

Background

- The global impact of climate change is now more apparent than ever
- Changes in precipitation and temperature regimes, coupled with depleting groundwater, pose substantial threats to food security in different communities and regions worldwide
- Consequently, any benefits of the growth and developments in agricultural sectors of the developing countries are attenuated due to the slippery slope effect of groundwater loss, exacerbated by climate change
- This study aims to understand the perceived impacts of climate change in one of the drought-prone areas in Bangladesh

Guiding Research Questions

1. What are the perceived impacts of climate change among farmers?
2. How does this climate change affect cropping patterns and people's adaptive behaviors?

Methods

- The study adopted a qualitative methodology
- The primary source of information for this study comprised 50 in-depth interviews (IDI), 10 case studies, 05 key informant interviews (KII), and 04 focus group discussions
- Participants were selected via purposeful sampling
- The respondents of the IDIs were primarily marginal farmers to medium farmers, agricultural laborers, as well as deep tube-well operators from the study areas. The laborers were mostly females and members of the Santal tribe, the largest ethnic group in the northern part of Bangladesh
- Focus group discussions (FGDs) were conducted with the farmers to understand the existing patterns and changes in cropping due to climate change

Agriculture must adapt to climate change

Our food security, farmers' survival are at stake



Key Findings

Effects of Climate Change

- Erratic rainfall and extreme temperature
- Farmers' overreliance on groundwater is caused by the ongoing climate crisis, making it a double-edged sword where marginalized and small farmers are forced to irrigate their lands in a way that is highly unsustainable
- Groundwater depletion due to overreliance on groundwater
- Made irrigation highly expensive for farmers

Impact of Climate Change on Cropping Pattern

Previous Crop	Adopted Crop	Reason for Change
Aman rice (rain-fed)	Sugarcane leaves fields barren and unproductive	Need for stable yield, Reduced rainfall
Boro rice (high water-demanding)	Vegetables (eggplant, tomato, cauliflower)	Lower water demand, higher market price
Aus rice	Fruit orchards (guava, mango, litchi)	Long-term investment, less irrigation needed

Impacts of Cropping Pattern Changes

- Agricultural laborers lose jobs because of a lack of experience with a new crop
- Marginal farmers face economic loss (Micro impact)
- The price of rice will become higher as the price of irrigation increases
- Farmers are forced to substitute their primary crop (rice), which is also their staple food, which may affect the area's food security

Policy Suggestions

- Prevent over-extraction of groundwater
- Develop specific programs for supporting marginalized farmers (credit scheme, subsidy)
- Support localized, participatory adaptation planning



References

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