

CLIMATE CHANGE'S EFFECTS ON NORTH EAST INDIA'S CULTURE, ECONOMY, AND LIFESTYLE WITH SPECIAL REFERENCE TO BODO AND MISHING COMMUNITY

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Received 21.08.2023.
Revised 19.10.2023.
Accepted 22.11.2023.

Keywords:

*Sustainable development,
Livelihood patterns, Climate
Change mitigation, Possible
solutions.*

Original research



ABSTRACT

This study examines the complex effects of climate change on the traditions, means of subsistence, and way of life of communities in North East India. This study uses a qualitative data analysis through ethnographic fieldwork and semi-structured interviews. The distinctive cultural richness of the area is becoming more and more fragile as a result of changing climate patterns, as seen by altered agricultural practices, disrupted festivals, and altered traditional knowledge systems. The livelihoods of indigenous groups have also been severely impacted by climate-related problems, such as unpredictable rainfall and extreme weather, which have reduced agricultural production and accelerated rural-to-urban migration patterns. Adaptive strategies and policies that are socially inclusive, culturally sensitive, and environmentally sustainable must be developed immediately in order to protect the rich heritage and well-being of communities in North East India in the face of ongoing climate change. These changes in culture, livelihood, and lifestyle not only pose significant challenges but also highlight how urgent it is to do so.

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1. INTRODUCTION

The eight states that make up the North East of India—Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura—are known for their unmatched natural beauty, diverse cultures, and distinctive customs. The worldwide phenomena of climate change, which is having profound and far-reaching repercussions on its culture, economy, and way of life, is not immune to this picturesque and culturally varied region (Khan et al., 2009). This introduction seeks to give a thorough review of the historical context, the ongoing effects of climate change, and the present issues confronting India's North East (Dai, 2011).

2. BACKGROUND

The cohabitation of numerous indigenous communities, each with its own distinct cultures, dialects, and traditions, has a long history in India's North East. The environment of the area, which includes dense forests, beautiful rivers, and high mountains, has been carefully woven into this mosaic of civilizations. For ages, the indigenous populations have depended on these natural resources for their way of life, food supply, and cultural traditions (Godoy et al., 2005). The region's climate has historically been marked by seasonal fluctuations, with monsoon rains having a crucial role in influencing agricultural techniques and the management of water resources (Das, 2009; Cochrane et al., 2009). Over many years, the people of North East India have adapted

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to these weather changes, creating distinctive farming methods and seasonal-themed cultural festivities.

The outcome from climate change:

However, due to the global phenomena of climate change, the North East region has recently seen substantial changes in its climatic patterns. Increasingly frequent extreme weather events, fluctuating monsoon patterns, fluctuating rainfall, and rising temperatures have all become the norm. The region's way of life has been significantly impacted by these developments in many different ways.

1. **Agriculture and Economy:** The North East region's economy is based on agriculture, and the bulk of the people are involved in farming (Aggarwal, 2008). Due to the disruption caused by climate change, crop yields have decreased, pest infestations have grown, and cropping seasons have changed. Farmlands and infrastructure have been damaged by frequent floods and landslides, leading to considerable financial losses. Changes in weather patterns have also had a negative impact on the region's tea industry, one of the biggest in India (Amoako & Hutton, 2014).
2. **Biodiversity:** The North East is renowned for having a diverse range of plants and animals, including rare species (Saikia et al., 2016). Ecosystems have been disturbed by climate change, which has resulted in habitat loss, altered animal migration patterns, and increased threats to endangered species (Chatterje et al., 2006). The cultural practices and traditions of indigenous populations that depend on the forest for their subsistence are directly impacted by this.
3. **Water Resources:** The rivers and streams in the area are crucial sources of water for home and agricultural purposes (Islam & Sikka, 2010). The quantity and quality of water resources are being impacted by changes in rainfall patterns and Himalayan glacial melt, which is causing water scarcity and disputes over water use (Link et al., 2016).
4. **Cultural Heritage:** North East India's cultural heritage is being destroyed by climate change (Loo et al., 2015; Dutta, 2020). A lot of cultural customs and holidays are intimately related to weather patterns and agricultural cycles. The cultural traditions are in danger since these cycles become unpredictable, which results in a loss of cultural identity.

Current Challenges

The numerous difficulties brought on by climate change in India's North East necessitate prompt response (Ravindranath et al., 2006). The effects of climate change are particularly harmful to indigenous tribes in this region (Ravindranath et al., 2011). It is essential to create adaptation plans that help these communities deal with the unpredictable weather patterns that endanger their way of life. Any climate change response strategy must include disaster preparedness strategies, effective

water resource management, and sustainable farming practices to promote resilience (Mahanta, 2010). Additionally, while attempts at adaptation are essential, methods for mitigating climate change by lowering greenhouse gas emissions also need to be prioritized. If preserved and managed effectively, the area's woods can act as significant carbon sinks. In order to reduce the negative consequences of climate change, afforestation promotion and sustainable forest management methods must be put into place (Singh, 2008).

The Indian government has started taking some actions to mitigate the effects of climate change in the North East region in light of these difficulties (Pandey et al., 2010). The support for climate-resilient infrastructure, the development of renewable energy sources, and conservation efforts are all included in these projects. However, there is still an urgent need for better coordination between government agencies and more focused policies that address the particular problems the region is currently facing. Indigenous communities must actively participate in government initiatives as well. Their customs and behaviors can provide important insights for creating measures that can effectively combat climate change. A viable strategy is to support neighborhood-based initiatives that enable residents to combat climate change in a significant way (Sharifi et al., 2021).

Furthermore, since climate change transcends national boundaries, transnational factors worsen its effects in India's North East. In order to increase resources and skills to successfully address these difficulties, international collaboration and partnerships can play a critical role.

Impact on Indigenous Communities: A Brief Critical Account

North East India is seeing a significant and diverse impact from climate change that should cause grave concern for its culture, economy, and way of life. The area is particularly sensitive to the effects of a changing climate because of its rich biodiversity, distinctive indigenous cultures, and agrarian economies. The natural environment of North East India is deeply ingrained in its culture. The region's seasons and ecosystems are closely correlated with the ancient practices, rituals, and celebrations. However, these cycles are being disturbed by intense weather, fluctuating rainfall, and rising temperatures. For instance, the Mising tribe's Ali-Aye-Ligang festival, which marks the start of the growing season, is now uncertain due to unpredictably bad weather, which has an effect on the community's cultural fabric. The survival of indigenous knowledge and traditions is threatened by such changes.

North East India's economy is mostly reliant on agriculture (Rymbai & Sheikh, 2018). The majority of people practice subsistence farming, which is quite vulnerable to climate change. Long-lasting droughts, unexpected rainstorms, and floods have increased in frequency, leading to crop failures and financial losses.

In addition, the suitability of some crops is changing due to climate change, prompting farmers to adopt new kinds or give up old ones that are frequently culturally significant. The region's tea sector, which makes a considerable economic contribution, is also in danger since shifting weather patterns have an impact on tea production and quality.

North East Indians' way of life is intimately correlated with their surrounding environment. Numerous people rely on the forests and waterways for their food and means of subsistence. The fishing, hunting, and gathering activities in these habitats are being impacted by the effects of climate change. Additionally, communities' safety is directly threatened by the increased frequency of landslides and erosion in mountainous locations, prompting relocation and altering settlement patterns. Traditional modes of life are changing as a result of these disturbances, which also result in cultural dislocation and displacement.

Additionally, climate change makes the region's already-existing vulnerabilities—such as a lack of proper infrastructure, healthcare, and education—worse. Floods and landslides are examples of extreme weather conditions that can cut off populations from necessary services and impede development. This furthers a cycle of marginalization and poverty, which has an impact on North East India's standard of living as a whole.

Finally, it should be noted that the effects of climate change on North East India are extensive and profound, affecting every facet of the area's culture, economy, and way of life. Indigenous traditions are in danger of vanishing, agrarian economies are in doubt, and many communities' fundamental way of life is under danger. To lessen these consequences, adjust to the changing climate, and maintain the distinctive cultural and environmental heritage of this fragile region, urgent and persistent measures are required.

This current research work shall delve deeper to study the Climate Change's Effects on North East India's Culture, Economy, and Life style into two selected communities of the Bodo and Mishing Communities residing in Sonitpur District of Assam comprising a stratified purposive sampling method of 30 respondents belonging to both male and female members.

3. OBJECTIVES

The study has following objectives:

1. To find out the impact of climate change on Culture, Economy, and Lifestyle of the selected Bodo and Mishing Communities of Sonitpur District of Assam.
2. To study in-depth into the specific issues faced by the region and to critically assess government initiatives, and offer practical solutions aimed at mitigating and adapting to the far-reaching effects of climate change in North East India with special reference to the selected area of study.

Research Questions:

1. What is the impact of climate change impact on the Culture, Economy and Lifestyle of the Bodo and Mishing Communities of Sonitpur District of Assam?
2. What are the possible solutions and policy initiatives undertaken by the Govt. of Assam to mitigate climate change in the area and to analyze the solutions to the issue?

4. RESEARCH METHODOLOGY

The research methodology for this study on "Climate Change's Effects on North East India's Culture, Economy, and Lifestyle" will use a qualitative approach, principally utilizing Focus Group Discussions (FGDs) and Case Studies. To acquire qualitative insights into the perceptions, experiences, and attitudes connected to the implications of climate change on the region's culture, economy, and way of life, focus group discussions (FGDs) will be held with broad groups of stakeholders, including community people and youths of the areas to gain a diverse perspective from the study with regard to the topic of investigation. These conversations will provide participants a thorough knowledge of the social dynamics at play. A number of case studies will also be conducted in the study area i.e. Sonitpur District of Assam where the Bodo and the Mishing population resides, allowing for an in-depth analysis of specific cases where climate change has had an impact on culture, the economy, and way of life. Combining FGDs with case studies will provide a holistic analysis and provide useful qualitative and contextual information for a thorough comprehension of the research issues.

5. DISCUSSION AND FINDINGS

In order to analyze and understand an in-depth understanding of the issue, the researchers have adopted the most highly reliable Ethnographic Methodology to collect and understand the complicated issue with the help of Case Studies and Focus Group Discussions which will provide with a deeper understanding on the impact of Climate Change on the changing culture, economy and lifestyle of the selected Bodo and Mishing communities of Sonitpur District of Assam as a result of the impact of Climate change issues.

Case Studies applied through Ethnographic Method of collecting data:

Case Study 1: Bodo Community - Impact on Farmers

In the Bodo community of Sonitpur District, Assam, climate change has significantly affected the lives of farmers like Mr. Raju Bodo. Raju, in his early 50s, has been cultivating rice and jute for decades. However, changing weather patterns, unpredictable rainfall, and

frequent floods have disrupted his traditional farming practices. The monsoons now arrive late and end early, leading to water scarcity issues. This has forced Raju to switch to more drought-resistant crop varieties, impacting his income.

The younger generation in the Bodo community, represented by Raju's son, Bipul Bodo, has had to adapt to new challenges. Bipul, in his late 20s, has shifted from farming to seeking wage labor opportunities outside the community, as farming alone cannot sustain his family. This migration trend among the youth is gradually eroding the traditional agrarian lifestyle of the Bodo people.

Raju's wife, Mina Bodo, a housewife, also faces hardships due to climate change. With unpredictable weather patterns, food scarcity during lean seasons has become common. This affects household nutrition and places additional burdens on women to manage household resources effectively (Singh & Singh 2015).

Case Study 2: Bodo Community - Impact on Elderly Persons

The impact of climate change is particularly harsh on elderly members of the Bodo community, like Mr. Dhaneswar Ramchiary, who is in his late 70s. He vividly recalls the climate being more predictable when he was younger. Now, frequent floods have made it difficult for him to access essential services, such as healthcare and markets. The elderly are often stranded during floods, leading to increased vulnerability to health issues (Singh & Dhiman 2012).

Case Study 3: Mishing Community - Impact on Youth

In the Mishing community of Sonitpur District, climate change has pushed the younger generation, represented by Mr. Jiten Payeng, into a precarious situation. Jiten, in his early 30s, used to rely on traditional fishing in the Brahmaputra and Jia Bharali River for his livelihood. However, increasing river erosion, changing water levels, and declining fish populations have made this occupation increasingly unsustainable. To support his family, Jiten is now working as a daily wage laborer, leaving behind his cultural connection to the river.

Case Study 4: Mishing Community - Impact on Housewives

The changing climate has placed additional burdens on housewives like Mrs. Manju Miri. With unreliable weather patterns, the availability of water for daily household chores has become unpredictable. Manju has to walk longer distances to fetch water, impacting her time and energy. Moreover, food scarcity during irregular monsoons forces her to find alternative ways to provide for her family, leading to increased stress.

Case Study 5: Mishing Community - Impact on Farmers

Farmers in the Mishing community, exemplified by Mr. Hemu Doley, have had to alter their agricultural practices due to climate change. Hemu, in his 40s, faces challenges such as erratic rainfall and changing crop

patterns. He now cultivates drought-resistant crops and uses organic farming techniques to mitigate the effects of climate change. However, these changes have not been without their economic struggles, as crop yields are often unpredictable.

Overall Suggestions:

Promoting Climate-Resilient Agriculture: Encourage the adoption of climate-resilient crop varieties and sustainable farming practices among both Bodo and Mishing communities.

Youth Skill Development: Invest in skill development programs and alternative livelihood options for the youth to reduce migration and preserve cultural heritage.

Elderly Care and Accessibility: Develop community-based initiatives to support the elderly during floods and improve accessibility to essential services.

Women's Empowerment: Empower women through training and resources to adapt to climate change and manage household resources efficiently.

Community Awareness: Conduct awareness campaigns on climate change and its impacts, fostering a sense of collective responsibility for mitigation and adaptation.

Infrastructure Development: Invest in infrastructure such as flood-resistant housing and improved water supply systems to enhance community resilience (Singha, 2018).

These case studies underscore the need for a multi-pronged approach to address the impact of climate change on the culture, economy, and lifestyle of the Bodo and Mishing communities in Sonitpur District, Assam. Sustainable solutions should be tailored to the unique challenges faced by each demographic group within these communities.

Focus Group Discussions applied through Ethnographic Method of collecting data:

Focus Group Discussion 1: Bodo Community - Farmers

Impact of Climate Change on Bodo Farmers in Sonitpur District, Assam:

In this focus group discussion, we engaged with Bodo farmers from Sonitpur District, Assam, to understand the impact of climate change on their livelihoods, culture, and way of life. The farmers shared their experiences of changing weather patterns, shifting agricultural practices, and the challenges they face in adapting to these changes. They expressed concerns about declining crop yields, unpredictable rainfall, and increasing pest infestations affecting their agricultural productivity. The discussion also highlighted how climate change is influencing their traditional practices and rituals, which are deeply rooted in nature. The Bodo farmers called for better access to climate-resilient farming techniques, improved irrigation systems, and government support to help them adapt to these challenges while preserving their cultural heritage.

Focus Group Discussion 2: Bodo Community - Young Generation

Climate Change's Impact on Bodo Youth: Challenges and Aspirations:

The second focus group discussion involved young members of the Bodo community in Sonitpur District. They discussed how climate change has influenced their daily lives, educational opportunities, and aspirations. Many shared stories of disrupted school schedules due to flooding, which have become more frequent and severe. They expressed their concerns about the limited job opportunities in agriculture, which has been the traditional livelihood for their families. The youth emphasized the importance of education and skill development to seek alternative livelihoods, such as eco-tourism or sustainable forest management. They also stressed the need for awareness campaigns on climate change and its impact to mobilize the community and make informed choices.

Focus Group Discussion 3: Bodo Community - Housewives and Elderly

Climate Change and Daily Life: Perspectives of Bodo Housewives and Elders:

In this focus group discussion, Bodo housewives and elderly members shared their experiences and observations regarding the changing climate in Sonitpur District. They highlighted how women, in particular, bear the brunt of climate change impacts as they are responsible for household tasks, including managing water, food, and energy resources. They discussed the challenges of accessing clean drinking water during floods, preserving food during erratic weather patterns, and coping with the increased health risks associated with extreme temperatures. The elderly members also shared their memories of a more predictable climate and how it has evolved over time. The group called for community-based initiatives that involve women and the elderly in climate adaptation planning and disaster preparedness.

Focus Group Discussion 4: Mishing Community - Farmers

Climate Change Challenges Faced by Mishing Farmers in Sonitpur District:

The first focus group discussion with the Mishing community centered on the experiences of farmers in Sonitpur District and the impact of climate change on their agricultural practices. Participants discussed the changing monsoon patterns, soil erosion, and declining fish populations in the rivers, which have traditionally been crucial for their livelihoods. They emphasized the importance of river conservation and the need for modernized fishing techniques that are sustainable. The Mishing farmers also requested government support for alternative livelihood options and training in climate-resilient farming practices to mitigate the adverse effects of climate change.

Focus Group Discussion 5: Mishing Community - Young Generation

Climate Change and Mishing Youth: Aspirations and Adaptation Strategies

The second focus group discussion involved young members of the Mishing community in Sonitpur District. They talked about their experiences of growing up in a changing climate and how it has influenced their education, employment opportunities, and cultural practices. They expressed concerns about the dwindling availability of natural resources, such as fish and bamboo, which are central to their culture and economy. Many young Mishings are exploring new avenues like ecotourism, handicrafts, and small-scale entrepreneurship. They stressed the importance of preserving their cultural heritage while adapting to a changing environment.

Focus Group Discussion 6: Mishing Community - Housewives and Elderly

Climate Change's Impact on Mishing Households: Insights from Housewives and Elders

The final focus group discussion engaged Mishing housewives and elderly community members to gain insights into how climate change affects their daily lives and cultural traditions. They shared stories of challenges related to water scarcity, food preservation, and health issues arising from extreme weather conditions. The elders reminisced about the rich cultural heritage of the Mishing community and how climate change has impacted their rituals and traditions. They emphasized the need for community-based adaptation strategies, including rainwater harvesting and knowledge transfer from older generations to the youth.

Overall Suggestions from Focus Group Discussions:

1. Develop and implement climate-resilient farming techniques for both Bodo and Mishing communities, including improved irrigation systems and pest management strategies.
2. Promote education and skill development programs, especially for the youth, to enable them to explore alternative livelihood opportunities and adapt to changing conditions.
3. Raise awareness about climate change and its impact on local culture and livelihoods through community-based initiatives and educational campaigns.
4. Support river conservation efforts to safeguard essential resources like fish for the Mishing community.
5. Encourage sustainable practices, such as eco-tourism and handicrafts, to diversify income sources while preserving cultural heritage.
6. Foster intergenerational knowledge exchange and collaboration in climate adaptation planning and disaster preparedness.
7. Advocate for government support and policies that address the specific needs and challenges faced by these communities in Sonitpur District, Assam, in the context of climate change.

Outcome and Summary from the Case Studies and Focus Group Discussions:

The Bodo and Mishing communities' experiences with the effects of climate change have been the focus of ethnographic fieldwork in the Sonitpur District of Assam, which has provided important new insights into the intricate interactions between climatic changes, culture, the economy, and way of life in Northeast India. We have developed a greater grasp of the many difficulties these communities confront and can make significant inferences about their vulnerabilities and resilience tactics as a result of six focus group sessions and six case studies.

The results of the study show how severely the Bodo and Mishing communities are impacted by the negative effects of climate change. Traditional farming techniques, which are essential to their economic survival, have been affected by changing weather patterns, increasing flooding, and changes in rainfall distribution. Economic difficulties are a result of repeated crop failures, animal losses, and property damage.

Furthermore, these tribes' cultural legacy is under threat from climate change. The biodiversity is under danger due to rising temperatures, unpredictable weather patterns, and catastrophic events, which has an effect on traditional knowledge systems related to the environment. As these communities have enduring relationships to their natural environs, this imperils their sense of identity.

Communities have relocated in search of more stable living circumstances as a result of changes in migration patterns brought on by climate change, which has an impact on lifestyle. The social fabric of these communities is disrupted by the migration, which also creates new adaptation problems in urban settings that are frequently characterized by marginalization and a lack of resources.

In conclusion, climate change has a wide range of effects on the Bodo and Mishing populations in Sonitpur District, altering their culture, economics, and way of life. A comprehensive strategy that integrates socioeconomic advancement, cultural preservation, and climate resilience is needed to tackle these problems. The adoption of the suggested strategies will increase these communities' ability for adaptation while also strengthening Northeast India's overall resilience to ongoing climate change.

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6. CONCLUSION AND RECOMMENDATION

Enhancing endeavors to address climate change in North East India necessitates a comprehensive approach that encompasses various key aspects. Firstly, comprehensive research focusing on the region's climate patterns, vulnerabilities, and adaptation strategies is imperative. The insights garnered from this research should serve as a foundation for shaping policy decisions and guiding development projects tailored to the region's unique needs.

Moreover, building the capacity of local governments, non-governmental organizations (NGOs), and community organizations is vital for the successful implementation of climate resilience and mitigation projects. This includes equipping them with the knowledge and skills required for sustainable agricultural practices, disaster preparedness, and efficient forest management.

Raising awareness about the far-reaching impacts of climate change and the significance of sustainable practices is equally essential. This can be achieved through educational programs targeted at the community level, effectively disseminating knowledge and inspiring proactive action.

Integrating climate change considerations into all levels of policymaking, ranging from local to national, is a fundamental step toward a cohesive strategy. Such integration would entail coordinated efforts between different government departments and agencies, ensuring that climate change is an integral part of the decision-making process.

Lastly, seeking international support is paramount. The North East region of India should actively engage with international climate funds and organizations to secure the necessary resources for large-scale climate projects and initiatives.

In summary, climate change poses an existential threat to the culture, economy, and way of life in North East India. Its adverse impacts are evident across various sectors, from agriculture to cultural traditions. While some initial efforts have been made to address these challenges, there exists a compelling need for a more comprehensive, coordinated, and inclusive approach.

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