

# Impact of Flood and Siltation on Socio-Economy: A Case Study of Dhemaji Revenue Circle, District Dhemaji, Assam

Mandira Bura Gohain<sup>1</sup> and Monimugdha Bhuyan<sup>2</sup>

<sup>1</sup> delhi university

Received: 7 December 2014 Accepted: 1 January 2015 Published: 15 January 2015

---

## Abstract

Dhemaji district of Assam is very prone to flood and siltation because of various hydrometeorological and topographical characteristics of the basin in which it is situated. Jiadhhal the main river of Dhemaji district has long been considered as a problematic river in the history of Assam due to recurrent and extensive flooding and siltation. Flood and siltation in the Jiadhhal basin is characterized by their extremely large magnitude, high frequency and extensive devastation. An extensive field study has been done along the river Jiadhhal. Household survey was carried out with detailed and exhaustive questionnaire. Statistical methods were applied to understand the intensity of impact of the river on socioeconomic activities of the population. It has been found that the extensive flood and siltation in the basin has changed their socio economic status and have adapted and coped with the new environmental change in the riverine areas of the Dhemaji district. These hazards posed threat to the local people who lived along the river. Losing of residential and agricultural land are main issue and problematic issue. The exploitation of the land, proper management and control of water resources are of vital importance for bringing prosperity in the pre dominantly agro based economy of this district.

---

*Index terms*— flood, siltation, socio-economic, hazards, vulnerable.

## 1 Introduction

atural devastation event are which cannot be prevented from occurring but their impact can be minimised if effective step of measure are taken to reduce their severity and frequency. Flood and siltation are dynamic and natural process which adverse impact on livelihood as homesteads are destroyed, cultivated land are wiped out the employment opportunities are reduced. Agriculture is the main source of Dhemaji district of Assam. It is very well known to everyone that half of the population of the Dhemaji live in rural areas and directly depend on the agriculture. So any loss of land, house is devastating. The Unpredic-  
Author ? ? : M.sc Anthropology, Asst. professor, department of anthropology, Delhi University, North Lakhimpur College (Autonomous). e-mails: mandiraburagohain@yahoo.in, monimugdhabhuyan@yahoo.com  
table and abnormal floods which cause siltation are seriously abrupt human settlement and activities. Siltation, displacement, food security, waterborne disease, agriculture loss etc has adverse socio economic impact on people by the river Jiadhhal are very much subject matter to study which has much evident in the area.

## 2 II.

### 3 Objectives

? To understand the cause of flood and siltation by the river Jiadhah. ? To put stress and light upon the socio economic impact of the flood and siltation ? To understand how the local people used to mitigate and to protect flood.

## 4 III.

### 5 Methodology

The research is based upon both primary and secondary data. The primary data are collected through interview with local people and by flood mapping with the local people. The secondary data are collected from certain government offices like DDMA Dhemaji.

## 6 IV.

### 7 Result and Discussion

Assam is the land of river. Rivers are the one of the main resource of human living nearby. River has a much potential threat to human population and property through flood drought and siltation. Therefore they have potential social and economic as well as physical relevance. Flood is probably the most recurring, wide spread, frequent natural hazard of Assam. It is a very much important matter of concern that every year Assam suffers extensively due to flood and siltation. Flood is considered as the biggest cause of loss of life and property in Assam. The Jiadhah basin in Dhemaji district has a challenge in term of long and recurring flood hazard. Flood in the Jiadhah basin characterized by the extremely large magnitude, high frequency and extensive devastation. Bor dhekara Dhemaji Dhemaji

The severe impact of flood and siltation is the loss of homestead that makes the people more vulnerable to live. So for better livelihood the displaced people usually moved to nearby areas, but migration to distant places are also common. Displacement is the immediate impact of flood and siltation. Field study reveals that due to flood the villagers of Barman goan, Dihiri are now shifted to side of the new place.

ii. Loss of Agricultural land and home Loss of agricultural land and home is a very common effect of flood and siltation destroys a vast land of cultivation. Farmer can cultivate only two to three crops in a calendar year with subsistence homestead gardening.

iii. Psychological effect Flooding and siltation effect people in a multiple ways. The loss of home, property land and sometime human life create financial burden and cause emotional hardship.

### 8 iv. Poor transportation system

As the areas are frequently affected by flood and siltation, therefore the road networks are not well developed.

### 9 v. Problem of education

Almost all the village have primary and secondary school. But the inundation and destruction of school building by flood and siltation are annual phenomenon. Due to these problem irregularities in the classes, scarcity of essential infrastructure etc hampers the education system.

### 10 vi. Medical problem

During the hazards, people generally shifted to other places which are not very hygienic because of the high concentration of people in a limited area. Mosquitoes carry many diseases and due to flood create ideal condition for them to breed. Various waterborne like malaria, dengue, skin disease etc are very common among the villagers. Again an affected area does not get adequate medical facilities. Sometimes primary medical centre are also affected by these natural disaster.

## 11 b) Flood Management in the Basin

The Jiadhah basin in the Dhemaji is highly vulnerable to the management strategies. The government of Assam has taken up a number flood measure where the Jiadhah strategies taken up so far the government like: construction of embankment c) Survival strategies As flood and siltation are natural processes, therefore it is not possible to provide complete protection from these hazards. Beside the various structural measures, local people can minimize the adverse effect of flood and siltation by adopting various local techniques. They cope with the some could significantly reduced their vulnerability without outside assistance. The villager adopts the following strategies:

? Most of the houses raised the lowest floor above the possible flood level. ? Shifting of the houses out the flood prone areas.

---

88 ? Guard wall by bamboo on the sides of the river to minimize the effect of the erosion as well as siltation. ?  
89 Construction of raised platform.  
90 ? Change in the crop calendar.  
91 ? Installation of flood early warning system with the help of local agency like NGO. ? Mass education.

## 92 12 d) Suggestion

93 ? Sustainable embankment construction and its proper maintenances ? Flood plain zoning is essential to minimize  
94 the vulnerability of flood ? Flood forecasting ? The flood level during the rainy season attain endangering heights  
95 with silting of the river bed, so large scale a forestation particularly in the increase infiltration of the surface  
96 water to ground the reducing sediment load to the stream. ? Heavy guard wall on the both the side of the river  
97 should be erected so that the effect of flood could be minimized. ? A forestation in the village can minimize the  
98 vulnerability of flood and siltation. ? By stopping boulder mining in the hill top can minimize the siltation. ?  
99 Lastly unity of the people is very much necessary to work out these suggestions.  
100 V.

## 101 13 Conclusion

102 Flood and siltation are one the common and quite problematic in nature. Therefore they need strategies for their  
103 control in favour of the sustainable development of the concerned area. Hazards particularly flood and siltations  
104 are very common in the Dhemaji district of Assam, This lead to huge socioeconomic loss. These hazards are now  
105 becoming the main cause of shortage of a agriculture land. As flooding and siltation continues to effect major  
106 portion of the growing population in the area, people with persistent flood and erosion problem are seeking  
method to flood and siltation damages. <sup>1</sup>



Figure 1:

107

---

<sup>1</sup>© 2015 Global Journals Inc. (US)

1

1.	Kesukhona Koch	Dhemaji	Dhemaji
2.	Kesukhona kochari	Dhemaji	Dhemaji
3.	Misamari	Dhemaji	Dhemaji
4.	Laormuri	Dhemaji	Dhemaji
5.	Kopatoli	Dhemaji	Dhemaji
6.	No 1; norawathan	Dhemaji	Dhemaji
7.	No 2; norawathan	Dhemaji	Dhemaji
8.	No 3; norawathan	Dhemaji	Dhemaji
9.	Ghuguha	Dhemaji	Dhemaji
10.	Puwa saikia	Dhemaji	Dhemaji
11.	Sokola dolongi	Dhemaji	Dhemaji
12.	Laktokiya	Dhemaji	Dhemaji
13.	Kuvari beel	Dhemaji	Dhemaji
14.	1 no; tengapur	Dhemaji	Dhemaji
15.	2 no; tengapur	Dhemaji	Dhemaji
16.	Kesukhana par	Dhemaji	Dhemaji
17.	Maj dihiri	Dhemaji	Dhemaji
18.	Ujani dihiri	Dhemaji	Dhemaji
19.	Namoni dihiri	Dhemaji	Dhemaji
20.	Dihiri lopong	Dhemaji	Dhemaji
21.	Dihiri sapor	Dhemaji	Dhemaji
22.	Dihiri kochari	Dhemaji	Dhemaji
23.	Kekuri sapor	Dhemaji	Dhemaji
24.	Namoni kekuri	Dhemaji	Dhemaji
25.	Ghuguha sapor	Dhemaji	Dhemaji
26.	Kesukhona sapor	Dhemaji	Dhemaji
27.	Nora beel	Dhemaji	Dhemaji
28.	Kahikusi	Dhemaji	Dhemaji
29.	Khalihamari	Dhemaji	Dhemaji
30.	Pehioti	Dhemaji	Dhemaji
31.	Gohain chapori	Dhemaji	Dhemaji
32.	Bothadoi	Dhemaji	Dhemaji
33.	Ruptoli	Dhemaji	Dhemaji
34.	Potholiya	Dhemaji	Dhemaji
35.	Nepali khuti	Dhemaji	Dhemaji
36.	Dhuba bari	Dhemaji	Dhemaji
37.	2 no; Samorajan	Dhemaji	Dhemaji
38.	Changmai doloni	Dhemaji	Dhemaji
39.	Rotuwa.	Dhemaji	Dhemaji
40.	Tin ghoriya kekuri	Dhemaji	Dhemaji
41.			

Figure 2: Table 1 :

108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151

[Icar ()] , Icar . 1980. ICAR Research Review Committee for Assam Agriculture University, National Agriculture (Report of)

[Katyaini et al. ()] *Assessment of adaptations to floods through bottom up approach: a case of three agro climatic zones of Assam*, Suparana Katyaini , Anamika Barua , Bhupen Mili . 2012. India.

[Mandal ()] *Cropping pattern and risks management in the flood plain*, R Mandal . 2010.

[Gregory and Walling ()] *Drainage basin form and processes: a Geomorphological approach*, K J Gregory , D E Walling . 1973. Edward Arnold, London. p. 447.

[Kotoky et al. ()] ‘Erosion activity on Majuli: the largest river island of the world’. P Kotoky , D Bezbaruah , J Baruah , J N Sarma . *Current Science* 2003. 84 (7) p. .

[Das and Kalyan] *Farm productivity loss due to fl oodinduced sand deposition: A study in Dhemaji*, Das , Kalyan . India, OKD.

[Kale ()] ‘Flood statistics in India, geological Society of India’. V S Kale . *Memoir 41*, 1998. (1st edition)

[Brammer ()] ‘Floods in Bangladesh: II, Flood mitigation and environmental aspects’. H Brammer . *The Geographical Journal* 1990. 156 (2) p. .

[Goswami ()] ‘Fluvial regime and flood hydrology of the Brahmaputra River’. D C Goswami . *Geological Society of India* Kale, VS (ed.) 1998. 41 p. . (Flood Studies in India)

[Bhagabati et al. ()] *Geography of Assam*, A K Bhagabati , A K Bora , Bk . 2001. New Delhi. p. . (Rajesh publications)

[Baker ()] ‘Geomorphological understanding of floods’. V R Baker . *Geomorphology* 1994. 2015. 10 (14) p. . (Barman Year)

[ G ()] ‘Geomorphology of the Brahmaputra Basin, its flood problem and their possible remedial measures’. G . *Geological Survey of India, Misc. publ* 1981. 46 p. .

[Sarma ()] *Pattern of erosion and bankline migration of the river Brahmaputra*, J N Sarma . 2002. Assam. p. . (Report -National seminar on Disaster management)

[Das ()] *Rainfall regime of northeast India: A hydrometeorological study with special emphasis on the Brahmaputra basin*, P J Das . 2004. Gauhati, India. Gauhati University (Unpublished PhD thesis)

[Chan ()] ‘Reducing flood hazard exposure and vulnerability in Peninsular Malaysia’. N W Chan . *Floods Edi, Routledge Hazards and Disaster Series II* 2000. p. .

[Government Of ()] *Report on damage of flood released by the Dhemaji district administration for the year 2007-08; website of Dhemaji district administration, dhemaji.nic*, Assam Government Of . 2009. 2013.

[Government Of ()] *Statistical Handbook of Assam Directorate of Economics and Statistics*, Assam Government Of . 1996. Guwahati.

[Government Of ()] *Statistical Handbook of Assam. Directorate of Economics and Statistics*, Assam Government Of . 2008. Guwahati.

[Government Of ()] *Statistical Handbook of Assam. Directorate of Economics and Statistics*, Assam Government Of . 2010. Guwahati.

[Study of siltation of rivers, its nature, extent and magnitude of problems and their remedial measures in upper catchment of Bra ‘Study of siltation of rivers, its nature, extent and magnitude of problems and their remedial measures in upper catchment of Brahmaputra River in Assam’. Unpublished Report, National Resource Management Foundation, Guwahati, Institute of Social Change and Development’. *NRMF* 2006. 2012. (SANDEE Working Paper No. 73-12)

[Goswami et al. ()] ‘The Brahmaputra River’. Dc; Goswami , Das , Pj . *Ecologist Asia* 2003. 11 (1) p. .

[Goswami et al. ()] ‘The Brahmaputra River, India: The eco-hydrological context of water use in one of world’s most unique river systems’. Dc; Goswami , Das , Pj . *Ecologist Asia* 2003. 11 (1) p. .