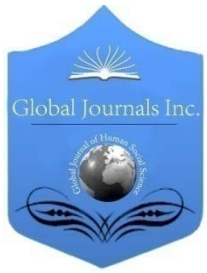
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Impact of Flood and Siltation on Socio-Economy: A Case Study of Dhemaji Revenue Circle, District Dhemaji, Assam

By Mandira Buragohain & Monimugdha Bhuyan

Delhi University, India

Abstract- Dhemaji district of Assam is very prone to flood and siltation because of various hydro-meteorological and topographical characteristics of the basin in which it is situated. Jiadhal the main river of Dhemaji district has long been considered as a problematic river in the history of Assam due to re-current and extensive flooding and siltation. Flood and siltation in the Jiadhal basin is characterized by their extremely large magnitude, high frequency and extensive devastation. An extensive field study has been done along the river Jiadhal. Household survey was carried out with detailed and exhaustive questionnaire. Statistical methods were applied to understand the intensity of impact of the river on socio-economic 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.

Keywords: flood, siltation, socio-economic, hazards, vulnerable.

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

Mandira Buragohain[α] & Monimugdha Bhuyan[σ]

Abstract- Dhemaji district of Assam is very prone to flood and siltation because of various hydro-meteorological and topographical characteristics of the basin in which it is situated. Jiadhal the main river of Dhemaji district has long been considered as a problematic river in the history of Assam due to re- current and extensive flooding and siltation. Flood and siltation in the Jiadhal basin is characterized by their extremely large magnitude, high frequency and extensive devastation. An extensive field study has been done along the river Jiadhal. Household survey was carried out with detailed and exhaustive questionnaire. Statistical methods were applied to understand the intensity of impact of the river on socio- economic 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. The paper light on the overview of socio economic impact of the siltation and flood on the population in the area near the river Jiadhal to understand household's, mapping method which local people have used to mitigate and to protect siltation and flood and to suggest some suitable measure.

Keywords: flood, siltation, socio-economic, hazards, vulnerable.

I. Introduction

Natural 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 Unpredictable 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 Jiadhal are very much subject matter to study which has much evident in the area.

Author α σ: M.sc Anthropology, Asst. professor, department of anthropology, Delhi University, North Lakhimpur College (Autonomous). e-mails: mandiraburagohain@yahoo.in, monimugdhabhuyan@yahoo.com

II. Objectives

- To understand the cause of flood and siltation by the river Jiadhal.
- 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.

III. 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.

IV. 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 lass of life and property in Assam. The Jiadhal basin in Dhemaji district has a challenge in term of long and recurring flood hazard. Flood in the Jiadhal basin characterized by the extremely large magnitude, high frequency and extensive devastation. Flood of extreme high magnitude occurred in the sub basin in the years, 2011, 2012, 2013, 2014. The major portion of the river course is within the originating state Arunachal and terminating state Assam. The problem is more pronounced in the

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downstream. The inundation stays for a day or two or more. The main causes of flood in the sub basin are:

High intensity of rainfall with average annual monsoon rainfall

Deforestation in the upper catchment

Highly meandering nature of the river in the plain

Table 1 : Block and Circle wise village affected by flood and siltation, Dhemaji District

Name of the village.	Block.	Circle.
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. Kuwari 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 sapori	Dhemaji	Dhemaji
22. Dihiri kochari	Dhemaji	Dhemaji
23. Kekuri sapori	Dhemaji	Dhemaji
24. Namoni kekuri	Dhemaji	Dhemaji
25. Ghuguha sapori	Dhemaji	Dhemaji
26. Kesukhona sapori	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. Bor dhekara	Dhemaji	Dhemaji

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a) Socio Economic Impact of Flood and Siltation on the Jiadhal Riverine People

i. *Displacement*

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.

iv. *Poor transportation system*

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

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.

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.

b) Flood Management in the Basin

The Jiadhal basin in the Dhemaji is highly vulnerable to the management strategies. The government of Assam has taken up a number flood measure where the Jiadhal 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.
- Guard wall by bamboo on the sides of the river to minimize the effect of the erosion as well as siltation.
- Construction of raised platform.
- Change in the crop calendar.
- Installation of flood early warning system with the help of local agency like NGO.
- Mass education.

d) Suggestion

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

V. Conclusion

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

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