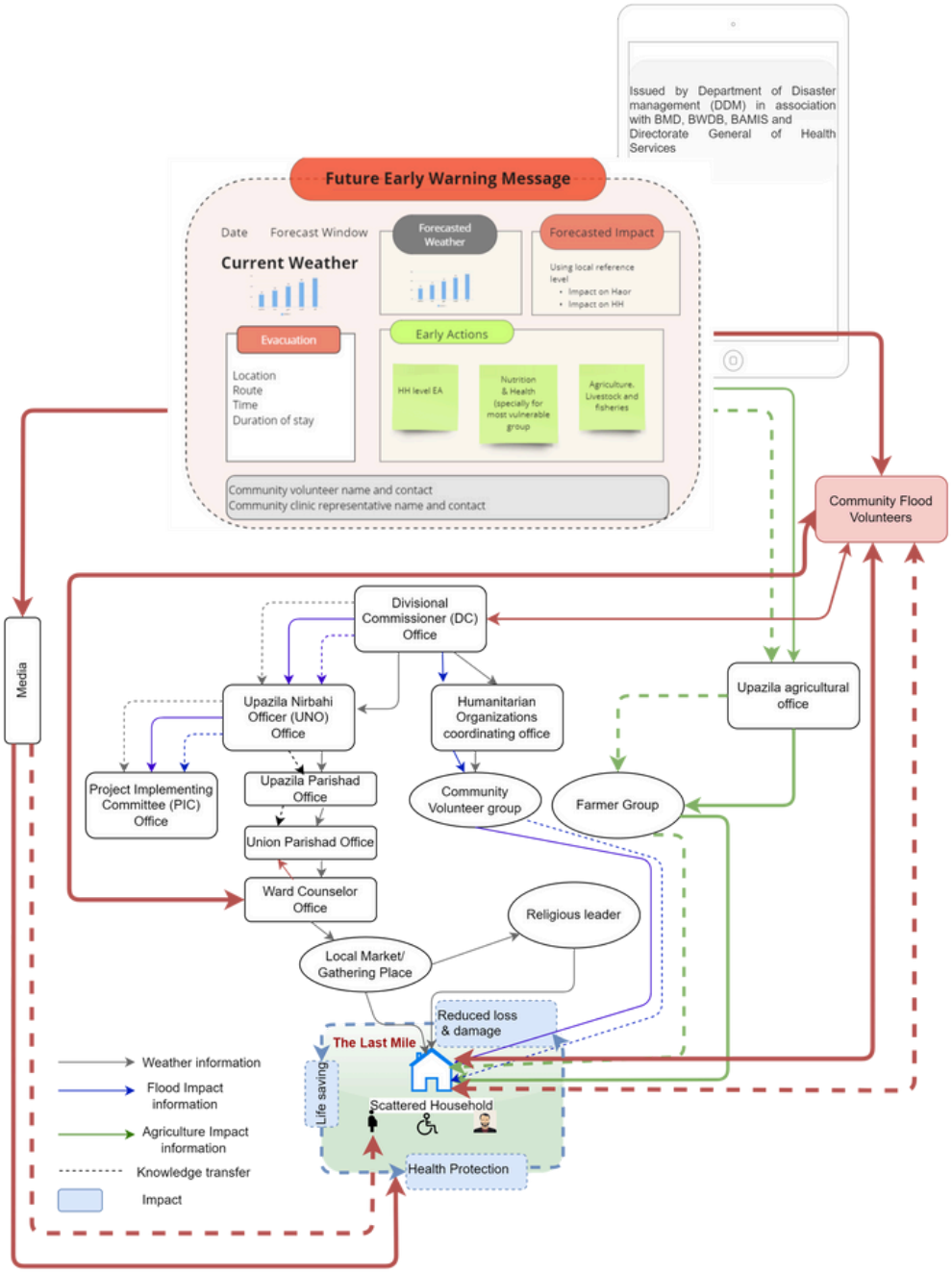


Settlement patterns in Tahirpur

Despite this, **the study found no significant difference in the EAs taken by those who received EWMs and those who did not**. Both groups relied heavily on indigenous knowledge—observing rainfall, cloud formations, wind patterns, and river level changes—to guide their actions. **Gaps in the official EWM**, such as forecast uncertainty and lack of context, **were filled by the community's use of traditional practices**. The EAs taken by both groups were similar, with most actions requiring three to four hours to complete.

The current **EWM provides only agricultural-related information, missing other important details such as shelter and evacuation procedures**. Moreover, the existing EWM content does not include any protective measures for vulnerable groups in last-mile communities, such as pregnant women and the elderly. This study proposes an updated EWM, which would include both current and projected weather information, as well as potential impacts, based on local reference levels.

The revised EWM should clearly outline evacuation sites, routes, timings, and duration of stay; various possible EAs, including household-level, nutrition, and health actions; and provide guidance on agriculture, livestock, and fisheries. It should also include contact details for community flood volunteers and clinic representatives.



The proposed EWM and its ecosystem and impact pathway (proposed by the authors).

The formation of local volunteer groups, community patrols, improved coordination among weather and impact forecasting agencies, enhanced transportation, and better communication can all reduce flood impacts. During the severe 2022 flood, **residents of Uttar Sripur (a union in Tahirpur) voluntarily formed a local volunteer group, which was the only group to assist the most vulnerable individuals**. Improving water, sanitation, and hygiene (WASH) facilities can also strengthen EAs. Findings revealed that women were particularly affected by toilet overflows during floods, highlighting the potential benefit of elevating and reinforcing toilets as part of EAs.

These strategies are designed to enhance the safety and well-being of all community members, particularly in last-mile communities, by addressing their unique needs, such as personal communication through local volunteers, increasing boat availability for evacuation, and incorporating community feedback into planning and implementation.

Raising the plinth level of houses is a common flood preparation action in the community. During the dry season, soil is collected from riverbeds to elevate homes, with bamboo sticks or sand-filled cement bags used to prevent erosion from wave action. Wealthier residents may use CC blocks or bricks for added protection.

Follow this link to read the full paper.