



# Assessment of flood vulnerability and adaptation: A study on smallholders in Gaibandha district, Bangladesh

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## ABSTRACT

*Disaster, vulnerability and adaptation have been the highly recognized studies in the contemporary globalized environment. The primary purpose of the study is to assess the flood vulnerabilities and adaptation strategies of smallholders in Gaibandha, a northern district of Bangladesh. The primary data of the study were collected from 110 respondents of five villages in Saghata Upazila who had been randomly selected by using survey questionnaire. Employing descriptive statistical tools, such as frequency test to explore the research objectives, the research data were collected from January 11 to May 20 in 2022. The study has discovered several determinants of flood vulnerability, such as less education, more frequencies of flood events, heavy rainfall, acute dependency to nature for cultivation, insufficient relief, faulty cropping system, lack of advanced infrastructure and lack of resilience. The study also found out various challenges to adaptation; i.e. resource scarcity, lack of alternative livelihood options, poor employment status, lack of early preparation and experiences, inadequate flood resistant cropping and lack of fund to tackle recurrent flood events in the study area. At final stage, several recommendations are suggested including both the government and international policies of disaster management for successful flood adaptations in the study region.*

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## Introduction

As a densely-populated and low-lying country, Bangladesh is located in South Asia, has a strong connection of rivers making largest sedimentary deposits around the globe (Akter et al., 2016; Alam, 1996). With a long coastline on the northern littoral of the Bay of Bengal, Bangladesh lies in the Ganges-Brahmaputra-Meghna (GBM) delta which increase the range of flood events (Brown et al., 2018; ESPA,

2018; Islam, 2016). For this, Bangladesh has identified climate change as rapidly emerging issue, though the developed world is primarily responsible for maximum carbon and greenhouse gas emissions, the Third World countries like Bangladesh are the core victims of the adverse effects of climate change and socio-economic and political spheres are also being influenced by it. In fact, during monsoon 30-35% of the total surface of Bangladesh is being flooded every