



FLOOD DISASTER BY THE RIVER BRAHMAPUTRA: BUILDING RESILIENCE AND PROSPERITY IN VULNERABLE COMMUNITIES AT KOKILAMUKH - MAJULI KARTIK CHAPORI AND RIVER SIDE NO. 1. AND NO. 2. MIRI GAON, ASSAM

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Abstract:

Flooding is the primary disaster affecting the Majuli chaporis and riverside villages along the Brahmaputra river. Along with floods, the regions face several persistent environmental and biological threats such as soil erosion, climate change, displacements, poverty, loss of agricultural lands and crops and damage to goods and property. These challenges make the communities highly vulnerable. However, many have developed innovative ways to adapt to their natural environment and transform disasters into opportunities.

This study explores how local people navigate these challenges through grassroots strategies that foster resilience and growth. Based on the field surveys, interviews and spatial analysis, the study highlights successful examples of adaptation, particularly through sustainable rabi crop farming practices and community-based recovery initiatives. It argues that disaster management must go beyond mere recovery and instead focus on empowering local communities to thrive.

Ultimately, the findings propose a shift in perspective that the communities of Majuli Kartik chapori and the riverside No.1. and No.2. Miri Gaon at Kokilamukh demonstrate that they are capable of transforming environmental challenges through their own efforts, alongside governmental and non-governmental support and relief measures.

Keywords: Majuli, chapori, riverside communities, chang ghar, resilience, sustainable development.

Introduction:

In Assam the mighty Brahmaputra is both a source of life and a constant threat. Flooding is a common feature of Assam, occurring since time immemorial. On one hand, the river sustains life with its many resources; on the other hand, it causes frequent floods and erosion every year during the rainy season. These floods severely impact the Majuli chaporis and nearby riverside villages. Such type of three villages are Kartik chapori, Majuli and No. 1. and No.2. Miri Gaon at Kokilamukh , Jorhat, Assam.

“Flood is an overflow or accumulation of an expanse of water that submerges land. Flooding may result from the volume of water within a body of water like river or lake, which overflows or breaks levees, with the result that some of the water escapes its normal boundaries.”(Sarvothaman H. & Kumar Anandha K.J. ,2013 in *Disaster Management Engineering & Environmental Aspects*, page no. 23).

Flood disasters are not an isolated events; they bring serious challenges such as displacement, poverty, loss of resources and agricultural lands, crop failure, all of which hinder the long term development in this region. However amidst these difficulties, the communities of Majuli Kartik chapori and river side villages like No. 1. and No.2. Miri Gaon in Jorhat , Assam, have found ways to adapt to their local environment by innovating new methods and techniques to survive. During devastating floods, soil erosion occurs and people in these flood-prone regions often struggle to survive by any means possible. Many times ,they take shelter at relief camps or rest at elevated areas like chang ghar or dams for their safety. People lose their food, clothes and other belongings, whether permanent or temporary, including their livestock. The river Brahmaputra and its tributaries, Bhogdoi and Kakila , converge in this region and the excess volume of water spills over their banks, flooding their neighbouring areas . As a result, the flood situation becomes even more complicated.

Through grassroots- level and community-driven recovery efforts, the affected people of this flood-prone area gradually transform their vulnerability into resilience. This paper explores how local solutions-ranging from sustainable shelters like chang ghar, agriculture practices and daily wage labor- to collaborative disaster management initiatives, contribute to building resilience reducing vulnerability at Kartik Chapori in Majuli and No.1.Miri Gaon and No.2. Miri Gaon in Jorhat District, Assam.

This study aims to highlight sustainable livelihoods through potential strategies implemented by governmental agencies, non- governmental organizations and local initiatives. By doing so, it demonstrates how affected communities can thrive despite environmental challenges.

Objectives:

The primary objectives of this study are:

1. To assess the natural flood-related challenges faced by the people of the study area in Kokilamukh, due to frequent flooding and soil erosion caused by the Brahmaputra every year.
2. To identify the local adaptation strategies employed by the affected people of Kokilamukh to cope with these challenges through community-driven recovery, sustainable farming practices and disaster management.
3. To evaluate the effectiveness of grassroots initiatives and policies in building resilience and fostering long - term prosperity in the study area, with a focus on reducing vulnerability and promoting sustainable development.

Methodology:

This study adopts a field based primary data collection method conducted at Kartik Chapori in Majuli, No.1. Miri Gaon and No.2. Miri Gaon at Kokilamukh in Jorhat, Assam, using stratified random sampling techniques.

Secondary data is collected through interviews with local stakeholders, including community leaders, village heads, other local government officials, and environmental workers. Additional information is sourced from books, journals and geospatial maps are used in this study.

The Study Area:

The study area comprises the Majuli Kartik chapori in Majuli, No. 1.Miri Gaon and No.2. Miri Gaon at Kokilamukh in Jorhat District, Assam.

The residents of No.1. Miri Gaon and Kartik Chapori primarily belong to the Bihari and Koiwarta communities while No.2. Miri Gaon is inhabited by the Miri and Koiwarta communities.

The total number of families, population and literacy rate for each study area is shown in the table below:

Sl. No	Study area	Total No. of families	Total Population	Literacy rate
1	No. 1 Miri Gaon	45	225	60%
2	No. 2 Miri Gaon	53	318	60%
3	Kartik chapori	45	315	45%

The Map of Study Area

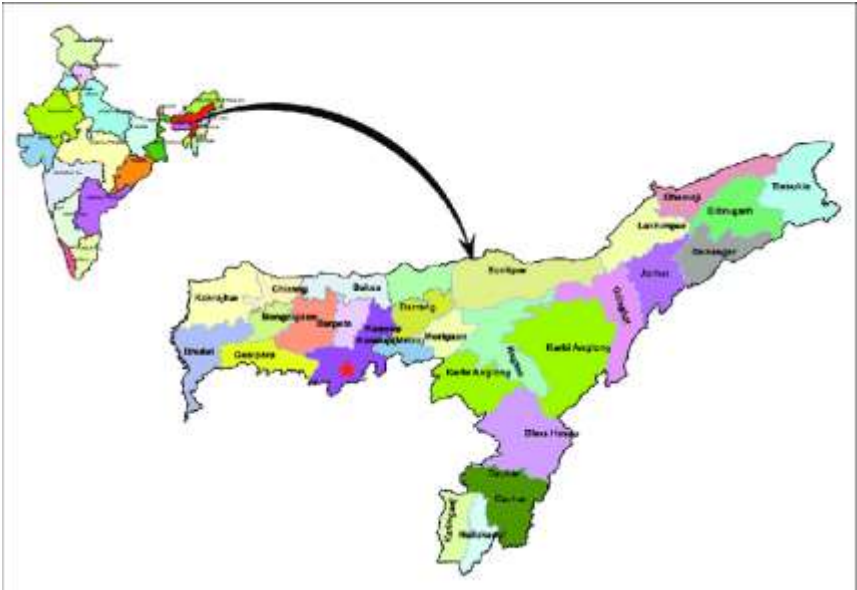


Figure 1: Map of Assam

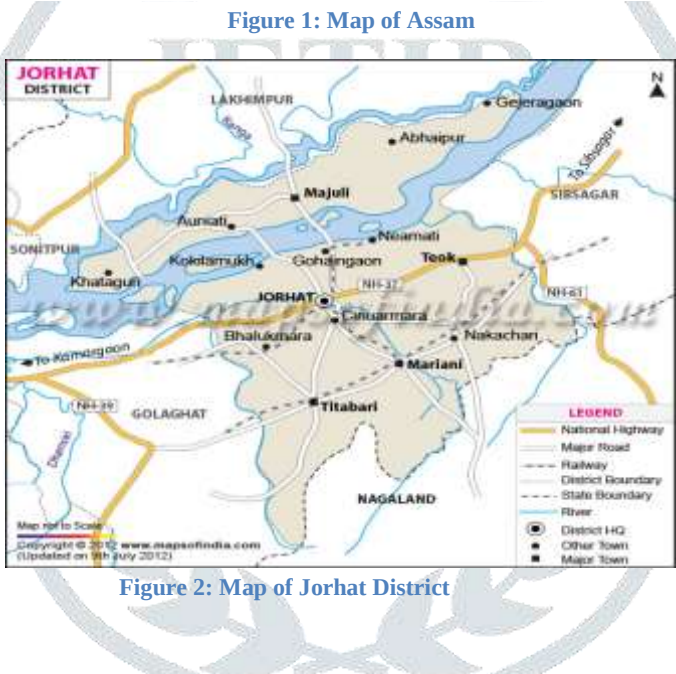


Figure 2: Map of Jorhat District



Figure 3: Map of Kartik chapori



Figure 4: Map of No. 1 Miri Gaon and No. 2 Miri Gaon

Data Analysis:

1. Problems faced by flood affected people:

A. Problems:

- (i) Kartik Chapori is a small island in the Brahmaputra river, located between Majuli and Jorhat District. So, it remains one of the most vulnerable and endangered regions of Assam, experiencing floods every year during the rainy season.
- (ii) No.1. and No.2. Miri Gaon in the Kokilamukh region of Jorhat District are riverside villages along the Brahmaputra river, where villagers frequently face floods.
- (iii) In addition to floods, people face several other serious challenges such as river embankment erosion, displacement, poverty, loss of agricultural land, depletion of other resources, crop failure, adverse weather conditions, increasing unemployment.
- (iv) The island of Kartik chapori remains submerged under the water of the Brahmaputra for three to five months in each year, disrupting all aspects of life, including housing, mobility, education, health and livelihood.
- (v) Continuous erosion by the Brahmaputra river displaces many families over the years.



Figure 5 : River embankment erosion of the Brahmaputra

B. Causes of floods:

- (i) In Assam, heavy rainfall (ranging from more than 200 cm to 300cm) between April and September increases the water levels of the Brahmaputra and its tributaries. This rise causes flooding in its valley and across extensive floodplain areas. Due to the gentle slope of the Brahmaputra Valley, floodwater often persist for a prolonged period.
- (ii) The streams and tributaries of the Brahmaputra in Assam carry large amounts of sediment which get deposited on riverbeds clogging the channels and forming chaporis. As a result, the river water overflows its channels, causing floods.
- (iii) The great earthquake of 15th August 1950, raises the beds of the Brahmaputra, Subansiri, Dibang and several other rivers in Assam resulting in shallower river channels that contribute to trigger floods.
- (iv) Human interference, such as deforestation and hill cutting, affects monsoon rainfall pattern and contributes to flooding.
- (v) Shifting river channels and river embankment erosion also contribute to flooding in the riverside areas of the Brahmaputra.

Findings:

- (i) In the year of 2023-24, floods and river erosion alter the original map of Kartik chapori resulting in the complete landlessness of about 45 families. Consequently, these families establish their homes in a new chapori during October 2024, which is now known as New Kartik chapori, Majuli.
- (ii) Most of families in Kartik Chapori suffer from lack of legal and permanent land documents or *patta* for housing, making it difficult to gain access to agricultural support or other government schemes.
- (iii) No agriculture is practiced in the New Kartik chapori due to land insecurity, unpredictable flooding, sandy soil types and the unavailability of suitable farmland. However, people practice rabi crops , vegetable farming and piggery in No. 1 and No. 2 Miri Gaon.
- (iv) Moreover, human-elephant conflict is the most common issue in this region. A herd of about 160 or 170 elephants often crosses the river channel from Molai Forest or other chaporis, regularly damaging croplands in this area.
- (v) Tigers and Rhinoceroses also enter these villages from nearby forests, increasing human-wildlife conflict.
- (vi) During floods children are unable to attend school, leading to frequent dropouts and long learning gaps.
- (vii) There are no digital or alternative learning facilities available in Kartik Chapori.
- (viii) Good health and emergency medical services are out of reach during floods, putting the lives of children, elderly people and pregnant women at risk.

- (ix) There is no proper electrification, drinking water, sanitation or hygienic conditions in Kartik chapori, except for a limited solar power system.
- (x) The renowned environmentalist Aranya Manab Padma Shri Jadav Payeng created a forest of about 1,360 acres by planting trees, now known as Molai Forest, located near the old Kartik chapori.
- (xi) The current educational facilities available to students in this region are of a moderate or average standard.

Different types of rabi crop farming in No. 1 and No. 2 Miri Gaon :





Kartik chapori and its lifestyle :



2. Measures for resilience and prosperity:

- (i) The construction of river embankment is a flood control measure found in this region.
- (ii) Construction of dam and reservoirs on some major tributaries of the river the Brahmaputra may be another flood control measure in Assam along with this region.
- (iii) Checking river embankment erosion and taking steps to its management would be a good work for flood control.
- (iv) Prevention of deforestation and planting of trees could be a better flood controlling measures.
- (v) As a local livelihood opportunity, most of the flood affected people of the study area work as a day labourers in nearby towns and villages.
- (vi) Even women often travel long distances by boat and on foot for seeking domestic works in homes across the Brahmaputra.
- (vii) The only accessible school named Nahatia Higher Secondary School is located about 6 KM away from the New Kartik chapori in the Southern bank of the Brahmaputra. The students come to school by boat. Their one-time fare is Rs. 20.
- (viii) The nearest health facilities are found at Aonamukh Health Centre about 5 KM away from Majuli Kartik chapori.
- (ix) For infrastructure development, cemented posts and tin sheets are donated by the Government to build chang ghar in this chapori and No. 1 and No. 2 Miri Gaon.
- (x) Mobile boat relief camps are supplied to the people in this area by government or NGO or local stakeholders during flood hazard period.
- (xi) To control flood hazard and to reduce isolation the mobile network facilities would be a good measure.
- (xii) To building resilience and prosperity, some more developed district level policy and planning are essential.
- (xiii) In the edge of these complex challenges, a set of integrated and community - based measures are essential for this study area to improve their rights and sustainability.
- (xiv) The community people of this region attain their Legal Recognition by Government and enjoy the facilities of ration card.
- (xv) To improve education facilities in study area, establishment of a seasonal boat school facility could be another measure.
- (xvi) Providing of bicycles, boats facilities to children who communicate to the distant schools and colleges could be a good measure.
- (xvii) The nearest Aounamukh Health centre forwarded the health services through first aid and other sanitation programmes as per governmental schedule regularly during flood.

(xviii) Carpentry, other day labour, handloom weaving, bamboo and cane craft, poultry, duck and goat rearing activities could be good measures for flood-prone people.



Figure 6 : Handloom weaving

Conclusions : Flood is a very sensitive hazard for the Kokilamukh riverside region of Jorhat, Assam. Today, people of this region can enhance their income security through some skill - based opportunities. They may engage in some habitual activities like small boat making, crafting fishing tools and providing eco-tourism services. In the Kartik chapori cluster type house building method is used to quickly implement disaster management facilities. These may serve as one of the models for disaster management, helping people recover more quickly from flood impacts.

The development of solar-powered lighting, clean water storage tanks and elevated public toilets are also effective measures for flood-prone area. Constructing temporary shelters may be another essential step towards preparedness. To achieve better outcomes, proper disaster management efforts by government bodies, NGOs and other stakeholders are necessary. Such collaborative initiatives can promote better development and resilience in this region in the future.

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