



THE GREAT ASSAM EARTHQUAKE OF 1950: A HISTORICAL REVIEW

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ABSTRACT

Northeast India is prone to major earthquake events due to its geographical and tectonic settings. Recurrence of the earthquakes in this part of India is frequent and associated with devastating events. Earthquake scenario in the region is very dangerous as the unplanned settlements with rise in population increased the vulnerability of human life. To understand such a risk and variability in human life and changes in natural dynamics; it is essential to know and study the past earthquake events. In northeast India, the last most devastating earthquake was the great Assam earthquake of 15th August 1950. This event brought different types of changes in the physiography which, results in havoc among the people. The changes in the river course, landslides, liquefaction and river bank changes are most influential factors in both human and natural arrangements. This brought devastation in human lives that resulted into several unsettled socio-economic issues. After the earthquake, Government and people tried together to overcome such trauma, although lack of preparedness caused some problems. This is the time to review all the scenario of major earthquakes in northeast India and realise that the necessity of preparedness is very important. The paper attempts to review the impact of the earthquake on different spheres: geographical, social and economic.

Keywords: 1950 Assam Earthquake, Brahmaputra, Liquefaction, Socio-economy.

Introduction

North East India is popularly known for its frequent occurrence of earthquakes. Numerous devastating earthquakes occurred

in this region, among which the 1950 Assam Earthquake is considered to be one of the devastating earthquakes of the twentieth century. According to a report by USGS, the

earthquake was not of Indian origin, as the epicentre of the disaster was near Rima, in a region claimed by both China and Tibet. Darashaw Noshawan Wadia (1883–1969), the grand man of Indian geologists claimed that Assam was ‘geologically and seismologically, the most unstable region in India’ (Saikia, 2012). The 1950 earthquake caused extensive devastation throughout the upper Assam, particularly in the frontier tribal districts of Mishimi and Abor hills and parts of Lakhimpur, Sibsagar, Jorhat, and Sadiya. The syn-earthquake and post-earthquake events had drastically changed the overall geographical conditions around the area of influence. In this paper, the main objectives are to discuss the main causes and consequence related to the changes in the geography of the affected area, socio economic effects and government initiatives. The Great Assam earthquake of 1950 created havoc among the people of the entire north east India, mostly in the plains of Assam, Arunachal Pradesh and Mishmi-Naga Hill region. The earthquake caused destruction of thousands of households and death of many people. According to the Kingdon-Ward, in the hills, landslides caused damming of the rivers and channels with enormous amount of sediments that created changes in the river dynamics in the upper part and also in lower plains of the valleys. The rivers engulfed many banksides and these caused increased the channel width. Overall damage of the earthquake is irreversible although the government initiatives were taken place to rehabilitate the people and construction of the damaged roads and bridges. This seismic catastrophe had many effects: immediate effects and long term effects which attracted immense

attention from geological studies in addition to few environment histories. This paper tends to highlight a historical review of the impact of the 1950 Assam Earthquake on the socio economic field in the region and it also focuses on the initiatives taken by the then government and other organisations in the relief and rehabilitation works.

Changes in Geographical factors

The great Assam earthquake of 1950 changed the physiography of the region and particularly in the river systems. As a consequence of the earthquake of 1950, there was a progression of scientific study which was commissioned by the government of India. Those studies were accomplished by its expert for the production of an enhanced knowledge on the Brahmaputra and its tributary river system. Number of studies has been done in this topic and the area of influence. In this paper we have tried to amalgamate all such reports into one to understand the impact of the earthquake in the syn-earthquake and post-earthquake scenario.

The most common effect during the earthquake was liquefaction which means coming out of water from the fractures of the ground. The earthquake of 1950 greatly impacted on the topography of hills too. An investigation mission by an airman reported that ‘whole chain of mountains seems to have vanished’ (Saikia, 2012). The Botanist, Kingdon-Ward provided an excellent glimpse of the landscape transformation during the earthquake. He argued that the earthquake severely damaged the forest in the banks of the river and foothills which was the major source of revenue (Ward,

1953). Another important point is the changes of river courses in a wide geographical level. The most awful and long-term blow of the disaster was on the river system. Aftermath the 1950 earthquake, Brahmaputra channel belt started inflating in the Dibru - Saikhowa segment causing rapid bank line movement in both the north and south bank. This is mainly due to deposition of landslide sediments by the rivers and channels in the river bed of the Brahmaputra; which causes decrease in the river depth and increase in the width of the river by many times. The chief tributaries of Brahmaputra like Dihing, Dibang, Tiding and the tributaries of Subansiri like Dirgha, Kadam, Kakoi were blocked due to severe landslides and due to carrying out of huge amount of sediments from different places (Ward, 1955). The blockades were created by rock dams. These rivers have a great erosive power and it can make a new flow path diverted around the blockades. In most of the cases, these rivers transformed their original courses to flow again in diverse directions. Moreover, substantial changes have taken place owing to the movement of boulders and sand. In few areas it has been witnessed that the channels of Brahmaputra have been silted up due to the squeezing out of the fissuring of the banks (Poddar, 1950).

In this context, field survey has been conducted around the Dibrugarh region, to find out some eyewitness who can convey the truthfulness of such events. In Khowang and Bogibil area of Dibrugarh district and, Rekha Chapori area of Dhemaji Districts (**Fig. 1**); we have conducted the field survey, in the survey we have found three people of

the Mishing Community who witnessed the calamity. All of them are in their late 90's but still they remember their childhood reminiscences of the great earthquake. The common output was that prior to the earthquake, width of the Brahmaputra was very small as compared to the present width. The width of the Brahmaputra differed in kilometres. This was very interesting fact which also has a deep link in the changing dynamics of the socio-economic relationship of the people living in the region. The width of the Brahmaputra was around 600 to 700 metre, with few hundred meters of deep channels, which later increased to few kilometres in some stretches. As mentioned by Kingdon-Ward and many other authors; liquefaction caused cracks in the soil during this mishap. This led to the weakness of the soil resistant resulting erosion of the river during the course of time. Additionally, the amount of sediments falling in the tributaries of the Brahmaputra by different landslides were many millions of tonnes. Mostly on the upper reaches of the river was affected by this calamity.

Socio-Economic Effects:

The great earthquake of 1950 had far reaching impact on the social and economic sphere of the region. Aftermath the earthquake of 1950, damage to the lands, properties and communication system were extensive. Assam railway suspended all the rail communications in the region due to considerable damage in the railway tracks (**Fig. 2**) and bridges (**Fig. 3**) mainly the railway bridge from Dibrugarh to Saikhowaghat. Apart from railways there were affects on roads and bridges mainly in Upper Assam. The Trunk road in Upper As-

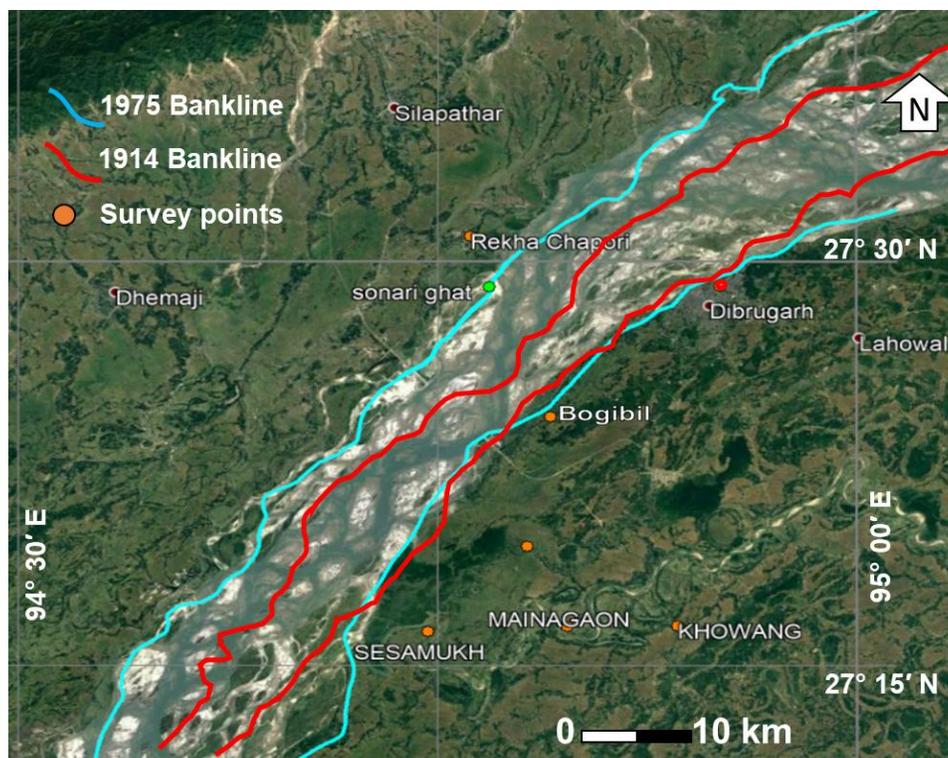


Fig. 1: Survey area and changes in the bank line pre- and post- earthquake



Fig. 2: Railway tracks deformed in the Saikhoaghat Railway station (Source: archives.assam.gov.in)

-sam has been damaged at several areas. At Khowang, Dumdooma, Danhori and Dhola, the roads were buckled, damages (**Fig. 4**) and the wooden bridge in these areas has been damaged. Due to this, the communication between the areas was disturbed. However, the wireless Radio was barely left as a means of link to the areas outside Assam (Guyot-Réchar, 2015).

The crucial industrial area of Upper Assam was affected directly due to the earthquake accounting destruction of 1,671 villages (Guyot-Réchar, 2015). The towns of Doomdooma and Digboi were destroyed and many families were left homeless. In Lakhimpur District, most of the semi- pucca buildings and granaries were destroyed. In *The Times of India* an article published on 21 November 1950, clearly gives an account of the figures of destroyed houses and granaries- “12000 buildings and 2,000 granaries”. Beside this, most of tea garden located in Upper Assam mainly in Dibrugarh was more or less affected. The quarters and factories were affected considerably. Moreover, the tea gardens witnessed extensive damages, mention may be made of the Jokai tea garden, Hansara tea garden and several gardens in North Lakhimpur. On the east bank of Subansiri river, the earthquake destroyed the Bardeobam tea garden, affecting nearly half of the garden. Kingdon- Ward (1955) stated that “Out of 342 acres of tea plantation, 126 acres have been affected”. Another terribly affected tea garden was the Lilabari tea garden in Lakhimpur district. Moreover the great loss was the destruction of the major godown of the tea garden where tea leaves were stored.

Another devastating effect of the earthquake was the erosion of Rohmoría township, subdivision located on the bank of Brahmaputra in Dibrugarh. Rohmoría and most part of the Rohmoría subdivision eroded and became a part of Brahmaputra. About one-third of the town was eroded. Till date the flood and erosion problem of Rohmoría is not settled. Apart from Rohmoría, the name of Sadiya in present Tinsukia district is noteworthy. The township of Sadiya was the first casualty owing to the change of the course of the Digaru river (Das, 1998). As a result of the earthquake, Sadiya was completely cut off from the rest of the world by the river Brahmaputra and people of this area suffered to a large extent. Moreover, increase in channel width of the Brahmaputra River, grasped more than hundreds of villages in the region. Many people who were washed away or fall into the cracks, could not be saved. The increase in the width not only caused problem in the communication and transportation between two banks; but also left many people homeless and stranded in the middle of the nowhere. Beside this, the 1950 earthquake had a great impact on the agriculture which was the common means of livelihood. As the agricultural land was affected by earthquake, the farmers could not cultivate their lands for a long period of time as lands became barren and uncultivable. The decline in the cultivated area was witnessed after the 1950 earthquake which noticeably gave a setback to the economic condition of the common people and it affected in collection of land revenue also, which was considered as a great loss to the government. In the valley, displacement of people was witness-



Fig. 3: Damaged road bridge over a river in Upper Assam (Source: archives.assam.gov.in)



Fig. 4: Cracks observed in the road, near Dibrugarh Town (Source: archives.assam.gov.in)



Fig. 5: Liquefaction during the earthquake (Source: archives.assam.gov.in)

-ed due to erosion, which became a perennial problem after the 1950 earthquake. A number of displacement was witnessed and those displaced people were settled in the areas mostly forests reserves or grazing reserves (Handique, 2012).

According to contemporary newspapers, during the floods after earthquake, the river Brahmaputra carried some sulphurous substances disseminating a stinky smell. Moreover it was reported that, the pollution of ground water system due to contamination from the coal beds and oil seepages, in some places due to liquefaction (**Fig. 5**), from different parts of the region greatly affected the aquatic and the ecosystem associated with it. It also resulted in the deterioration in the health of the people as well as livestock. Moreover, the people suffered from diseases like cholera and chicken pox which turned into epidemic in nature (Poddar, 1950).

The 1950 earthquake was a catastrophe of larger extent than the 1897 earthquake of Assam. It was known to be the deadliest one in the Brahmaputra Basin in North East India with death of 1530 people and destruction of “two thousand homes, temples and mosques” (USGS Report). But according to a local newspaper, the actual casualty figure could be much higher than what has been published in government reports. The interim statistics approximate the loss from the disaster of 1950 at a hundred million rupees (TOI, 1950).

Government Initiatives

The great earthquake of 1950 brought the Northeast India to limelight as it shattered the region in socio- economic field. Aftermath the disaster, the government officials of the region seek out help from the central government. The then Prime Minister Jawaharlal Nehru and Mr.

Rustomjee, Advisor on tribal affairs had an aerial view of the earthquake affected areas, to gather first hand information of the harm caused by the calamity. Not only ministers from the centre, but also the then government under the Chief Ministership of Bishnuram Medhi, inspected the flood affected area. Nehru, after his visit to Assam, delivered a speech on 9th September, 1950 on All India Radio, New Delhi unfolding the condition of the affected areas in Assam after the great Earthquake, seeking help and support from different parts of the country. In the broadcast, Nehru urged the people to contribute generously to the Government Relief Fund. The then prime minister considered the earthquake to be one of the crucial issues which was also an unexpected prospect to demonstrate the value of the new nation state (Saikia, 2012). During the time of crisis, the region gathered sympathy from different parts of India. Relief measures like help in kind as well as cash was witnessed in the region, from all around India and beyond which was mainly controlled through the Prime Minister's and Governor's Assam earthquake Relief Fund. The Assam Pradesh Congress Committee (APCC) was not behind in the hour of crisis. It rendered help in every possible means. Humanitarian actions were taken not only from different parts of India but also from abroad.

“From Ethiopia to Lebanon, plentiful and varied aids were given to the region. Indian communities abroad—among whom it is unlikely that there were many Assamese—were among the first to donate. The Indian Association of Djibouti sent 5,000 rupees via the Indian Consulate at Aden. The Addis Ababa community also contributed. Offers for

relief poured in from countries such as Burma, Yemen, the United States, specialized agencies such as the Watnumull Foundation in San Francisco, and the United Nations. The government Pakistan contributed 440 tons of rice from East Bengal. Available government records do not give us an estimate of the funds thus donated to Assam, whether through Indian or international channels. But Dr Naik, a Gandhian activist working with the Bhils in western India who became an honorary secretary of the Earthquake.” (Guyot-Réchard, 2015)

The earthquake of 1950 devastated the area to a considerable extent. After the earthquake the relief and rehabilitation works were carried out by the government: central and state effectively. The tea-garden workers of the region were organized to put rehabilitation and restoration activities at speed. The government distributed relief materials through the Indian Air Force's 'Mercy Mission' (NEIST, 2013). Airlifts were organised for the trapped residents. Food and medical supplies were dropped over the vicinity affected by the earthquake. Assam Rifles also contributed in the relief measures to the earthquake affected areas even though they were under the brunt of destruction caused by the earthquake. They delivered massive help in reducing the misery of the affected population. Many contemporary newspapers reported on the “heroic” efforts made by the Assam Rifles in the relief and rehabilitation works with full dedication and under their own initiative. As a result of their immense efforts the Assam Rifles were successful in opening up the vital roadways and railways in the areas.

Conclusion

In North East India, the Earthquake of 1950 is considered to be the deadliest as it caused devastations and destruction in the region. The geographical setting of the region was disturbed, transforming the area into flood prone area. The earthquake gave some long term impact among which the problem of erosion is noteworthy. Moreover the forest coverage was disturbed by the catastrophe in the long run. Besides the geographical changes, it also brought transition in the socio- economic spheres of the inhabitants. The people affected by the earthquake and flood were left with no means of livelihood and moreover, the problem of displacement added to their miseries. During the crisis hour, the government offered assistance in every possible means to the affected population. The then government pressurised more on the rehabilitation and reconstruction measures. The voluntary contribution by Assam Rifles, Assam Medical College students, tea garden workers and peasants was commendable. They rendered every possible help to recover from the effects of the catastrophe. All these efforts took a number of decades to overcome but the mental and emotional trauma of loss could never be removed from the minds of the affected people. As it is known that the entire North East India region is under high seismic zone and therefore, in near future we should be prepared for any such calamities. The construction of earthquake resistant houses and buildings are very important to avoid severe impacts. Moreover, we should learn from our mistakes, and try not to build houses near any river especially near the

river Brahmaputra as the rate of erosion is higher aftermath the great Assam earthquake of 1950.

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