Chapter 4

IMPACT OF EARTHQUAKES ON SOCIETY
Earthquakes are mere shakes and purely a geological phenomenon if they did not have any impact on human life. It is a part of human history as it does have devastating impact in terms of the loss of lives, property and sufferings of human being. Earthquakes are known to have altered geological formations, altered the course of rivers, caused cracks in agricultural lands, rendered cultivable lands barren, damaged cattle, dried up rivers and lakes and permanently damaged agricultural production. In urban areas it is known to have permanently destroyed the habitation. All these often resulted in migration of people for safer places, abandonment of older sites and establishment of new habitation sites thereby affecting the course of historical processes. In this chapter we study the impact of the series of earthquakes that occurred in North East India on such human
habitation and their life style which form the structure of their society and economy.

PRE-COLONIAL PERIOD

It has been seen that in case of earthquake the immediate destruction comes from secondary affect. Collapse of structure is primary and the loss of lives beneath them thereafter is secondary impact. Earthquake could not be that devastating in a region in absence of any stone or concrete structure. This is why Ahom Palaces and temples seem to be the first set of victims to the calamity in the region.

It appears that the earthquakes which took place during Ahom rule could not destroy land much by the outpour of sand through cracks and fissures on the ground thereby did not pose any grave threat to the agriculture of the region. The state did not suffer any loss of its revenue nor the subjects suffered much in absence of any stone construction. And this might have been the reason that state’s role in earthquake mitigation was not felt as strongly as in later period.

While studying the impact of earthquake on society and economy in the region beginning with the Ahom rule i.e., since 13th century, uneven population distribution in the region played a very important role. The population estimate of 2.40 million in Assam as late as 1769 during the height of its prosperity which later came down
below one million by 1830 due to civil war and Burmese invasion of 1817-24.\(^1\) This indicates the evidence of a very scanty population in the region. The hilly part of this region constituted still lesser population. The table below reveals the figure of hill population of the North Eastern Region way back during 1881 and 1891.

**Table 4.1 Population of the Hill Regions: North East India 1881 and 1891\(^2\)**

<table>
<thead>
<tr>
<th>Districts</th>
<th>1881</th>
<th>1891</th>
<th>Density per sq. miles (1881)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assam/Meghalaya</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khasi &amp; Jaintia Hills</td>
<td>167,804</td>
<td>197,904</td>
<td>28</td>
</tr>
<tr>
<td>Garo Hills</td>
<td>109,548</td>
<td>121,570</td>
<td>35</td>
</tr>
<tr>
<td>North Cachar and Mikir Hills</td>
<td>24,433</td>
<td>77,765</td>
<td>12</td>
</tr>
<tr>
<td>Other areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arunachal</td>
<td>na</td>
<td>na</td>
<td>Less than 10</td>
</tr>
<tr>
<td>Manipur</td>
<td>271,070*</td>
<td>na</td>
<td>67</td>
</tr>
<tr>
<td>Tripura</td>
<td>95,635</td>
<td>137,422</td>
<td>23</td>
</tr>
<tr>
<td>Naga Hills</td>
<td>96,480</td>
<td>97,556</td>
<td>31</td>
</tr>
<tr>
<td>Lushai Hills (Mizoram)</td>
<td>na</td>
<td>43,634</td>
<td>Less than 10</td>
</tr>
</tbody>
</table>

*In Manipur, three fifth of its population lived in the 700 square miles central valley. The actual hill people numbered only 85,288. In Tripura, the hill tribes (approx. 50,000) constituted slightly more than 52 percent of the population. The majority of the remaining 48% were of migrant origin were living in the plains.

\(^2\) Ibid., pp. 7-8.
It may further be mentioned, although Ahom ruled over Assam for more than 600 years, they constituted hardly ten percent of the total population in their dominion at any time.3

In assuming the impact of natural calamity on society particularly on property and agriculture, the concept of contemporary rights of property and the property as such belonging to both public and private warrants a brief discussion.

Advancement of agriculture and production of surplus in the region was key to success of Ahom kingdom. Wet rice cultivation increased rapidly in this region under the Tai-Ahoms and a better supply of food gave a boosts to the growth of population which in turn ensured wider extension of settled cultivation.4

Their paddy fields continued to be community property and until British take over it was noted that hereditary private property rights existed only in case of homesteads and gardens when the concept of communal land - very much ingrained in culture and tradition remained distinctly alive in the Ahom society in relation to paddy lands.5

Records regarding settlement pattern during Ahom period also does not reflect anything vulnerable to land vibrations due to earthquake.

Medieval Assamese society was based on a natural economy, with very little of specialisation. It did not

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3 Ibid., p. 30.
5 Ibid., p. 44.
have any urban centre of the type known to the rest of India at this time. Even the capital was a mere conglomeration of villages within a wall of live bamboo-fencing which enclosed cultivated fields as well.

But in course of time Ahoms were reputed as great builders. The royal palace at Garhgaon was a several storied majestic building with five storeys above and two below the ground. A brick wall with a circumference of nearly two miles surrounded it. The gateways were mainly of masonry. In new capital at Rongpur Rudra Singha built another royal palace. Outside this Rongpur palace Pramatta Singha built a double storied octagonal brick-built amphitheatre known as Rong-ghar (for animal fights). Two more brick built seven storied palaces were built at Rongpur and Gorhgaon.\(^6\) Construction of temples were another craze for Ahom rulers after they openly adopted Brahmanical religion by the mid 17th century onward.\(^7\)

The construction could not escape the fury of nature and a number of them collapsed during subsequent earthquakes.

There was another bad earthquake in 1596. Hot water sand and ashes were thrown up from below. One of the King’s palaces collapsed and some of the men who were guarding it were crushed to death.\(^8\)

A number of temples constructed during the period were also destroyed by the earthquakes

Assam is well known to be subject to earthquakes, and some specially severe ones have already been mentioned. That of 1663. which took place during Mir

\(^{8}\) Gait, E A, *op. cit.*, p. 98.
Jumla's retreat from Gurhaaon, is said to have lasted for half an hour. Another in Rudra Singh's reign did serious damage to a number of temples.\(^9\)

Lila Gogoi while summarising the impact of earthquakes during Ahom rule notes

The Buranjis recorded the important information relating to such earthquakes. There were a few tremors which not only eased collapse of buildings but also water, sand, fish had been found thrown up from below.\(^10\)

Regarding loss of lives and property due to earthquakes during that period in general, the recorded information speaks very little. It seems loss was high as far as the general people were concerned. The reasons primarily being two. First, they were cent per cent land based and that land too was communally owned so the loss was shared collectively and secondly the people lived in Bamboo made houses.

Bamboos grow wild, but several varieties were cultivated for the obvious reason that it was the only material with which the houses of the people were constructed.\(^11\)

The impact of earthquake being primarily secondary, this low weight housing materials along with their characteristic design of raised platform type boarding places (mostly in the hilly part of the region) have not only been saving lives of the people of this region since long back but have also reduced the loss of property to a bare minimum.

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\(^9\) Ibid., p. 331.

\(^10\) Gogoi, Lila, \textit{op. cit.}, p. 232.

The Arakan earthquake of 1762 took a heavy toll in and around Chattogram – the area presently within Bangladesh – adjacent to the modern state of Mizoram. An area called Bakharchang on the seashore there went down the sea along with its 200 inhabitants and other domestic animals such as cows etc.\textsuperscript{12}

**COLONIAL PERIOD**

During this period the region witnessed a few very devastating earthquake so far as lives, property and impact on economy is concerned. Those earthquakes are of 10\textsuperscript{th} January, 1869 (Cachar earthquake), 12\textsuperscript{th} June, 1897 (Great Shillong earthquake), 8\textsuperscript{th} July (Srimangal earthquake), 1918 and 3\textsuperscript{rd} July, 1930 (Dhubri earthquake). Loss of agriculture and of the nascent industries and hence, to the economy due to some of those earthquake was staggering. For proper assessment of the said impact on the items mentioned above each item has been further categorised earthquake-wise.

**LOSS OF LIVES**

**CACHAR EARTHQUAKE (10\textsuperscript{th} January, 1869)**

The loss of lives due to this earthquake was limited to five or six, inclusive of both town and the district of Cachar and there were very

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\textsuperscript{12} Singha, Kailash Chandra, *Rajmala Ba Tripurar Itihas* (in Bengali), 2\textsuperscript{nd} Ed. 1405 Bangla, Agartala, p. 169
few injuries reported.\textsuperscript{13} Next to Silchar the most affected place was Manipur Valley. At Imphal Rajah’s (king’s) loss was maximum. There four women were crushed to death under the ruins of a newly built King’s Palace. A number of people were also wounded under the same structure of the Manipur King.\textsuperscript{14}

\textbf{GREAT SHILLONG EARTHQUAKE (12\textsuperscript{th} June, 1897)}

The earthquake of magnitude 8.5 in the Richter Scale happens to be the one among the largest known earthquakes recorded in historical time with its epicentre somewhere in Khasi Hills very close to Shillong towards west. It was a killer earthquake with records of death from almost each and every district of the then Assam, i.e., nearly the entire region. Shillong plateau being the seat of its origin, the highest death toll of 916 was reported from the district of K&J Hills including the town of Shillong.\textsuperscript{15} Death toll from Shillong-cantonment inclusive was 29 in which there were 2 Europeans. At Shillong lives were lost mostly due to the collapse of structures. Under the ruins of the Secretariat press only, death toll were 10. Both the Europeans were killed by the failed roof of their own houses.\textsuperscript{16} Lt. Mc Cabe, the Inspector General of Police was one among those two Europeans and the other gentleman was one Mr. Rossonrode a Government

\textsuperscript{13} Memoirs of T Oldham, p. 14.
\textsuperscript{14} Ibid., pp. 28-29.
\textsuperscript{15} Gait’s Report, p. 5.
pensioner staying at his own house in upper Shillong. The then Chief Commissioner H E J Cotton while paying tribute to the great soul of Lt. Mc Cabe recorded, "I shall never forget his funeral" and along with this he further quoted the notification which appeared in the Gazette of India a short time after the death of Mr Robert Blair McCabe. The notification is worth noting:

Mr Robert Blair McCabe, Inspector General of Police and was officer of conspicuous distinction, was found dead, horribly crushed, beneath the ruins of his house.

It had been the Queen intention to confer a Companionship of the Order of the Star of India on the late Mr R B McCabe, Indian Civil Service, in recognition of his services in Assam and of his work of exceptional merit among the wild tribes of the north-east frontier of India.

Deteriorating health condition after the great earthquake of 1897 had also caused loss of lives in Shillong and in many other districts adjoining Shillong plateau. The dense rainfall that followed the shock for next forty-eight hours made the situation still worse at Shillong. In the native quarter cholera broke out. Fever and dysentery became very common in Shillong. Particularly in the cantonment area of town sickness took a serious turn among ladies and children and enteric fever had laid many lives.

Of 916 deaths, the highest share was of Cherra. Recorded death toll there went as high as 243. In Cherra siyemship around 78

\[\text{Arbuthnott, J C, 'Report by the Deputy Commissioner, K&J Hills on the effect of the earthquake in his district', Appendix VI in Gait's Report, pp. 25 & 30.}\]
\[\text{Cotton, H E J, } \textit{Indian and Home Memoirs.}\]
\[\text{Ibid., p. 231.}\]
\[\text{Gait's Report, p. 5.}\]
villages were worst sufferers. Out of these a few deserve mention – village Laitiam lost as many as 86 lives, Cherrapunji lost 31 and the next figure of 17 was from Rangtama. There were two more villages Nongsteng and Warbah with double figure of 12 and 10 respectively. Cherrapunji coal mine recorded 17 deaths, of which of course only 1 belonged to Cherra village and rest 16 were from Muosmai village.  

Regarding loss of lives by 1897 earthquake, Sheila was the next victim. Though initial information was that the entire Sheila village with its 4000 population situated on the southern slope of the Khasi Hills had been slided down but on verification truth came out. Only northern portion of the Sheila village was effected. Lives lost in Sheila circle was 217 and out of this Sheila villages only shared 117, Nongwar 59, Nongtras 11, Dewshaw 10 and Tynger 8. Rest death tolls are shared by the rest five villages of the circle. These collapse of lives in the southern flank of the Shillong plateau were mostly the result of landslips.

As has already been mentioned that the shock was felt over 1,750,000 sq miles and the area over which serious damage was caused extend to 150,000 sq miles. It caused loss of lives in the nine districts of contemporary Assam. The report received from the respective Deputy Commissioners and others in this connection

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21 Ibid., pp. 28 & 34.
22 Ibid., p. 37.
reveals the district wise death toll which have been put below in a tabular form.

Table 4.2 District wise death toll

<table>
<thead>
<tr>
<th>Name of the district</th>
<th>Death toll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khasi &amp; Jaintia Hills</td>
<td>916</td>
</tr>
<tr>
<td>Sylhet</td>
<td>545</td>
</tr>
<tr>
<td>Kamrup</td>
<td>29</td>
</tr>
<tr>
<td>Garo Hills</td>
<td>27</td>
</tr>
<tr>
<td>Darrang</td>
<td>12</td>
</tr>
<tr>
<td>Goalpara</td>
<td>5</td>
</tr>
<tr>
<td>Nowgong</td>
<td>3</td>
</tr>
<tr>
<td>Cachar</td>
<td>3</td>
</tr>
<tr>
<td>Sibsagar</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1542</strong></td>
</tr>
</tbody>
</table>

It could be seen from the table above, next to K&J Hills, the most effected district was Sylhet lying adjacent to the Shillong plateau down below towards south. Northern part of the district at the foot hills suffered most. The mortality of the district was distributed in the following manner.

<table>
<thead>
<tr>
<th>Sylhet (town)</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Sylhet (rural area)</td>
<td>178</td>
</tr>
<tr>
<td>South Sylhet</td>
<td>287</td>
</tr>
<tr>
<td>Habiganj</td>
<td>7</td>
</tr>
<tr>
<td>Karimganj</td>
<td>10</td>
</tr>
</tbody>
</table>
In the Sylhet town the cause of death was as usual – the collapse of buildings. But in the river trodden northern Sylhet and in the Sunamganj subdivision the cause of death was mostly the failure of river banks. Subdivisional officer, Sunamganj desired to categorise the causes of death under three heads.

With reference to your telegram of the 6th instant, calling for a full report on the injury done by the earthquake, I have the honour to say that the total mortality caused by the earthquake (in his division) as reported by the police, has aggregated to 279 as follows:

<table>
<thead>
<tr>
<th></th>
<th>By drowning</th>
<th>By fall of buildings</th>
<th>By fall into cracks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunamganj police station</td>
<td>146</td>
<td>18</td>
<td></td>
<td>164</td>
</tr>
<tr>
<td>Tahirpur outpost</td>
<td>2</td>
<td>12</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Derai police station</td>
<td>3</td>
<td></td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Jaganathpur outpost</td>
<td></td>
<td></td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Chhatak police station</td>
<td>25</td>
<td>48</td>
<td>2</td>
<td>75</td>
</tr>
<tr>
<td>Dharampassa police station</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>87</td>
<td>13</td>
<td>279</td>
</tr>
</tbody>
</table>

The same SDO did not agree to the above total figure provided by the police. According to him another 20% should be added to this figure and so the total death count in his subdivision would be 303. Next major loss of lives was in the district of Kamrup. Break up of the total death toll of 29 goes as Gauhati five, excluding Kamakhya hills, which

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*Nag, J B, 'Report from the SDO, Sunamganj'. enclosure to the Appendix -- VIII in Gaits’ Report, pp. 55-56.*
alone counts another five, Palasbar seven, Barpeta four, Rangia two, then each of the places called Patidarrang, Hajo, Tamulpur, Boko and Bojali records loss of one life.  

Garo Hills district also suffered gravely. Reported mortality of 27 in Garo Hills was apprehended to be much lesser than the actual by its own Deputy Commissioner. To quote him

...but as the reports arrive from the more inaccessible parts of the district, this number will, I fear, be considerably exceeded.

Here also land slips were primarily the cause behind the death.

At Manipur though the shock were felt quite severely reportedly there was no loss of lives. Thus it could be safely said that the recorded figure of 1542 accounted against the lives lost due to this severe most earthquake in the region as worked out by the state was on the lower side by however little may it be 20% less recording at Sunamganj in Sylhet and lesser figure of Garo Hills, the two humble admissions by the administrator themselves further justify the stand of this lesser recording.

**SRIMANGAL EARTHQUAKE (8th July, 1981)**

The region of Srimangal was located in the erstwhile district of Sylhet.

The earthquake measuring 7.6 in the Richter Scale though did lots of

mischief around its place of occurrence but could not do much towards destruction of lives. However, there were two recorded deaths in the Kalighat tea garden located close to the epicentre.

The Doctor's bungalow had been completely destroyed and it was here that the only European death occurred. Mrs Mumford, the wife of Dr. Mumford, being killed instantaneously, and another lady pinned down, and crushed, by the falling roof and debris. 

**DHUBRI EARTHQUAKE (3rd July, 1930)**

This shock of magnitude 7.1 in Richter scale also had its devastating impact in and around Dhubri and Gauripur which fell within the epicentral zone of this major earthquake. But no loss of life was reported from Dhubri. In total there were two deaths caused by this earthquake in the district of Rangpur of erstwhile Bengal.

After this earthquake till the expiry of colonial rule there were six major earthquakes which shook the region. Of course other than two of 1932 (epicentre area within Nagaland) and 1943 (within 100 miles NW Assam), the rest four were well inside Burmese, i.e., present Myanmar hill tracts. No loss of life caused by these quakes could be traced in the region.

**MONOLITH: SYMBOL OF TRADITION AND CULTURE**

Monoliths of Khasi Hills happen to be a striking feature of Khasi society and which have spread over the villages of almost entire Khasi

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and Jaintia Hills since antiquity and though are yet to be dated scientifically they certainly describe a distinct age old inherited tradition. These monoliths suffered a tremendous setback owing to the 1897 earthquake. As Arbuthnot records:

In my tour through the district I have been much struck by the way in which the ancient Khasi monoliths, often of immense size, the antiquity of which is unknown, have been levelled with the ground, and in many cases snapped of two, three and four feet from their base.  

Similar records are also available from a geologist of Geological Survey of India –

At the Khasi Bazar at Mawkhar, just outside Shillong on the Gauhati road, was a collection of the large monoliths of quartzite set up in former times by the Khasi as ancestral memorials. Several of these have fallen, the majority between W and SW, but one or two have fallen due N. Some of these are broken through at ground level or a foot or so above it.

At Maophlang as well as Mausmai similar things were observed by the same geologist and while scrutinising the effects of the earthquake on these monoliths he made a striking observation:

I asked the missionaries both at Cherra and Maophlang, whether it was likely that, in case any of these monoliths, which are found all over the hills had been over thrown by a former earthquake, the Khasis would have set them up again. They said it might be done in the case of well known and venerated stones like those at Maosmai but in ordinary cases, where they were put up by the members of a family in memory of an ancestor, no one after a generation or two would take any care of them. It seems thus that as the erection of the monoliths must date back to a remote antiquity, and as the Khasis have for generations neglected the custom of putting them up,

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31 Ibid., p. 32.
32 Latouche T D, Appendix – A in Memoirs of R D Oldhams, p. 271.
no shock at all comparable to that of the 12th June last can have visited the country for very many years. 33

POST-COLONIAL PERIOD

The first great earthquake of independent India had its focus in its most earthquake trodden North Eastern part. The region was again thrown into great vibrations and waves on 15th of August, 1950 for the 2nd time within just 53 years by another great earthquake of the order of 8.5 magnitude in the Richter scale. The area over which this great earthquake was felt was 11,30,000 sq miles. 34 It had caused great loss of lives and property. A researcher who was camping during the period at Rima a village of NEFA (present Arunachal Pradesh) very close to the epicentre recorded his first reaction:

My first feeling of bewilderment had given place to stark terror. These solid mountains were in the grip of a force that was shaking them as a terrier shakes a rat. Yet, frightened, as we were by the din and violent earth tremors, we spoke quite calmly to each other. 35

Not only to the Botanist and other official sitting at a great distance express his state of bewilderment:

An earthquake, which appraise to have been the greatest since the time when seismological observations were first established, occurred at 14 h, 9 m 30 s G.M.T on August 15, 1950. 36

In another record, extent of its great dimension was expressed:

33 Ibid., p. 274.
34 Tandon, A N, op. cit.
The earthquake was recorded by the seismological observatories all over the world as a very great earthquake... It is one of the biggest ever recorded. Seismologists of the United States of America consider it as one of the five biggest in human history.\(^{37}\)

**LOSS OF LIVES DURING POST COLONIAL PERIOD**

**ASSAM EARTHQUAKE (15\textsuperscript{th} August, 1950)**

Recorded total loss of lives were 1526. Among this, the area of highest intensity the Mishmi and Abor Hills alone shared 952 deaths. Subansiri flood immediately after the earthquake took away the lives of another 500 of the rest 574.\(^{38}\) The death figures above were, however, not unanimous. The worth quoting comment was

> The exact number of casualties is still uncertain and will perhaps never be known, particularly from the inaccessible parts of the Mishmi and Abor Hills.\(^{39}\)

The earthquakes of significance which took place during the last ten years of the study period had their epicentre more or less outside the geographical boundary of this region. So, a few of them were though major and in one event during 1951 the magnitude was 8, even then there was no loss of lives reported from North East India as a result of those earthquakes.


\(^{39}\) Ibid., p. 4.
Migration

The mammoth devastation at a few places in the region due to the 12th June, 1897 earthquake had compelled people to leave their place of habitation and migrate to some other places to settle.

The Sohbar village where death toll was 21 suffered very badly. The village site was abandoned and the people were encamped on the slope of the hill near Therria. The village was a conglomeration of over 200 villages. Another village Warbah with 15 houses also suffered. The 10 deaths that took place were in the field by landslip and though no death was under their collapsed houses, the survivors shifted their village at Maophari, about half a mile from old village site.40

Northern part of Sheila was virtually dragged down and the population had to take shelter in other places. Sheila, the place in K&J hills situated bordering Sylhet was densely populated. Refugees from Sheila, Nongwar, and the villages in the valley commencing below Tyrna had either taken refuge on the small Laitkynsea plateau above Sheila and Mustoh, or had as the Tyrna people, encamped at Maumlu on the western verge of the Cherra plateau. They were afraid or unable at first to revisit the sites of their villages.41 From another report of the Assistant Commissioner it could be learnt how this migration of northern Sheila people could really save them from subsequent threat to lives.

41 Ibid., p. 27.
Later landslips on the hill and the rise of the river with its deposit of sand account for the destruction of 30 more (structures). This later destruction did not involve any loss of life, as that slope had been deserted on the night of the 12th June.42

Tour diary of S G Hart from 16th to 28th August 1897 reveals the fate of the Shella people in clear terms.

When we arrived near Shella, which has achieved such an unfortunate notoriety, we found the hills scarred and torn in every direction by devastating landslips. The old village is now deserted, and most of its former inhabitants are now living at the hat at the foot of the hill, and on the other side of the stream. The other inhabitants are scattered about in all the villages close to the hills, but some have gone to Mastoh, which is close by the old Shella. The whole population is out of work for no one dares go to quarries while earthquake shocks still continue, and the minds of all are so upset by the calamity which has befallen them that no one cares to do more than just enough work to support a bare existence.43

In the plain areas of the Garo Hills, after the quake of 1897 villages were deserted for days, while the inhabitants took refuge in the hills. Taking advantage of this guardless situation, village granaries were looted by a few hill people.44

The raiyats of certain mauzas of Kamrup district had suffered severe losses owing to the destruction of crops, deaths of cattle and failure of mustard crop and the damages to the mauzas were caused by the earthquake and the subsequent floods. Pagladia river did not have any defined channel since the earthquake and was spread out so much over the country that a large tract extending from village

42 Hodson, T C, 'Report by the Assistant dated Laitkynsew, the 19th July 1897', Appendix VI in Gait's Report, p. 39.
43 Hart, S G, 'Tour diary of the Assistant Commissioner, Sylhet from August 16th to 28th, 1897', Assam Secretariat Proceedings, March, 1898.
44 Howell, A A, op. cit., p. 50.
Amoni in Dharampur mauza to Paka mouza in Barpeta was converted into a huge *bil*. Result was nothing other than migration of the people. Many *raiylts* obviously relinquished their land and migrated northwards to Bajali.\(^45\)

**Public Health**

The Great Shillong Earthquake of 1897 had also affected the health and sanitation condition of the region. The surface of the drains were blocked up in many places of Shillong causing sewage disposal problem. Large number of latrines became useless and due to the collapse of the bridge near polo ground, the latrine refuse could not be removed for several days. Although temporary trenches had been made in suitable places near the latrine to bury the excreta, but it had caused enormous hardship to the people.\(^46\) The problem was further confounded due to incessant rain for the next 48 hours.\(^47\) Gait’s Report provides vivid picture of the situation:

> It was inevitable that sickness should ensue. In Shillong, there was a temporary but complete dislocation of the station water supply and station drainage. In the native quarter, cholera broke out and fever and dysentery have been rife; while in the station itself and in cantonments there has been much sickness, especially among the ladies and children and enteric fever has laid many life.\(^48\)

\(^{45}\) Report by Mr D H Lees, ICS, on the circumstances of the *raiylats* of Kamrup and Nowgong districts*, Proceedings of the Chief Commissioner of Assam, June, 1898.


\(^{48}\) Gait’s Report, p. 5.
Similarly, O'brien P H, inform us about an important inference due to the effect of the earthquake on the health condition in the district of Sylhet.

One remarkable effect of the earthquake was to put a complete, though temporary, stop to the epidemic of fever that prevailed throughout the district. After the excitement had worn off there was a recrudescence of the disease, but not to the former extent. The villagers have in almost all cases been able to find shelter either in boats or in the houses of friends, and I have not heard that the some total of sickness in the district has been increased by exposure owing to the earthquake. Of course there must have been numerous such inevitable instances of suffering, but the fact remains that the public health has been better since then before the earthquake.  

Chief Commissioner expressed doubt about this report and put it as unduly optimistic.

At Gauhati another effect of this quake was the outbreak of cholera, malarial fever, dysentery, diarrhoea appeared in epidemic form which had not happened in the near past. This was perhaps due to the sudden stoppage of water supply. The disease caused enormous havoc in Darapur, Palasbari and Chhaygaon tehsil. At Gauhati cholera appeared among the prisoners on 22nd June and four prisoners died out of it subsequently.

There was similar outbreak of cholera in Barpeta in the beginning of August, and there had been a good many cases of that in

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49 O'brien, P H, *op. cit.*, p. 54.
50 *Gait’s Report*, pp. 6-7.
51 *Stephen’s Report*, p. 3.
53 *Stephen’s Report*, p. 3.
the Palasbari, and Chhaygaon also. However, mortality from this
cause in rural tracts of the district did not appear to be much higher
than the yearly average of the season. Dispensaries at Nalbari, Hajo,
Rangia, Palasbari, Sonapur were practically ruined, which caused
disruption of medical services. Similarly arrangements for medical
support at Barpeta were also very bad.54

More or less same condition was visible everywhere. At Dhubri
most of the katcha drains were filled up to the level of the roads with
sand after the earthquake and the public latrines were damaged with
the exception of the large iron one in the bazaar. A Stephen, MB,
Principal Medical Officer and Sanitary Commissioner, Assam visited
the place and he reported that the conservancy arrangements were
dislocated by the blocking up of the bazaar roads, and by the
subsidence of the road leading to the trenches. Conservancy
arrangement at Dhubri were in a most unsatisfactory condition at least
till the date, i.e., 11th of August 1897.55

Many well platforms were damaged and were also partly filled
with sands. Thus, most of the inhabitants were forced to take their
drinking water from the river Brahmaputra.56 Wells at Dhubri were
also affected owing to their felling up to a great height after the
earthquake.57

54 Ibid.
55 Ibid.
56 Ibid.
57 Dobson, E F H, op. cit., p. 23.
At Goalpara also, the drainage and conservancy arrangements were ruined due to the earthquake and nothing could be done before the flood subsided. Cholera broke out in Goalpara soon after the earthquake, probably due to the use of impure water. This led to the death of three prisoners in the lock up.58 Civil Surgeon of the district reports that

The Civil Surgeon also reports that many bheels, tanks and wells in the district have been partially filled with sands, and that in some places they are no longer visible. As long as the rain lasts, there will be no lack of water but unless wells and tanks are cleaned out by the local boards as soon as the flood subside, there will be deficiency in the water supply in rural tracts at a distance from rivers and streams, as soon as the dry weather sets in. If, however, the beds of streams remain partially blocked up, considerable tracts of country will remain in swampy condition after the rains are over, and malarial fevers, dysentery, and diarrhoea will become very prevalent.59

Further, the district of Darrang also suffered from the same malady and the jail hospital and the criminal ward of Lunatic Asylum at Tezpur were badly damaged. Water supply was not affected in Tezpur. Little damage done to the dispensary. At Mangaldoi, the main dispensary building was considerably effected and the ward for the treatment of serious ailment of bowel was destroyed completely. But medicines were not much destroyed, and the outdoor department of the dispensary was also escaped the fury but the well in Mangaldoi was quite spoiled and the water became impure. Similarly, the wells

59 Ibid.
at Atarikhat garden was also seriously affected due to sand filling. Owing to this there were scarcity of water in plains.  

Strangely, immediately after the earthquake several Europeans suffered from malarial fever and the Civil Surgeon connected this occurrence to the disturbance of the soil. There was also a considerable increase of sickness among natives in many tea gardens, especially in those where the pipeline were much damaged. Thus, the health condition in the district of Darrang did not suffer much except, of course, Mongalidai.

In the district of Nowgong, the drainage channels were blocked and on the other hand wells and tanks were filled up with sand, the beds of rivers, and streams were raised, and in consequence, the country was more extensively flooded unusually. Similarly, the cases of remittent fever were more prevalent. Soon after the earthquake, and the people who did not suffer from fever felt out of sorts. The reason for this general lowering of health in the district was due to the production of effluvia given off from the water which was ejected from the cracks in the ground formed during the earthquake as was mentioned by the Civil Medical Officer of the district.

Many persons noted and remarked on the foul odours that was given off from the water that was ejected from the earth and from the tanks, while the sand was still damp.

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60 Ibid., p. 4.
61 Ibid., p. 5.
62 Ibid., p. 8.
63 McNaught, J, 'Sanitary Report on the results of the earthquake, Nowgong district, which occurred on the 12th June 1897'; Enclosure to Stephen, A, 'Note to
After the earthquake there was a considerable increase in the number of cases treated by the district dispensaries for malarial fevers, and bowel complaints had been more frequent.\textsuperscript{64}

As the wells had been choked with sand, the people had to resort to the Klong river for their water need but soon it was realised that certain tube pumps were working still and so the people resorted to those for their drinking water, particularly at the Nowgong town. Only public wells and one private well were left undamaged in the town. The pumps were more or less functional. At one instance, water was said to have poured out of the pump. One of these pumps, which was useless before the earthquake had since became quite functional with regular pumping of water after the earthquake.\textsuperscript{65} In all the deeper drains, the sand and water were expelled to such an extent as to be above the level of the openings of the culverts, and in others the drains were almost filled up to their edge. For several days following this eruption of sand and water there was a distinct foul \textit{bil} like odour given off after the great earthquake of 1897. This was the status of drainage at the town of Nowgong.\textsuperscript{66}

As reported above after the great earthquake of 1897 most of the districts were affected by fever of a different type but number of

\textsuperscript{64} Ibid., p. 10.
\textsuperscript{65} Ibid., p. 3.
\textsuperscript{66} Ibid., p. 9.
deaths reported from Shella area of K&J Hills due to illness surpassed all apprehensions.

After the 1897 AD earthquake in villages (around Shella) hundreds of people were dying out of fever. At that time Prince of Cherrapunji Chandra Singh on behalf of the King requested me to visit a village to treat a patient there. I told him that at the big Shella-punji village hundreds of people had been dying and owing to my prior commitment to them to be there I would be unable to abide by the King's request. I further told him that for the time being they should make a prayer to the Government for one Doctor along with a request for establishment of a Government hospital at Cherrapunji to serve the people free of cost. Because of this commitment a permanent hospital was established at Cherrapunji next year.67

In another very serious record, the sickness that followed the earthquake of 1897 in the province of Assam assumed an unbelievable dimension:

The connection between earthquakes and epidemic disease is a medical question of some obscurity, but I believe that this connection has been scientifically traced. Certain it is that in Assam there was the most appalling sickness throughout the province during the autumn of the earthquake year, thousands, and tens of thousands, died from the most malignant form of fever, and the general mortality of the year was over fifty per thousand, or almost as high as that which prevailed in the regions of India, where famine was then raging. It was the most unhealthy year of which there is any record.68