

ASSESSMENT OF VULNERABILITY AND IDENTIFICATION OF ADAPTATION STRATEGIES IN HAOR REGION, BANGLADESH :A Case Study on Tahirpur Upazila, Sunamganj district, and Itna Upazila, Kishoreganj district

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Tahsin Tabassum^{1*}, Md. Mahjib Hossain¹, Sharmin Nahar Nipa¹, Roufa Khanum¹, and Dr. Ainun Nishat¹

¹ Centre for Climate Change and Environmental Research (C3ER), BRAC University,
Dhaka 1212, Bangladesh,
Dhaka-1000, Bangladesh, * e-mail: tahsin.tabassum@gmail.com

1. INTRODUCTION

The Haor, the most productive wetlands of the country are becoming vulnerable day by day due to increase of intensity and frequency of hydro meteorological hazards accelerating by climate change as well as ill management, overexploitation of resources. Pre-monsoon flash floods are among the major disasters which engulf the primary production sector and thus threaten the lives and livelihoods of the haor inhabitants (MoWR, 2012). The damage caused by flash floods in the haor area during the pre-monsoon season directly impacts the Boro rice production, submergible embankments and houses through rapid inundation (Anon., 2019).. The additional water from the eastern Himalayan Rivers is likely to cause drainage congestion, which in turn will aggravate the flood situation in haor areas (Kamruzzaman & Shaw, 2018). Moreover, Unplanned fishing, fishing in the breeding season, overfishing, hunting waterbird and other factors are causing depletion of biodiversity (MoWR, 2012). This study aims to identify the vulnerable impacts along with locally led adaptation strategies due to climatic as well as human induced hazards in the selected area of the haor region. This study tried to identify potential adaptive strategies proposed by community as well as existing livelihood and legislative framework. The study will help the improved livelihoods of the local community, along with the development of sustainable infrastructure and water governance.

2. METHODOLOGY

The study was conducted in two selected areas such as Tahirpur Upazila, Sunamganj district, and Itna Upazila, Kishoreganj district, based on the vulnerability due to environmental calamities. After the literature review of studies, all the plans, and development initiatives related to water management, agricultural practices, and livelihood opportunities, a vulnerability assessment was conducted through a short field visit. A series of 4 Focus Group Discussions with the local community and 6 Key Informant Interviews with government officials were to identify, qualify and prioritize the vulnerable issues in the study area. The vulnerability impact assessment evaluated the climatic and partly human-induced hazards in the haor regions with impacts and potential threats to infrastructure, population, plant and animal species, and ecosystems. Later, an Adaptation Strategies Framework was prepared to address the recurrent and potential impacts of hazardous events and concurrently explain the existing policies/acts response against those impacts considering community-based solutions, expert opinions, and policy feasibility. The gaps between current adaptation practices and existing policies were also identified in the study.

3. RESULT AND DISCUSSION

According to the vulnerability impact analysis, the vulnerable issues are flash floods, seasonal floods, tropical storms, hailstorms, droughts, afal or high waves produced by gusty wind, pests, and livelihood. The study identified damage to infrastructures (physical), loss of crops, livestock and fisheries (biological), degradation of the ecosystem and change of rainfall (ecological), riverbank erosion, navigability reduction, drinking water scarcity (hydrological), etc., as the most common impacts and potential threats to infrastructure, population, plant, and animal species, and ecosystems due to different disasters.

Both in Tahirpur and Itna Upazilas, most of the people considered flash floods (12%), health and disease (11%), and monsoon floods (9%) to be the significant vulnerable issues. In contrast, hailstorms, fog, and drought significantly impact their livelihoods simultaneously.

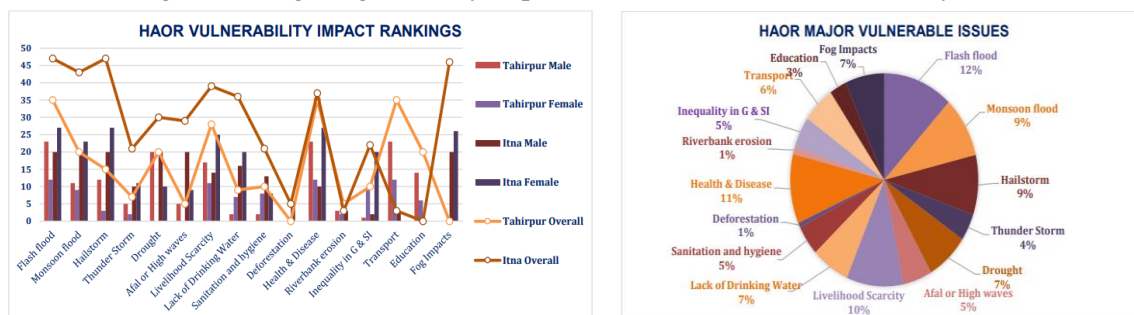


Figure 1: Haor Vulnerability Impact Rankings based on FGDs at Tahirpur, Sunamganj and Itna, Kishoreganj (Left) and Major Vulnerabilities of Haor Based on Direct Impacts on the Local Community (Right)

The study identified that the existing adaptive measure in the haor area is using sandbags and stone blocks to protect houses from flash floods and Afal. People also raise the house platform as an alternative to the sandbag and stone. Upazila administration provides relief, including rice, for each family in the flood affected area. Farmers are also provided with fertilizer, seeds, etc. when their crops got damaged due to disaster.

The major recommendations were the introduction of cold-tolerant paddy and short-duration crops, organizing awareness-raising programs, establishing safe shelters (Killa) for preserving crops, etc. As potential adaptive measures, the participants emphasized increasing embankment height; establishing flood shelter; dredging of river training; introducing drainage system; setting up a shelter in the vicinity of crop fields; plantation of palm, coconut, and date trees for lightening as significant adaptation and mitigation strategies to live with climate change and maintain their livelihood as well. Other measures like arsenic-free tube-well facility, deep tube well installation; filtration system for safe drinking water; expert doctors' availability; RCC road construction, large-scale livestock farming; crop storage system, etc. were proposed adaptation strategies by the community

4. CONCLUSION

The study illustrated the visible impacts of climate change in the study areas which are already started multiplying vulnerabilities of the hair region. Unique geographical condition and hydrological characteristics of haor regions of Bangladesh make highly vulnerable the livelihood patterns of the community in terms of incomes, livelihood options, properties and infrastructures, basic amenities and skills. The gap in the modality for coordination found in the study among the key stakeholders in executing and maintaining the disaster adaptation measures should be acknowledged. Allocating adequate resources, effective planning and implementation of any adaptation measures with considering local people involvement, mainstreaming disaster risk

reduction development initiatives are vital agendas that should be taken into account for the improvement of the socio-economic and environmental conditions of the entire haor region.

5. REFERENCES

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