

# Shifting of River - Course, Environmental Problems, People's Displacement and Infrastructure: A Case Study

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**Abstract:** Rivers are considered as the lifelines of a society. But shifting of river - course occurs at many regions of the world threatens thousands of people. It is a natural tendency of many rivers that brings several problems. In such problems homelessness of thousands of people is the main. But, the fact is that homelessness situation leads hundreds of people towards displacement and thereafter the different to different problems may come. In this particular study an attempt has been made to present the level of infrastructural facilities of some displaced sites of Dakshin Narayanpur region of Lakhimpur District, Assam in which the people were displaced due to course shifting of the Luit River and found that the level of most of the elements are very poor.

**Keywords:** River course Shifting, Environmental problems, flood, displacement

## 1. Introduction

Since the period of unrecorded history, rivers are treated as lifeline in agriculture, economic, ecological as well as cultural life of humankind. But sometimes, natural calamities caused by many rivers may stand as the hurdles to mankind. Such natural calamities are flood, riverbank erosion, changing of river course etc. It is seen that all these river - centered natural havoc occur in many spheres of the world hamper lakhs of people by creating many problems such as homelessness of thousands of people, displacement, loss of agriculture, loss of plants, domesticated animals and even human being etc. As the floods, shifting of river - course occurs at many regions of the world which is a natural tendency of many rivers that is to be considered as a universal phenomenon. It brings numerous problems such as homeless, loss of agricultural land, loss of agricultural production, loss of plants and huge forest areas, domesticated animals and even human being, religious institutions and social infrastructure of an area etc. But, the fact is that homelessness situation leads lakhs of people for displacement and thereafter the different to different problems may come to those displaced people such as lack of food, shelter, cloths, problems of adaptation in new settlements, lack of all basic infrastructural amenities etc. Therefore, shifting courses of rivers have invited attention of the scientists right from early times as man and his civilization has been affected by them.

It is a fact that, the North - East India, displacement is a major phenomenon that occurs due to both man - made and natural havocs. The natural causes are landslide in the hilly regions, heavy and speedy storm, cyclones, flood in high magnitude especially in Assam and Tripura, riverbank erosion etc. Especially, due to riverbank erosion and flood hundreds of people have been displaced that has been a recurring phenomenon for those riverline areas of Assam. Except two hill districts viz., Karbi Anglong and Dima - Hasao, many people of all other districts of the Barak and Brahmaputra Valley are threatened by these two natural

calamities. In this regard, the people residing much closed to the Barak and Brahmaputra and its tributaries are more affected. Especially, riverbank erosion and changing of river - course have harmful effects upon the thousands of riverline inhabitants that lead them for displacement.

In case of riverbank erosion, Palashbari of Kamrup District, Lahorighat of Morigaon, Neemati of Jorhat, Mohuramukk of Golaghat, Rohmorja of Dibrugarh, Matmora, Bodoti, Meramukh, Bonpuroi Jamuguri of Lakhimpur, Luhitmukh of Biswanath District etc. are prominent regions of the state. A huge chunk of the state has been eroded. Data shown in the *Economic Survey of Assam (2010 - 11)* that in the Assam as a whole total area eroded by the Brahmaputra, Barak and their tributaries since 1954 is 3.86 lakh hectares, which constitute 7 per cent of the total area of the State and an average 2500 hectares of land is being eroded by the Brahmaputra annually. [1]

The above mentioned Meramukh region is a huge area of southern part of the greater Narayanpur with multi - communities like Mishing, Ahom, Muslim, Nepali, Brahmin, Koibartta, Kalita, Koch etc. having multi - cultural traits. A number of Revenue Villages including number smaller or bigger villages are in the entire region. The Narayanpur - Silikhaguri Public Works Department Road (PWD Road), Madhabpur - Majghat PWD Road and Silikhaguri - Dakua PWD Road are the main linked roads to this region. Besides, some other roads like Ashok - Brahmapur - Phandibari, Saukuchi road, Satbor - Neria Pather - Phandibari road, Satbor - Chamaguri road, Silikhaguri - Tintia river - dyke, Santipur - Betoni - Tintia - Bohupather roads are some other linked roads in the region. The Meramukh region has a historic sign through the river Luit that has been flowing in its southern part. However, some villages situated in the southern part of the river are also within the Meramukh region. Besides, a part of the Dikrong, a major tributary of the Brahmaputra has been flowing in the eastern part of the Meramukh. Silikhaguri, a historic streamer - ghat of the Luit was situated here which

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executed its functions as a major business spot as well as communication centre through river - way since the British period. In an article of Muktar Ali (2008: 178 - 179) states that from 1940 the first ferry service started to this river - port which continued as an important port of communication of passengers, commodities to the Majuli, southern part of the Brahmaputra and even outside of the state till the 8<sup>th</sup> decade of the 20<sup>th</sup> Century. But, it lost its importance when the ferry service reduced due to unusual rising of river - bed of the Luit. [2] However, now *hat - naos* play the important role for communication through the river. In this area, displacement is a major problem occurs in last few years due to flood and riverbank erosion of the Luit which affect on the infrastructure of the displaced sites.

## 2. Objectives

In this particular study an attempt has been made to present about the flood and riverbank erosion induced displacement and the level of infrastructural facilities at some displaced sites of Dakshin Narayanpur region of Lakhimpur District, Assam.

## 3. Methods

The study was based on both primary and secondary data. The primary data were collected through the interview with the people of studied area and with the researchers' observation. Besides, some relevant information were also collected from reliable secondary sources. After collection of data, data processing was made and finally the findings were made in a systematic manner.

## 4. Findings

Flood and riverbank erosion are two recurring phenomena at this region especially the inhabitants very closed to the river of both sides, i. e. north and south sides. People of Tikirai, Na - pomua, Silikhaguri Muslim Gaon, Tintia, Tintia Muslim Gaon, Soru - Tintia, Borbil, Shayang Kerker, Shwayang Patir etc. are mostly affected. From many years ago these two natural calamities occur such a way that many people have lost their ancestral property such as land, house etc. and forced to displace. In this regard, the situation was more pathetic during the summer season of 1998, in which year one of the floods of higher magnitude occurred in the entire region. The magnitude of the flood was as too high that flood water reached up to the Howajan, Kalabari area which are about 15 - 20km far from the Meramukh region in its west. It caused due to sudden breaching of the river - dyke near Tintia Gaon. But the main threaten came to the village Borbil and Anuboicha that the river - course of the Luit was changed such a way that the entire area of these two villages was vanished within two/three days. People lost entire landed property, house, granary, stored paddy and even domestic animals. People were urgently brought to the relief camps where they resided upto the down of the flood water.

Such sudden problem through the loss of entire hereditarily owned or household land, houses etc. forced the people of Anuboicha and Borbil for displacement. In such situation,

some people who were financially sound to some extent purchased land far from their original habitation. But, about 99.00 per cent people of Borbil displaced to a *chapor* created at the southern side of the river Luit after the changing its course and the *chapor* was renamed as the Naba - Colony. On the other hand some families of Anuboicha rehabilitated at a reserve area near Kamalpur Chariali by a governmental support which was later renamed as the Na - gaon (New Village). But, some people are residing very much closer to the river - dyke at Tintia till the date.

The prime occupation of the inhabitants of those sites viz., Anubicha, Borbil was agriculture prior to displacements who were involved in different seasonal rice crops such as *ahu*, *bau* and *sali* and some winter crops like mustard, pea etc. A huge area became yellow and beautiful during the winter season in and around the village through the different vegetables especially the mustard. In general, they forwarded such cropping at their own plots, though some people cropped at nearby *chapor* area. But, after displacement as they have lost all their hereditarily owned landed property they became landless and deprived of rice and other farming to be cropped at their own plots. Now the people who have been resettled at a reserved plot near Kamalpur area were provided 2 kothas of land to each and every family. Within this area they arranged house and a smaller part is used for *rabi* crops that is practiced with some traditional equipments. The production is mostly taken as domestic food. Besides, some elders are engaged as agricultural labourers. Moreover, they adopt piggery, goatery, duckery etc. as income generation activity as well as engaged in weaving from which production are used by family members and sold for income. But all these income generating activities are forwarded with traditional methods.

The people of the Borbil (Naba - colony) those who displaced to a *chapor* at the south of the Luit, lost their entire landed property in 1998. Now, they are mostly engaged in the cropping of *ahu*, *bau* rice prior to the *sali* season, since the flood water submerges entire the *chapor* area for a long time and couldn't forward *sali* rice in its proper season. However, if the flood water downs within the *sali* season some households try to cultivate.

On the other hand almost all families are involved in *rabi* cultivation in which mustard, pea, black gram, potato, cauliflower, cabbage etc. are the principal crops. But, in cropping this cultivation, they don't have much more facilities. They are having agricultural plots at the *chapor* that were distributed mutually. In forwarding the cultivation, traditional equipments and techniques, natural fertilizers are usually used. In transplanting, seeding, weeding, harvesting, storing etc. though traditional technologies are mostly used but, often face problems in all aspects. In this regard, lack of high quality seeds, high quality seedlings, lack of equipments for ploughing, weeding, inadequate facility for storing etc. are to be mentioned in this regard. In selling too, they faced problems due to lack of carriage, inadequate market etc. which sometimes leads for loss in *rabi* cultivation.

Besides, the people of Borbil practice some income generating activities like animal husbandry like piggery, poultry, goatery etc. Sometimes, they are provided aids for animal husbandry but not adequate. Though they have the problem for lack of adequate space at their house site for animal husbandry, however, they put their effort in this activity. Traditionally the Mising women are engaged themselves in weaving and they are quite laborious in traditional weaving and make traditional garments which have been a place even in the International Market. The women of Borbil are too engaged themselves in the traditional weaving and prepare different garments from the clothing produced. But, they often face problems in forwarding it because of necessary infrastructure. Lack of adequate space, inadequate 'tat - sal' (traditional weaving tools and techniques) lack of proper market etc. are to be mentioned in this regard. The people of residing at the river - dyke at Tintia and Na - gaon too, don't have much more adequate facilities for smooth running of weaving.

The households residing at the river - dyke near Tintia too, due to loss of their entire landed property including agricultural land most of them have become agricultural labourers who adopt *sali* rice cultivation of the households far from their residential place. However, in the winter season they are engaged in winter crops at the bank of the Luit as well as at the slop of the river - dyke. Sometimes, though they sale a part of the production. They also practice animal husbandry especially, piggery, poultry, goatery etc. Sometimes, they are provided aids for animal husbandry but not adequate. Besides, they have the problem for lack of adequate space at their house site for animal husbandry. Though some women are engaged in weaving, but due to lack of space for arranging *tat - sal* and lack of other materials used in the entire process hinder them. All above, during the flooding all such income generating activities are totally stopped.

Traditionally the Mising people reside at the banks of the rivers and the rivers are treated as their lifeline. They acclimatize with river centered issues as well as run with river - centered economic activities such as agriculture, fishing and carrying passengers, materials through wooden - boat that locally known as *hat - nao*. Sometimes the wooden - boats are made by them and sometimes purchased.

At the studied areas, especially most of the households of Borbil (Naba - Colony) are having wooden - boat used in multi - purposes like carrying passengers, small business, use to carry harvested production as well as used as the most important equipment to carry all the things. But as reported by them, they are having problem in making such boat or in purchasing it as an amount is to be required. Therefore, it may be said that such traditional income generating way is this disrupted sometimes. They don't get much more support to buy or make wooden - boat.

*Changhor* is the traditional housing of the Mishings and the people of Borbil also construct traditional *changhor*. But, most of the houses are in poor condition. However, it may be mentioned that a small number of families have already been provided an aid of Rs.1, 17, 000.00 (Rupees One lakh seventeen thousand) under the 'Pradhan Mantri Gramin

Awash Yojona' (PMGAY) launched by the Govt. India to construct a house with wood, tin etc. As found in the study through this financial aid some of the families have constructed their houses according to the governmental procedure. But, the families those still derived of such aids, their houses are in quite poor condition that constructed with bamboo, cane, straw and elephant grass (i. e. *Ikora* in Assamese) in most cases. The people residing much closed to the river dyke near Tintia too, are having the houses of poor condition. Our observation revealed that most of the houses are like a hut and in some cases a large family or a joint family is residing at this hut. It causes lack of spaces or sometime the matter of privacy is raised for the spouses. Especially the women face problem during their menstruation period. However, it may be said that the people of Na - gaon are having good houses to some extent than that of the people of other two sites. However, it may be mentioned that few households have been provided governmental aid for construction of houses.

In the sites under the study though a small number of households have constructed good toilets to some extends through governmental aids or personal initiatives, but most of the households are having toilet made of bamboo, dry banana leaves without sanitary elements etc. which are not adequate at all. But due to the poor sanitation the issue of pollution is come up in some cases. Besides, there is a need of repair them time to time causing time, money and labour consuming.

Some people of Borbil and river - dyke area reported that they have to go to the jungle area for defecation. More importantly some people have to take open sites for defecation. Due to this poor system for defecation they are facing lot of problems especially during flood or rainy days. Besides, the old aged persons and women are facing more problems than the child and male. All these signify their poor sanitation system. Contextually it may be mentioned that roughly half of India's population, a staggering 522 million, practice open defecation. The World Bank estimates that 21% of communicable diseases in India are linked to unsafe water and the lack of hygiene practices. (www.who.int, Jul 12, 2017) [3]

The infrastructure in regards to education in all these sites is not adequate. In case of Na - gaon it is seen that there is a primary school i. e. Anuboicha Primary School shifted from the original location to here through governmental support since it was totally destructed due to the changing of the river - course in 1998. Besides, most of the families of Anuboicha were rehabilitated at this site in post - flood period of 1998. Though no other educational institution is there but it could be mentioned that the Dulia Pather M. V. School and Kamalpur Higher Secondary School are very nearer to this site that provide opportunity to pursue upper primary and secondary level education. Besides, the site is linked with other places through PWD Roads that help the students of the site to go other places for pursuing higher education. But it must be mentioned here that financial constraint stands as the vital problem in pursuing higher education of the students of this site.



The people residing at the river - dyke near Tintia don't have much more problem regarding lower primary, upper primary or up to the class - X level as the Tintia - Ahataguri L. P. School, Tintia - Ahataguri High School are very nearer to them. However, sometimes financial constraint, seasonal fever, illness etc. hinder in pursuing such level education. But, the students opt to pursue higher secondary and higher education has been under some problems. First, no such institution is at their locality. Secondly, the link - way of the site with other places i. e. the river - dyke is not well so far which becomes worst out during rainy and summer season. Besides, financial constraint stands as the hurdle to them.

At the Borbil (also known as Naba - colony) the educational infrastructure is very poor. Only except a Lower Primary School which was shifted after the changing of the river - course no other school is there. Though a high school was launched through the effort of some of the enthusiastic youth of the village, but due to some unavoidable circumstance it has not been continued. Therefore, the students who would like to pursue upper primary, secondary, higher secondary or higher education have to go far from their location. Even some of them have to go to the institutions through crossing the Luit by depending on the hand - boat. In case of the higher education, the students have to go at least 18 - 20km away from their residential site. In the rainy and flooding they have to face more problems in to and fro in such a risky communication system.

Besides, the people don't have much more facilities at their home for study. In this regard, insufficient space for study, inadequate table - chair and study related materials etc. are the vitals. Besides, no library, newspaper facility, computer network, electric line facility etc. are there. All those lacks robustly stand as the hurdles to the students of the site. Moreover, financial constraint, severe problems during the flood period also affect in pursuing education. However, it must be mentioned that from Borbil (also known as Naba - Colony) and Na - gaon some could able to exhibit their quality in education by qualifying in different examinations even the Ph. D. Degree and got employment in different sectors after displacement which is a good sign. It could also be mentioned that before displacement, some of the persons of Borbil were able to be Doctor, Engineer and Master in Agricultural Science.

Regarding road and communication it is seen that except Na - gaon, other two sites are deprived of well road connectivity. The Na - gaon is linked with other places through the Silikhaguri - Dakua PWD Road and the Madhabpur - Majghat PWD Road run nearby the site that help them in communication. However, the paths connected with houses inside the site are too narrow and *kaccha* that become complicated especially in the rainy days. The people residing at the river - dyke near to Tintia too face drastic problem regarding communication since the main connectivity i. e. the river - dyke is not well for communication. The dyke becomes mud - spattered during the rainy season in one hand and on the other the river water touches up to a level of a side of the dyke. Moreover, during the flood season sometimes the people are under the panic situation for uncertainty of breaching the dyke.

The most vulnerable problem regarding the communication is faced by the people of Borbil since it is located at a *chapor*. Not a single well - connected road is there. In the winter or post - summer season though the people communicate through the roads opened through the roads opened through the midst of the salt cedar (*jhao - bon*), but during the summer or flooding time no such road seen at all since the temporary roads are submerged. In such situation people can move only through *hat - nao*. During the winter, summer or flood situation the hand - boat is the main means of transportation to cross the river Luit. However, few private machine - boats are there through which people can communicate between two sides of the river. Though the people are under such communication gap, however they are adapting with such situation. It could also be noted that the Mishing people are traditionally adapt with water, flood, river or riverine environment.

Though a Medical Sub - centre is located near Na - gaon (i. e. Kamalpur Primary Medical Sub - centre) but medical facility is totally zilch at Borbil or the residential site at the river - dyke near Tintia. No hospital, dispensary, pharmacy, doctor or nurse, ambulance service at these sites. Furthermore, poor road or communication system stands as the hurdles in getting medical facilities. The patients couldn't get proper treatment for such circumstances. As found by the investigator, to cure from illness most of the people take help from the *kobirajs*. But to collect a single medicine they have to come 4 - 5 km away after crossing the Luit and in case of serious patients a pathetic situation is come to them.

Drinking water facility is a basic requirement for people. However, it is a fact that a good portion of the people all over the world is deprived of safe drinking water.<sup>3</sup> In 10 people worldwide, or 2.1 billion, lack access to safe, readily available water at home. (www.who. int: Jul 12, 2017). India has more people in rural areas—63.4 million—living without access to clean water than any other country, according to *Wild Water, State of the World's Water 2017*. (www.indiaspend. com, Mar 21, 2017). [4] At the studied areas, too a pitiable picture is seen regarding drinking water facility. At Borbil and the displaced site at the river - dyke near Tintia few households have arranged tube - well at their home but others don't have. Though only a few governmentally provided tube - wells have been arranged, but not sufficient for all. Therefore, still many of them have to take river - water to use as drinking water and household purposes. However, the people of Na - gaon don't have to use river or pond - water as drinking water sine tube - wells and wells are at their site. It could be mentioned that a question mark would be come, whether such water is free from pollution.

Nobody could deny the importance of electricity in present day world. In each and every sphere or aspect it plays an important role. But, no electricity facility is at the Borbil and the displaced site near Tintia. But, prior to displacement electricity connection was at the Borbil area which has been lost after displacement. It is seen that some households of these sites have adjusted the solar system lightening at their houses. It could be mentioned that at the Na - gaon the well connected electricity line is going very nearer to them and

many of them have availed the power connection with the permission from the Electricity Department. It is a fact that except, Na - gaon other two sites are deprived of information facility. However, some of the young have internet connected mobiles through which they could able to get information. Similarly, a small number of families have arranged Television sets that connected with solar energy or battery system.

In the above, we have discussed about some of the infrastructural elements at three displaced sites of Dakshin Narayanpur region of Lakhimpur District, Assam and found that almost all elements are not adequate there which are deprived in most cases

## 5. Conclusion

India today is looking ahead to be a developed country. But, thousands of people still fight for their livelihood. Among them the displaced people are to be mentioned who are under the stress for their day to day life. In fact that a wide range of such population located in the rural and interior sites live with a minimum livelihood standard. In this connection, at the studied sites in particular and entire the displaced areas which are deprived in most cases in general, the Governmental agencies, planners, Non - Governmental Organizations (NGOs), social activists, media etc. must adopt some strategies to uplift those impoverished groups.

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