Chapter 4

Human Elephant Conflict in Assam: Identifying Reasons of Occurrence

‘For that which befalleth the sons of men befalleth beads; even one thing that befalleth them; as the one dieth, so dieth the other; yea, they have all one breath; so that man hath no pre-eminence above a beast, for all is vanity.’

\textit{Ecclesiastes 3:19}

A recent development in the wildlife scenario of Assam made media headlines. The news is on the findings of the recently concluded elephant census in the state which recorded a significant growth in elephant population. The elephant census conducted in 2011 shows an additional 374 elephants to the existing total of 5246 in 2009.\textsuperscript{1} This figure has brought elation and hope for forest officials and conservationists alike. While this is indeed a cause of jubilation, however, at the same time the rise in elephant population is also a cause of concern. With dwindling forest cover, habitat loss and fragmentation and growing anthropogenic activities in elephant habitats, the question arises as to whether the state is prepared to host these pachyderms and ensure their survival and well-being. The frequent incidents of human elephant conflict are an indication that all is not well in ‘elephant paradise’ and the exultation comes a bit sooner. What makes the entire issue more volatile is the fact that nearly 45 percent of these 5620 elephants live outside National Parks and Sanctuaries in the managed forests including reserved forests, proposed reserve forests, district council reserve forests and unclassed forests with 50 of them also residing in revenue areas.

Large animals like elephants and rhinos require large areas to support them. Elephants are megaherbivores and known to move long distances in search of food and water. Sukumar (1989) from his study on Asian Elephant in South India, maintained that

\textsuperscript{1} “Assam’s elephant population increasing”, The Times of India, Saturday, March 31, 2012.
movement of elephants is largely dependent on the availability of food, water and shelter. According to the Ministry of Environment and Forest, only 22 percent of the elephant habitat in India comes under the Protected Areas network. With majority of the elephant range land lying within human-dominated landscapes, competition between humans and elephants for the same resources is inevitable.

This competition, off late, has become fiercer and fatalistic for both the parties involved and has blown into full-fledged conflicts. Human Elephant Conflict can be defined as the tension that prevails between elephants and local communities resulting in damage to both the actors involved. Elephants come into conflict with humans when they feed on crops, damage houses, property, farms or even injure or kill humans and when people retaliate against these loses (Chartier, Zimmerman & Ladle, 2011). In Northeast India, in a span of five years (1998-2003), 1,150 humans and 370 elephants have died as a result of human–elephant conflicts (Choudhury, 2004).

The gradual increase in incidents of HEC in North-east India, particularly in Assam raises crucial questions about the Why’s and How’s of conflict. Conservationists working on the issue in various parts of Assam have deliberated extensively on the ecological causes of conflict (Talukdar & Barman, 2003; Choudhury, 2004; Sarma et al., 2008; Chartier, Zimmerman & Ladle, 2011). Attempts have been made to understand the habitat utilisation pattern of elephants and how changes in habitat can have adverse impacts on the animals, one of them being conflict with humans. HEC is, however, a complex problem having implicit connections to wider socio-political and cultural conditions. Conflicts between humans and animals are merely ecological manifestations of problems rooted deep in the social, cultural and political history of the region. The Human-Wildlife Conflict Collaboration (HWCC, n.d) states,

Human-wildlife conflict is as much a conflict between humans and wildlife, as it is a conflict between humans about wildlife. Wildlife issues at the centre of conversation conflicts may serve as surrogates for underlying conflicts involving struggles for group recognition, identity, status, and other less tangible resources. Unless these deeper patterns of conflict and the relationships embedded within them are addressed, conservation solutions will be neither sustainable nor successful.
HEC should, therefore, no longer be treated as isolated and disconnected from national and international social and political debates. It would be erroneous to consider only the facts and figures of HEC while addressing solutions for mitigating conflict. Rather than treating animals and humans as adversaries, an attempt should be made to understand the complex relation between them and the numerous factors that have influenced this relation over time. The study has dwelled upon the ecological causes of HEC in Golaghat and Sonitpur as well as the social, economic, political and cultural conditions which bear upon conflict, either direct or indirect. The first part of this chapter deals exclusively in the range of ecological factors causing HEC in the study area, followed by a thorough analysis of the socio-political determinants of conflict.

4.1. Ecological Causes of Conflict

4.1.1. Habitat Loss and Degradation

Loss and degradation of elephant habitat due to human activity is considered as the most potent cause of human elephant conflict in Assam (Talukdar & Barman, 2003; Sarma et al., 2008). Increased human population, settlement, agriculture and developmental activities have been blamed for the loss of habitat and it is estimated that nearly half of elephants’ habitat in Northeast India is lost since 1950 (Choudhury, 2004). Elephants are long-ranging animals and are known to have home-ranges of more than 200 km$^2$, sometimes even going up to 3000 km$^2$ (Baskaran et al. 1995; Sukumar, 2003; Sukumar et al., 2003). They have fixed crossing points between forests patches (Weerakoon et al., 2004) also referred to as ‘elephant corridors’ and loss of forest cover and human disturbances in the elephant corridors and home-ranges diminishes the capacity of these crucial habitats to support previous densities of elephants (Williams, Johnsingh & Krausman, 2001; Madhusudan & Mishra, 2003).

Sukumar (1994) held that when the carrying capacity of an area is stretched beyond its limits, the encounters between humans and wildlife become frequent and more intense. He defined carrying capacity as, “…the number of individuals or biomass of a population that can be supported given the area and productivity of the habitat (ibid).” According to him,
When the carrying capacity is exceeded the interaction between people and wildlife is intensified in many ways. In the first place the increase in the length of the ‘boundary’ between forest and human settlement on a local scale means that animals would make more frequent contact with settlement due to chance alone. Large mammals such as tiger and elephant move long distances both daily and seasonally. It is not unusual for them to move 10 or 15 km a day or have a home range of over 100 square kilometres. Small or fragmented habitats surrounded by cultivation are simply incompatible with the conservation of large mammals. Often new settlements spring up along traditional migration paths of elephant herds and these are naturally subject to damage before the animals find other routes or restrict their extensive seasonal movements.

Apart from restricting the area, and thus the amount of resources, available for wildlife populations, human exploitation of the forest…may also degrade the habitat and lower the resource base considerably. This would be especially true if resources flow out of a region without a corresponding input…competition between people and wildlife for resources may also occur indirectly…livestock held in the vicinity of wildlife areas compete with the herbivores for forage…ungulates such as deer, antelopes and gaur…seem to be the most affected by this competition. Reduction in ungulate prey for the carnivores would force them to hunt domestic livestock (1994; pp.306-308).

Habitat loss or fragmentation, hence, leads to conflict and competition, either directly or indirectly between humans and animals. Large animals like the elephant, rhino or tiger are most vulnerable to human-induced habitat loss and degradation. Assam, once famous for its thick forests and prime wildlife habitat has suffered major forest loss in the recent years. The FSI report of 2009 has compared satellite data from Oct 2006-Jan 2007 with satellite data of Nov-Dec 2004 and Jan-March 2005 and found that the state has lost 3km$^2$ of very dense forest and 95km$^2$ of moderately dense forest and gained 32km$^2$ of open forest during this period. The data gathered from 23 of the 27 districts recorded that forest loss is most severe in Karbi Anglong, North Cachar Hills, Darang, Kokrajhar and Sonitpur districts.

Recent advances in geotechnology such as Remote Sensing (RS) and Geographic Information System (GIS) has enabled scientific assessment of forest cover loss or regeneration over the years. The findings from one such seminal work by Sarma et al.
(2008) in eight\textsuperscript{2} RFs in Golaghat district presents a very lucid picture of loss of elephant habitat over three decades. The study used satellite imagery of 1974, 1991 and 2004 to assess the loss of habitat in the Doyang RF, Nambor South RF, Diphu RF, Rengma, Nambor North RF, Disma RF, Lower Doigurung RF and Upper Doigurung RF of Golaghat. Table 4.1 given shows the forest cover in all the eight reserved forests in 1974, 1991 and 2004.

\textbf{Table 4.1:} Forest Cover in the Reserved Forests of Golaghat in 1974, 1991 and 2004

<table>
<thead>
<tr>
<th>Forest</th>
<th>Forest cover [km\textsuperscript{2}]</th>
<th>1974</th>
<th>1991</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doyang RF</td>
<td></td>
<td>93.35</td>
<td>4.21</td>
<td>3.16</td>
</tr>
<tr>
<td>Rengma RF</td>
<td></td>
<td>123.63</td>
<td>17.52</td>
<td>6.02</td>
</tr>
<tr>
<td>Nambor South RF</td>
<td></td>
<td>199.57</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Diphu RF</td>
<td></td>
<td>118.12</td>
<td>7.74</td>
<td>2.33</td>
</tr>
<tr>
<td>Disma RF</td>
<td></td>
<td>0.02</td>
<td>0.47</td>
<td>0.22</td>
</tr>
<tr>
<td>Nambor RF</td>
<td></td>
<td>67</td>
<td>50.51</td>
<td>30.19</td>
</tr>
<tr>
<td>Upper Doigurung RF</td>
<td></td>
<td>8.62</td>
<td>7.71</td>
<td>6.67</td>
</tr>
<tr>
<td>Lower Doigurung RF</td>
<td></td>
<td>13.07</td>
<td>11.49</td>
<td>10.93</td>
</tr>
</tbody>
</table>

Source: Adapted from Sarma et al., 2008

It is alarming to note that Reserved Forests such as Nambor South, Diphu, Rengma and Doyang have lost almost 99 percent, 98 percent, 95 percent and 96 percent of its forest cover respectively in a span of thirty years.

If the status of forests in Golaghat district is poor, the situation in Sonitpur is worse. A study was conducted by Srivastava et al. (2002) to determine the extent of deforestation in Sonitpur district using satellite imagery and intensive ground truthing. The study revealed that between 1994 and 2001, 232.19km\textsuperscript{2} of forest cover was lost in Sonitpur out of which 143.40km\textsuperscript{2} was lost in a span of just two years between 1999 and 2001 (ibid). Another study conducted in the Kameng-Sonitpur Elephant Reserve spread

\textsuperscript{2} There are officially five Reserved Forests in the district now after a part of Nambor North and the whole of Upper and Lower Doigrung Reserved Forests had been notified as Nambor Doigrung Wildlife Sanctuary vide govt. notification no. FRW.13/91/74 dated 31.08.03.
across Arunachal Pradesh and Sonitpur and Darrang districts in Assam presented a comprehensive picture of elephant habitat loss and degradation using remotely sensed data of periods 1994, 1999 and 2002 (Kushwaha & Hazarika, 2004). The study found that on the Assam side habitat loss was maximum (90%) in Nowduar RF followed by Biswanath RF (70%), Charduar RF (60%), Balipara RF (40%), Sonai–Rupai RF (30%) and Behali RF (10%) in that order (ibid).

While the documentary evidence generated through advanced technological research proves that there has been significant habitat loss in Golaghat and Sonitpur, respondents in my study also voiced similar concerns. Shrinkage of the elephant’s living space and diminishing food stores in degraded forests have been enlisted as the most important cause of HEC by all three sets of respondents.

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\text{HEC has increased because of people. Were elephants not there in our forests before? Elephants were there and yes they used to come (to the villages), but only once or twice a year. But now there is no limit to that. Elephants coming to the village have become a serious problem these days. This is primarily because their home (the forests) has been destroyed. They have nowhere to live and nothing to eat. If they do not come to the village where will they go?}
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Excerpts from In-depth Interview, Transcript 3 (Parentheses mine)

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\text{The condition of the Reserve (Sonai-Rupai Sanctuary) was very good in the past. Earlier, there were a lot of animals and lots of trees. But now it is no longer the same and the condition of the forest is very poor. Tigers and bears which used to roam the forests are no longer there. The condition of elephants is very pathetic. They have nowhere to live and nothing to eat and therefore enter the village. Earlier elephants were not a problem. Once in a while elephants used to come, but with the forest nearby, that is very natural. But now they have no place to forage as people have entered the forests, cut trees and established villages. We humans work so hard to fill our small tummies. In comparison elephants have such huge tummies and you can imagine how much food they would need to fill those tummies. Naturally, when the forests are not providing sufficiently, elephants will come to the villages.}
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Excerpts from In-depth Interview, Transcript 42 (Parenthesis mine)

Changes in habitat over time is inevitable and at most times natural but all species have a, “minimum suitable habitat” requirement i.e. a threshold amount of habitat that they require for persistence (Dykstra, 2004) and breach in this ‘threshold’ due to loss or
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Fragmentation of habitat can affect the organism negatively (Fahrig, 2003). Hoare and du Toit’s (1999) calculation showed that an overall transition of land uses to 40-50% human activity negatively affected elephants. Similarly, Chartier, Zimmerman and Ladle (2011), in their study of habitat loss and HEC in Assam, assumes that a critical habitat threshold for human-elephant conflict may exist at 30-40% forest cover and below this level, conflict expands. Forest cover loss and habitat fragmentation have also figured prominently in the narratives of the community people as the cause of HEC. While respondents considered habitat loss as the sole explanation for HEC, the reasons extended for loss of forest cover are multiple. In the following paragraphs each of these reasons of habitat loss and fragmentation have been duly enunciated.

4.1.1.1. Numaligarh Refinery

The Numaligarh Refinery Limited (NRL) is located in the eponymous town of Numaligarh falling under the Bokakhat sub-division of Golaghat district. The Refinery had been set up in the region following the commitment made by Government of India in the historic "Assam Accord", signed on 15th August 1985 and was conceived as a medium for rapid economic development of the region. The Kaziranga National Park is not more than 20kms from the Numaligarh Refinery and the Garampani Reserve is also merely 25kms away from it. The Refinery got an Environmental Clearance from the Ministry of Environment and Forest (MoEF), Government of India in 1991 and commercial operations commenced from October, 2000.

When the Refinery was proposed by the Ministry of Petroleum and Natural Gas at Numaligarh, a site visit was conducted by the MoEF under the guidance of the Indian Oil Corporation Limited. Although the proposed site is in close proximity to the Kaziranga National Park, but the site-visit report downplayed this factor and gave the green signal. The matter was taken up by an environmental group called the Bombay Environmental Action Group (BEAG) who insisted that the government should prohibit the setting up of the Refinery in such an ecologically sensitive zone under the Environment (Protection) Rules, 1986. However, by then the matter had reached the Prime Ministerial level and thus when the BEAG wrote a note of dissent to the then Union Minister of Environment and Forests, Maneka Gandhi, she said that the proposal
was at an advanced stage and therefore nothing could be done to reverse that. She, however, acknowledged that the Refinery should not have been set-up in the proposed site because of its ecological sensitivity. Consequently, the MoEF declared a 15km area around the Numaligarh Refinery (except the northwest area where the zone extends till the eastern boundary of the Kaziranga National Park) as a ‘No Development Zone’ and placed restrictions on the expansion of the industrial area, townships, infrastructure facilities and such other activities which could lead to pollution and congestion (Kapoor, Kohli & Menon, 2009).

The MoEF’s correctional measure is of little solace as the harm has already been done. The Refinery does spend millions of rupees in controlling air and water pollution and had been awarded the Greentech Environment Award in 2011 but ironically the mayhem unleashed by the setting up of the Refinery in a prime elephant habitat has been largely ignored. Its location in the midst of the Kaziranga-Karbi Anglong Landscape has disturbed the natural habitat and migration routes of more than 1600 elephants using the area. In 2007, Aaranyak, an NGO involved in biodiversity conservation in North-east India published a research report which identified three distinct elephant herds that move between key habitats in Nambor Reserve Forest (RF) and Kaziranga National Park approximately 3 times a year (Talukdar, 2007). Out of these three, a herd of 40-50 individuals had been found to be living and moving around the Deopahar area very close to the Numaligarh Refinery (ibid). Forest officials and NGO functionaries interviewed during the study have also mentioned that clearing of a vast forested area to set up the Numaligarh Refinery has disadvantaged the animals, particularly elephants that depended on this habitat. The obstructions set in their traditional homes and paths by the Refinery have forced the elephants to look for alternative routes bringing them into increasing confrontation with humans³.

The inhabitants of the sampled villages also opined that the NRL had encroached upon the space of elephants due to which the animals are now forced to enter human settlements. The villagers have formed their opinion not on the basis of scientific facts but from their individual experiences as well as the numerous stories of HEC incidents

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³ Interview A1, A2, A4, A5
that has become a part of the collective memory of the local populace. A respondent of Mikirchang village who is a temporary worker in a tea-garden said:

*The NRL has eaten up the space which belonged to the elephants. There is an ancient temple in Numaligarh, Baba Than, and we have heard that in the past elephants flocked the area around the temple. But when the Refinery came up, the elephants got scattered. There was one particular elephant which a few years back stood on the highway and demanded food from the motorists passing by. Only when he was fed, he would let the vehicles pass. This elephant then gradually started coming to the village and now even big herds of 200-300 elephants come to the villages and take shelter in the forests near the our tea garden.*

Excerpts from In-depth Interview, Transcript 19

It is commonly believed that the area where the Refinery had been set up was used by elephants since ages for resting and breeding. There is a story, which is frequently told by the villagers of the area, wherein it is said that a particular tree lying within the premises of the Refinery and believed to be the breeding ground of elephants could not be uprooted despite several attempts because anyone who tried to do so either uncannily felt sick or some tragedy befell him or his family. People believe that elephants still visit the site looking for their erstwhile breeding ground and have demolished the concrete walls barricading the area many times in their attempts to get there.⁴

4.1.1.2. Stone Quarrying in the Mikir Hills

The Mikir or Karbi Hills lie on the southern side of the Kaziranga National Park and is part of the contiguous landmass comprising the Kaziranga-Karbi Anglong Landscape. Part of the Hills lie within Golaghat and a major portion falls within the territorial jurisdiction of the Karbi Anglong Autonomous Territorial Council⁵. As already mentioned, the area is a prime elephant habitat with some herds using the area perennially and others using it during their seasonal migrations. A portion of the Hills falls within the 15km radius around Numaligarh Refinery declared as a ‘No Development Zone’ by the MoEF in 1996, and thus, prior permission needs to be taken by the quarry operators from

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⁴ Interview 15, 21
⁵ The Karbi Anglong Autonomous Council had been renamed as the Karbi Anglong Autonomous Territorial Council as part of a tripartite peace accord signed by the Government of India and Government of Assam with members of the militant outfit, United People's Democratic Solidarity (UPDS) on 25th Nov 2011.
the MoEF to conduct quarrying activities. According to WWF stone quarries located in the Karbi Anglong foothills had severely jeopardized elephant movements and disturbed the tranquillity of forests (WWF, 2007). It is believed that the disturbances and depredations wrought on the habitat by the stone quarries have increased the incidence of human-animal conflict in the nearby villages. Not only this, quarrying has also given rise to problems related to massive siltation in the streams coming down from the hills leading to clogging and drying up of these streams which in turn is negatively impacting the water availability in neighbouring agricultural fields (ibid).

Initially quarrying was small-scale and largely manual but around 2005 when the demand for stones increased for completion of the Bogibeel Project, tenders were awarded to big companies which used blasting devices and heavy machinery to extract stones, thereby flouting environmental standards. After severe criticism and pressure from environmental groups and local residents blasting was banned, however, quarrying and operation of high decibel stone crushers continued. In 2006, the Assam Forest Department invited fresh tenders to open a quarry in Mikirchang, located at an aerial distance of 9kms from the Park. This move was again contested by conservation groups and a written complaint was registered with the MoEF by Aaranyak on the matter. Responding to the complaint, the Union Ministry sent a letter to the Assam Government questioning the latter’s actions and reiterating that no quarrying activity could be permitted at Mikirchang near Kaziranga National Park, as that area was a “No Development Zone”. Despite these directives, stone quarrying and crushing in the fragile ecosystem of KKAL continues unabated. An RTI query filed with the Director, Kaziranga National Park in February 2011 by Rohit Choudhury, a local resident of Bokakhat revealed that:

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6 The Bogibeel Bridge on the river Brahmaputra is another infrastructural project sanctioned under the Assam Accord. It will be the second rail-cum-bridge on the Brahmaputra and at 4.94kms will be the longest in the country.

7 Stone Quarry Proposed at Mikirchang near Kaziranga NP. Protected Area Update Vol. XII. No. 1 February 2006 (No. 59)

8 MoEF opposes quarrying at Mikir Chang near Kaziranga. Protected Area Update Vol. XII. No. 2 February 2006 (No. 60)

• There were 10 stone crushing units which were situated within 5 km of the Kaziranga National Park of which 9 had been granted licenses in 2011 which were valid upto 31.12.2011.
• There are 9 units which were situated between 5 to 10 km of the Kaziranga National Park of which 7 had been granted licenses in 2011 and were valid upto 31.12.2011.
• Each of the 19 units has been granted ‘Pollution Clearance Certificates’.
• 7 of the 19 units were situated in Garmur, Bokakhat which is an ‘Industrial Estate Area’.

As a ‘No Development Zone’ declared under the Environment (Protection) Rules, 1986, prior permission is required from the Union Ministry of Environment and Forest for starting any kind of developmental activities. Interestingly, however, response to the RTI filed by Choudhury which was also forwarded to the Ministry of Environment and Forests (Wildlife Division) divulged that the Wildlife Division of the Ministry did not have any information regarding the stone crushing units and no clearances had been granted by the Wildlife Division for stone crushing units in the vicinity of Kaziranga National Park Assam.

A consecutive RTI application filed by the same applicant in May 2011 brought out major discrepancies in the Assam Government’s notification of Garmur, Bokakhat as an ‘Industrial Estate Area’. The Government’s notification No. FRM.150/96/Vol.1/Pt. V/450 dated -05.1999 issued by the Forest Department states that the Minor Industrial Estates may accommodate only saw mills which do not use as raw material timber brought in from outside the state of Assam and there is no mention of stone crushing units. Also, contrary to information provided by the MoEF about the presence of an ‘Industrial Estate Area’ in Garmur, Bokakhat, the General Manager, District Industries & Commerce Centre, Golaghat (to whom the RTI was forwarded) categorically replied that the Centre, “has no Industrial Estate/Area in Garmur Bokakhat.”

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10 Reply of Deputy Inspector General (WL), Ministry of Environment and Forests dated 31.03.2011 to RTI Application dated 21.05.2011 filed by applicant Rohit Choudhury
11 Reply of the SPIO, o/o the Director, Kaziranga National Park dated 14.06.2011 to RTI Application dated 21.05.2011 filed by applicant Rohit Choudhury
12 Reply of General Manager, District Industries & Commerce Centre, Golaghat dated 02.06.2011 to RTI Application dated 21.05.2011 filed by applicant Rohit Choudhury
responses, Choudhury filed a petition in the National Green Tribunal (NGT) on the 17th of December 2011 citing the gross flouting of environmental rules around Kaziranga National Park. Following this petition, the NGT passed an interim order on February 15th 2012 directing the government not to renew or issue fresh permits to stone crushers or stone quarrying units in the area. Although, officially the government denied renewing or issuing any new permits after December 31st 2011, but quarrying operations are still being carried out clandestinely. The quarrying in the Mikir Hills is a multi-dollar industry facilitated by a nexus of businessmen, politicians, insurgents and even forest officials.

Speaking of the role of stone quarries in causing HEC and the apathy of the administration, one NGO member said:

*Stone quarrying and crushers is a major problem in Kaziranga. In this stretch from Lokhowjan to Kuthori, an area of about 100kms, there are more than 75 stone quarrying units. These quarries at different times have used different strategies to extract stones. The railways had purchased a huge quantity of stones from Behora quarries and dynamite blasting was conducted to meet the huge demand. This created a controversy after which blasting was banned. But these days even though they are not using dynamite they have brought a machine called 'stone breaker' which creates a lot of noise.

The stone quarries are coming up in remote forest corners and the administration is highly responsible for this. They are giving out permits indiscriminately to garner profits but the impact this is having on the elephants is not being considered. Quarries are being set up by people even on their patta lands; wherever there is stone, quarries are being set-up. Also large vehicles are plying regularly to and from these quarries to transport the stone which is further disturbing the animals. On top of these quarries are the crushing units which are running 24 hours a day and producing both noise and air pollution. In Panbari alone there are five such units. If all these five units run at the same time one can only imagine the fate of the elephants living in the vicinity.*

Excerpts from In-depth Interview, Transcript A1

Expressing similar concerns another NGO personnel working with a national level conservation organisation said:

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Illegal felling is rampant in the region. In Karbi Anglong there is a nexus of forest officials and businessmen who are looting forest resources. Not only timber but other forest products such as stones etc. are being extracted indiscriminately. This area here in Panbari is full of quarries and stone crushing units. Everybody in the Forest Department, from the forest guards to the top officials is getting their commission out of these quarry operators. But there is no evidence of these illegal dealings.

Excerpts from In-depth Interview, Transcript A3

It is interesting to note that stone quarrying and crushers affect the environment adversely and have been deemed by some respondents to be one of the root causes of HEC in the area. However, these establishments also provide employment to a lot of landless and unskilled labour of the region. With majority of quarries and crushing units located in the foothills of Karbi Anglong, villages like Mikirchang, Gorhmur and Panbari have people working in these units and earning a livelihood. It is probably on account of this that fewer respondents from these villages named stone quarrying as a cause of HEC as compared to respondents from Mohpara as also the government and NGO officials.

4.1.1.3. Bamboo Harvesting

Until recently, the main raw material that went into commercial paper making was wood pulp. However, with growing demand for paper and also increasing awareness about the negative environmental effects of logging wood for paper making, other alternatives were explored. Bamboo came out as a viable environment-friendly option, because of its quick renewability and the other ecological functions it performs. Although, bamboo was used in paper making in China for many hundreds of years, but use of bamboo in the paper industry, mainly in Asia, started in the late 70s and early 80s. In India, the Northeast region alone accounts for almost 65 percent of the country’s total bamboo production covering an area of more than 2.5 million hectares.

A research paper presented by Baruah and Ahmed (2009) on the paper industry in Assam and its environmental consequences, estimated that in the well-endowed hill region of the state, 1 hectare of bamboo plantation produces 40-45 tonnes of bamboo. Considering that 2.2 tonnes of bamboo produce 1 ton of paper, a large paper industry
with 300 tonnes daily production capacity needs about 660 tonnes of bamboo per day and proportionally other materials for production of paper. Accordingly, daily requirement of bamboo for such industry will affect about 14-16 hectares of bamboo plantation area.

Bamboo considered as ‘green gold’ in the region has multiple uses and benefits. The most significant advantage of using bamboo is its rapid regeneration; it is the single fastest growing species of plant with some species growing more than a meter a day. Also, bamboo matures in 3-5 years and when the poles are cut, and the roots left in the soil, new shoots will sprout from them thus continuing the cycle. Extraction of bamboo, therefore, has to be regulated and scientifically conducted to maintain the ecological balance.

Within Assam, the Karbi Anglong district is the largest producer of bamboo and almost 50 percent of the state’s bamboo comes from this district. The greater part of bamboo harvested from Karbi Anglong goes into paper-making. The bamboo thickets also provide shelter to wildlife and bamboo foliage, young bamboo and bamboo shoots, is favourite fodder for elephants and wild boars. The reckless harvesting of bamboo in Karbi Anglong by private commercial agencies to supply to paper mills has however severely damaged the natural regeneration process leading to disastrous consequences. The harvesting of young and tender bamboos has depleted the food base of elephants in the forest bringing the elephants frequently to the villages in search of food. As a neighbouring district and part of the KKAL, Golaghat has also been bearing the brunt of increased elephant incursions into human settlements due to pillaging of the bamboo forests in Karbi Anglong. Highlighting the disappearance of bamboo forests and bamboo grooves in Karbi Anglong, an NGO worker commented:

*The Jagiroad Paper Mill (it is in Nowgaon district and most of the bamboo from Karbi Anglong and North Cachar Hills district are supplied to this Mill) is one of the reasons for increasing HEC. When the Paper Mill was set up we were happy that an asset had been created but we had not envisioned the destruction that the Mill would unleash on the bamboo forests of the region. Even today bamboo is being harvested for supplying to this Mill. Even bamboos from villages are procured by private agencies and supplied to the Mill. While harvesting bamboo no
discrimination is made; both mature and immature bamboos are cut, loaded on trucks and taken away. If it would have been a planned manner it would have been sustainable but due to indiscriminate felling many species of bamboo have become extinct. Jagiroad Paper Mill is receiving bamboo from all sources without verifying the supplier’s credentials. The harvest of bamboo is not regulated and most of the bamboos are from the forests of Karbi Anglong. Because of this elephants have nothing to eat and coming out to the villages.

Excerpts from In-depth Interview, Transcript A1 (Parentheses mine)

Like in most parts of the developing world, industrial development in Assam has also become a double-edged sword. While on the one hand, huge industries like the Jagiroad Paper Mill are generating employment opportunities for the local people and on the other hand, wreaking havoc on the environment (e.g. pollution, loss of biodiversity) and society (e.g. landlessness, health concerns). This raises the oft debated issue of environment versus development that has been wrangled in various fora for decades now but a clear solution is still elusive.

4.1.1.4. Jhum Cultivation

Jhum or shifting cultivation in North-East India has been in practice amongst many tribal groups since many years. Jhum cultivation, generally practiced in the hilly areas of the states of Assam, Mizoram, Manipur, Meghalaya, Sikkim, Arunachal Pradesh and Nagaland, involves clearing of forest patches by slashing and burning the vegetation, cultivating the land for few years and then abandoning the site for 15-20 years to allow the natural regeneration of soil nutrients. During this period, other sites are cleared and cultivated and when the land is again fit for farming, the agriculturists return to the former site and start cultivation on it again. Ideally, jhum cycle in a particular site should be for 20-30 years, but due to increase in population and non-availability of land, the cultivation cycle nowadays has reduced to just 3-5 years. The reduction in the cycle and frequency of cultivation have robbed the soil of its nutrients and made the top soil loose and vulnerable to erosion. The crop yield has also been reduced, forcing farmers to look for new areas which have led to a decline in forest areas, fragmentation of habitat, disappearance of native species and invasion by exotic weeds (Ranjan & Upadhyay, 1999).
Chapter 4  

**Human Elephant Conflict in Assam: Identifying Reasons of Occurrence**

The most recent Status of Forest Report (FSI, 2011) states that the North-eastern region of India lost 549km\(^2\) of forest cover during 2009-2011. The report clearly mentions that decline in forest cover in the states of Manipur, Mizoram, Meghalaya, Nagaland and Arunachal Pradesh is due to shortening of shifting cultivation cycle and biotic pressures. In Assam, where shifting cultivation is practiced in two districts, Karbi Anglong and NC Hills, forest cover loss is mainly attributed to illicit felling, encroachments in insurgency affected areas and shifting cultivation practices. According to ASTEC (Assam Science Technology and Environment Council) the two hill districts, Karbi Anglong and the N.C. Hills, have 42.37 per cent and 59.65 per cent areas respectively under shifting cultivation.

In Karbi Anglong, like in other parts of the country, there has been a rise in population\(^{14}\), coupled with scarcity of land which has resulted in shorter jhum cycles. The shorter jhum cycles limits the natural regeneration of plants which can check the negative impacts like soil erosion and depletion of biodiversity. As productivity is dropping due to shorter cycle, newer areas are being brought under cultivation leading to further loss of forest cover which has disadvantaged the elephants. As forests are diminishing and anthropogenic activities in erstwhile forest areas are on the rise, elephants are abandoning their forest habitat in the Karbi Hills and are seeking refuge in the tea gardens as well as the Panbari RF and Kaziranga National Park in Golaghat. The foraging needs of the burgeoning elephant population in these forests are increasingly bringing them out of the forests and into the fields and villages located in the vicinity. Commenting on the linkage between forest cover depletion from jhum cultivation and HEC, a forest official remarked:

*Tree felling in Karbi Anglong has risen to alarming levels. The fact that most of the forests in Karbi Anglong are community-managed, prevents the government from interfering with the felling of trees for jhumming. In winters you can see the hills engulfed in fire set by the jhum cultivators and black smoke billowing from them. This creates disturbance and panic among the elephants which abandon the hill forests and seek refuge in the small patches of forests and tea-gardens in the foothills and raid villages for food.*

Excerpts from In-depth Interview, Transcript A4

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\(^{14}\) According to census data of 2011, there has been an 18.69 percent rise in Karbi Anglong’s population since 2001.
Respondents in all the four villages of Golaghat expressed their disapproval about jhum cultivation and blamed the Karbi people for destroying the habitat of elephants by burning down forests. Jhum cultivation might not be as serious a concern for HEC as encroachment or stone quarrying but the fact that jhum as a tribal way of cultivation had been branded as ‘primitive’ and ‘wasteful’ by the colonial administration might have created a bias against the practice amongst the wet-rice cultivating plain settlers, which is being reflected in their opinion.

4.1.1.5. Plantations

The name ‘Assam’ conjures up an image of a verdant landscape dotted with lush green hills, blue rivers and abundant tea gardens. Assam tea is famous for its rich aroma, strong taste and bright colours. Historically, Assam has been the second commercial tea production region after southern China; only two regions in the world with native tea plants. As a native plant, tea had been in use in Assam among some tribes like the Singphos and Bodos, long before its colonial ‘discovery’ by a Scottish gentleman, Robert Bruce in 1823. However, it was only in the early 1830s when this native plant was identified as variety of tea that cultivation, production and use commenced at a commercial level.

Assam alone accounts for more than half of the area under tea cultivation in India and also produces more than 50 percent of the total tea production of the country. According to the Tea Board of India, there were nearly 50,000 tea gardens in Assam covering an area of 3,22,000ha in 2008. There are more than 800 large tea gardens in Assam owned by companies such as Tata Tea, Williamson Magor, Assam Tea Company, Goodricke etc. and nearly 52000 small tea growers out of which 4561 are registered with the Tea Board of India. Tea is the largest industry in the state and provides average daily employment to more than six lakh persons. The industry also contributes a great deal of revenue to the state exchequer by way of taxes, excise and road levy and has been instrumental in the development of ancillary industries such as, plywood, aluminium, fertilizer, pesticides, communication and transport, warehouse industries, etc.
While the tea industry has definitely contributed to the economic development of Assam, it has also had detrimental effects on the environment. Since the discovery of tea plants in the early nineteenth century, British planters set on a mad rush to include large areas under tea cultivation even at the expense of clearing lush green forests. As Robert P. Tucker (1988) states, “Whenever markets for tea were strong enough to enable expansion of plantation acreage, forest cover was corresponding reduced” (p.124). If we look at the recent acreage statistics, we realise that the process of conversion of agricultural and forest land for tea cultivation has not remained stagnant and rather every year there is an increase in it. The Tea Board of India has several schemes for the promotion of tea plantation in Assam. The huge subsidies offered by the Tea Board for setting up tea-plantations has led to the mushrooming of small-tea gardens by small scale farmers in many parts of Assam. In Golaghat paddy fields and unclassed forest areas in the foothills of Karbi Anglong and near North Nambor Wildlife Sanctuary are being gradually converted to tea gardens by wealthy businessmen through local farmers. Speaking of the mal-practices involved in the process of land conversion in Golaghat district, an NGO personnel said:

"Tea garden expansion is a reason for the dwindling forest cover in Karbi Anglong and Golaghat. The Tea Board of India has launched many lucrative schemes in the region to influence small farmers. There is a scheme called the Tea Techno Mission Project (project name might not be accurate) which gives high percentage of subsidy to small tea-growers in addition to cash benefit of INR75,000 per hectare for plantation. Karbi people are very poor and ignorant and rich businessmen take advantage of it. They convince the local people to apply for the Tea Board scheme and propose to do all the paperwork and pay the processing fee. When applications are filed with the Tea Board, they only check the authenticity of the land documents and if everything is found in order they approve the scheme. After the scheme is approved, the businessmen take the land on lease from the owners by paying a token amount. After a few years if production is good the Board gives further subsidies to establish factories, buy tools etc. This project has brought huge areas of forest land under tea cultivation."

Excerpts from In-depth Interview, Transcript A4

In the context of Sonitpur also a similar process of land conversion prompted by tea cultivation is under way. Relating this phenomenon with the occurrence of HEC in the district an NGO respondent said:
In Sonitpur, most of the area that is under tea gardens was once forested areas. 70% of the tea gardens in Sonitpur were established during British rule but the rest had been set up in the recent past. On the western side of Sonitpur, in places like Tarajuli, where there are tea gardens now, people will tell you that the area was forested some 25-30 years back and that they hunted game in these forests. That was a traditional route that elephants used. Now with the expansion of the Tarajuli tea-garden and settling of labour households in the area, the traditional route has been blocked which is being resented by the animals. Incidents of HEC in Tarajuli have therefore increased manifold in the last 10-15 years.

Excerpts from In-depth Interview, Transcript A7

Another problem emanating out of the tea industry is the abundant use of chemical pesticides and insecticides in the plantations. This over reliance of pesticides not only poses health risk for consumers but also severely jeopardize the well-being of wild animals. The use of pesticides has been criticised for allegedly causing elephant deaths around Kaziranga National Park. In Oct 2010, two incidents of elephant deaths due to pesticide poisoning had been reported from Kaziranga. The carcasses of two elephant calves were recovered from a tea garden near Kaziranga and forensic analysis of the viscera of these claves have confirmed death due to organochloride poisoning, a commonly used pesticide in tea gardens. Barely a week later two female elephants were found dead in separate locations around Kaziranga and initial investigation into the deaths also point towards pesticide poisoning. In addition to the risk of poisoning, respondents also highlighted another kind of risk faced by elephants in tea gardens, which is falling of elephants, mainly calves, in trenches dug in and around tea-gardens for drainage. One of the NGO respondents in Sonitpur also complained that he witnessed an incident where a mechanised earth mover was used to chase the elephants from the tea-garden and some elephants had sustained major injuries after being hit by the heavy machine. Although such practices are not in common practice but a single incident of this nature can cause grievous injuries to the animals. Interviewed government officials also lamented on the lack of cooperation by tea-garden authorities in dealing with the problem of HEC.

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16 Interview 11, 12, 27, 28, 29, 30, 31, 36, A1, A2, A4
17 Interview A10
Apart from tea, lately another type of plantation is being vigorously promoted in Assam by the government and that is rubber. The shift in focus from the traditional rubber growing belt of Tamil Nadu and Kerela to the North-east has already taken place and Tripura has emerged as the second largest rubber producer in the country after Kerela. The National Rubber Board is now planning to make Assam one of the leading states in rubber production in the country and pushing for a comprehensive rubber policy in the state. The Rubber Board is offering subsidies and giving out cash incentives to farmers in Assam to plant and/or replant rubber. At a time when commercial plantations are being discouraged by experts in ecologically sensitive areas\textsuperscript{18}, the promotion of rubber plantation in Assam comes as a shocker. The monoculture rubber plantations have been proved to have negative environmental consequences like biodiversity loss and climate change (Sturgeon, 2011). The promotion of rubber plantation in biodiversity rich areas such as Golaghat and Karbi Anglong can do irreparable harm to the flora and fauna of the region.

4.1.1.6. Encroachment

The Assam Forest Policy, 2004, states that forests being an open access resource are vulnerable to various kinds of pressures like encroachment, illicit felling and smuggling of timber, fire, grazing and shifting cultivation. Encroachment is considered as one of the main causes of depletion of forest resources in the state and the Policy enlists the following reasons as explanations for encroachment:

- Rehabilitation of flood and erosion affected people in the forest land for settlement in the past as well as aggressive and organised group encroachment under compulsion of such vagaries.
- Heavy biotic pressures on the Reserved Forests due to high growth rate in population.
- Inter-state boundary disputes with the neighbouring States, like Nagaland, Mizoram, Meghalaya and Arunachal Pradesh.

Encroachers are persons who are cultivating or residing on forest land without a legal right to be there. The Union Environment Minister Jairam Ramesh said in reply to a

\textsuperscript{18} Expert panel for curtailing commercial plantations in Western Ghats. The Hindu, May 27, 2012. Retrieved on 27\textsuperscript{th} June 2012.
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query in the Lok Sabha in March 2010 that Assam tops the list of states in terms of forest area encroachment with nearly 4,85,674 hectares of land being occupied illegally by encroachers\(^\text{19}\). The nature of forest encroachment in Assam is very complex and cannot be narrowed down simply to indigenous tribal usage as elsewhere in India. The Reserved Forests have been found to be most prone to encroachment and in districts like Kamrup, encroachment is largely due to increased and rapid urbanisation. In other districts like Karbi Anglong, NC Hills, Karimganj and Hailakandi, encroachment of forest areas has largely been attributed to shifting cultivation and expansion of agricultural activities. Interestingly, the nature of encroachment recorded in the study districts of Golaghat and Sonitpur also varies significantly from one another. While Reserved Forests of Sonitpur are largely encroached by politically driven ethno-tribal settlers demanding a separate tribal state, in Golaghat large tracts of forests have been lost due to inter-state border disputes with Nagaland and also to land reclamation by peasants.

Encroachment in the Reserved Forests of Sonitpur became chronic in the late 80s and early 90s when the demand for a separate Bodo state gained momentum. Tribal settlers from other districts like Kokrajhar, Bongaigaon, Karbi Anglong and even other states like Nagaland were brought in by political groups to assert their claims. While political motivation was the major factor driving this influx, people were also lured by the prospects of getting land and securing their livelihood (Kalpavriksh Environmental Action Group, 2009). Naturally enough, there was not sufficient revenue land to host such a huge population and the settlers started clearing and occupying the forests. Most of the encroached land in Sonitpur is now under subsistence agriculture practiced by the encroached villagers. The dependence of the encroached as well as revenue villages on forests for fuel wood, fodder and building materials like bamboo, thatch, etc. is also high which puts additional pressure on the remaining forests. Describing the process of forest deforestation in Sonitpur, a respondent says:

*Forest destruction in Sonitpur started in the 80s, around 85; it was at its peak in the 90s but by 2000 mass destruction of forests slowed down. The state of forests in Sonitpur today is more or less the same as it was at the beginning of 2000, except in Behali Reserve Forest where*

\(^\text{19}\) Assam Tops in Encroachment of Forest Land. The Hindu. New Delhi, March 10, 2010.
encroachment is from the Arunachal side. Gohpur RF was the first reserve in Sonitpur that was encroached. People from Kokrajhar, Karbi Anglong and elsewhere had come and settled in the forests. It was not a gradual process but overnight thousands of people landed and started occupying forest land. It was purely associated with the ethnic movement. After Gohpur, people started settling in Naduar RF, and today it is a forest just for namesake.

So what happened was that within a span of 10 years, the district lost nearly 70% of its forests. Due to this sudden change in forest cover, HEC has increased. Small animals were mostly hunted and killed by the settlers but elephant is a species which cannot be killed very easily. Also the life-span of elephants is long and its survival ability is high because of which there is no drastic reduction in the population of elephants. Earlier Elephants used to come down to the valley in the winters in search of food and during summers moved up into the hills. But now, the once abundant forests in the valleys that provided food to the elephants are no longer there and in its place agricultural fields and human settlements have come up. Also people living in encroached villages have to fend for their own survival because they known that because of their illegal occupation of forest land any loss caused by animals will not be compensated for by the government. So when their survival was at stake they started going to any extent to ensure their safety. For instance, if villagers come to know that elephants are taking shelter in the forests in their vicinity they would go out in droves and chase away the elephants using bows and arrows, spears etc. Some even erected illegal electric fences to ward off the animals. Facing such atrocities and disturbances in the settlement fringe forests, the elephants gradually started taking shelter in the tea gardens. In tea gardens there are small labour settlements and elephants started raiding these settlement and ration stores in search of food and country liquor. This gradually brought a change in the behaviour of the elephants and now they have started coming to the villages more frequently.

Excerpts from In-depth Interview, Transcript A4

The nature of encroachment in Golaghat is different from that of Sonitpur. It is one of the most forested districts of the state and has within its ambit the world-famous Kaziranga National Park. Apart from this national park, the district also has several reserved forests like Panbari, Rengma, Diphu, Nambor North and South and the Nambor-Doigrung Wildlife Sanctuary. The issue of encroachment of these forests has repeatedly surfaced in the local and national media and is steeped in controversy.
Table 4.2: Status of Encroachment in Different Protected Areas of Sonitpur District (as reported on 23.11.2011)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of PA</th>
<th>Total Area (in ha.)</th>
<th>Area under Encroachment (in ha. Approx)</th>
<th>Approx. no. of households/hutments</th>
<th>Approx. Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Charduar RF</td>
<td>24,072.00</td>
<td>22,000.00</td>
<td>22,500</td>
<td>1,10,000</td>
</tr>
<tr>
<td>2.</td>
<td>Balipara RF</td>
<td>18,972.00</td>
<td>10,000.00</td>
<td>2,500</td>
<td>10,000</td>
</tr>
<tr>
<td>3.</td>
<td>Senglimari RF</td>
<td>339.86</td>
<td>200</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Goroimari RF</td>
<td>42.22</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Bhomoraguri RF</td>
<td>156.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>Singri RF</td>
<td>485.52</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Sonai Rupai WLS</td>
<td>22,000.00</td>
<td>9,500.00</td>
<td>4,000</td>
<td>18,000</td>
</tr>
<tr>
<td>8.</td>
<td>Nameri NP</td>
<td>22,000.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9.</td>
<td>Naduar RF</td>
<td>8,141.00</td>
<td>6,512.00</td>
<td>20,800</td>
<td>87,600</td>
</tr>
<tr>
<td>10.</td>
<td>Biswanath RF</td>
<td>10,561.00</td>
<td>6,552.00</td>
<td>2,695</td>
<td>7,744</td>
</tr>
<tr>
<td>11.</td>
<td>Behali RF</td>
<td>14,016.00</td>
<td>3,075.00</td>
<td>1,450</td>
<td>4,980</td>
</tr>
<tr>
<td>12.</td>
<td>Singlijan RF</td>
<td>1,400.00</td>
<td>175.00</td>
<td>110</td>
<td>540</td>
</tr>
<tr>
<td>13.</td>
<td>Gohpur RF</td>
<td>13,310.00</td>
<td>11,315.00</td>
<td>22,000</td>
<td>1,15,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1,33,495.00</strong></td>
<td><strong>69,329.00</strong></td>
<td><strong>76,055</strong></td>
<td><strong>3,54,861</strong></td>
</tr>
</tbody>
</table>

Source: Divisional Forest Office, Sonitpur West Division
Chapter 4  

Human Elephant Conflict in Assam: Identifying Reasons of Occurrence

The Union Minister for Environment and Forest, Jairam Ramesh in a written reply to a question in Lok Sabha on August 2010 stated the details of encroachment in the National Parks of different states and Union Territories of India as on February 2007\(^\text{20}\). According to the reply, all five National Parks of Assam have encroachments and Kaziranga National Park (in additional areas) had the highest area (7790 hac) under encroachment\(^\text{21}\). The Kaziranga National Park was declared as a National Park in 1974 with an original area of 430 km\(^2\). Since 1985, the Government of Assam had notified six proposed ‘Addition’ to Kaziranga National Park in order to secure corridors for migration of wild animals, and escape routes in case of high flooding and for extending the Park by inclusion of the *chapories* (sand banks) of Brahmaputra to compensate for loss of park area due to erosion (Table 4.3). However out of the six area additions only in the first (43.79 km\(^2\) - notification on May 28, 1997), fourth (0.89 km\(^2\) - notification on 3\(^\text{rd}\) August, 1988), and sixth addition (376 km\(^2\)- notification on August 7, 1999), the land settlement procedure has been completed. The final settlement in the second (6.47 km\(^2\) - notification on July 10, 1985), third (0.69 km\(^2\) - notification on May 31, 1985), and fifth addition (1.15 km\(^2\) - notification on June 13, 1985) are still pending due to court cases relating to land dispute.

**Table 4.3:** Status of Additions to Kaziranga National Park

<table>
<thead>
<tr>
<th>Additions to Kaziranga National Park</th>
<th>Area (km(^2))</th>
<th>Date of Notification (Preliminary)</th>
<th>Final Notification Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(^{st}) Addition</td>
<td>43.79</td>
<td>28.09.84</td>
<td>28-05-97</td>
</tr>
<tr>
<td>2(^{nd}) Addition</td>
<td>06.47</td>
<td>10.07.85</td>
<td>Not completed</td>
</tr>
<tr>
<td>3(^{rd}) Addition</td>
<td>00.69</td>
<td>31.05.85</td>
<td>Not completed</td>
</tr>
<tr>
<td>4(^{th}) Addition</td>
<td>00.89</td>
<td>13.06.85</td>
<td>3-8-1988</td>
</tr>
<tr>
<td>5(^{th}) Addition</td>
<td>01.15</td>
<td>13.06.85</td>
<td>Not completed</td>
</tr>
<tr>
<td>6(^{th}) Addition</td>
<td>376.50</td>
<td>10.09.84</td>
<td>07-08-99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>429.49</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Department of Environment and Forest, Government of Assam


\(^{21}\) Ibid
The Forest Department claims that there is no encroachment in the core area and the settled additions of the Park but acknowledge the presence of unauthorized settlers of suspected origin in the addition areas where dispute is still on. The encroachment by alleged Bangladeshi immigrants has remained a bone of contention between anti-immigrant groups like the All Assam Students Union (AASU), Asom Gana Parishad (AGP) and the Forest Department. These groups allege that the ruling Congress party patronizes the encroachers and thus, no action is taken to evict them from Park land. While encroachment by people of doubtful origin is strongly condemned by locals and political groups alike, attempts to garb indigenous people as encroachers and evict them from their lands is also flayed by these groups. Nearly all the respondents in Mohpara, expressed their resentment regarding the ‘politically backed encroachments’ in Kaziranga and complained that while ‘illegal settlers’ are being protected by the government, indigenous people living in fringe villages are regularly exploited and harassed by Forest Department staff on the pretext of conservation.

As this struggle unfolds in the north-western part of the district, the forests on the eastern side of Golaghat are afflicted with a different kind of encroachment. Border disputes with Nagaland and encroachment by Naga settlers have caused immense degradation in the four Reserved Forests, Diphu, Rengma, Doyang and Nambor South on the Golaghat side. Another related dynamics of encroachment that is in operation around Nambor and Doyang Reserved Forests is the dispute between small land-holders and Forest Department regarding occupancy and entitlements on forest land. The process of ‘peasantisation’ of land around Nambor started in the late 19th century when the British Forest Department opened parts of the Reserved Forest for agricultural and tea cultivation (Saikia, 2008b). This was followed by subsequent waves of peasant colonisation; in the 1950s by the left-led movements, in the 1970s and 1980s by landless peasants from Upper Assam and also retired tea garden labourers and off-late by migrants from East-Bengal (ibid). The settling of people in Nambor has definitely led to a decline in the forest cover but the fact that peasant colonisation started at the behest of the government cannot be ignored. The government had encouraged
settlement of peasants for agricultural gains but unfortunately the issue of land rights had been left unresolved due to which confusions about encroachment and ownership are frequently contested by the peasants and government in Nambor. While the peasants claim that they are entitled to the land they have been cultivating for decades, the Assam Government deem them as encroachers and have made attempts in the past to evict them. When in 2002 the Assam government tried to evict peasants from Tengani, a village near Nambor, people took to the streets opposing the evictions and a peasant organisation *Brihattar Tengani Unnayan Sangram Samiti*, or the Greater Tengani Revolutionary Organisation for Development (BTUSS) was formed to advocate for the rights of the peasants. This organisation, along with the Krishak Mukti Sangram Samiti (KMSS) a regional NGO working on farmer’s issues in Assam, have been demanding the restitution of tenurial rights to the peasants under the Forest Rights Act, 2006.

**Table 4.4:** Status of Encroachment in Reserved Forests under Golaghat Forest Division (as on 23.06.2006)

<table>
<thead>
<tr>
<th>Name of the RF</th>
<th>Total Area (in hac)</th>
<th>Area under Encroachment (in hac)</th>
<th>Area encroached by Nagaland</th>
<th>Percentage of Area Encroached by Nagaland</th>
<th>No. of Villages</th>
<th>No. of Households</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphu</td>
<td>18363.00</td>
<td>18050.00</td>
<td>17500.00</td>
<td>96.95</td>
<td>03</td>
<td>193</td>
<td>1037</td>
</tr>
<tr>
<td>Nambor South</td>
<td>27240.61</td>
<td>25000.00</td>
<td>10000.00</td>
<td>40.00</td>
<td>120</td>
<td>7206</td>
<td>39728</td>
</tr>
<tr>
<td>Rengma</td>
<td>13921.49</td>
<td>11000.00</td>
<td>2000.00</td>
<td>18.09</td>
<td>130</td>
<td>5398</td>
<td>35723</td>
</tr>
<tr>
<td>Doyang</td>
<td>24633.77</td>
<td>23000.00</td>
<td>200.00</td>
<td>0.87</td>
<td>148</td>
<td>15683</td>
<td>85522</td>
</tr>
<tr>
<td>Nambor North</td>
<td>15410.00</td>
<td>9918.00</td>
<td>N/A</td>
<td>N/A</td>
<td>34</td>
<td>2718</td>
<td>13495</td>
</tr>
</tbody>
</table>

Source: Department of Environment and Forest, Assam

**4.1.1.7. Timber Smuggling and Collection of Firewood and Non-Timber Forest Products**

The illegal trade in timber has destroyed large tracts of forests in Assam. The state has always been a major source of timber and Assam’s timber and wood products are high in demand for its superior quality and durability. Even though trade in forest products
existed in pre-colonial Assam but timber trade was fully established by the British colonial administration. This legacy continued unabated after independence as well because of huge demand and enormous revenue generated from the sale of timber and wood-based products. However, the 1996 Supreme Court ban on tree felling and movement of timber from the Northeast to other parts of the country made this trade an illegal activity in the region. Despite this ban, trees continue to be illegally felled and smuggled out of the state, mostly in connivance with the state Forest Department. Districts like Kamrup and Karbi Anglong fare worst when it comes to illegal timber trade. Interviewed government and NGO officials unanimously said that lately illegal felling in Karbi-Anglong has risen to alarming levels. Illegal saw mills have also mushroomed to process the logs and these are running openly without being apprehended by the administration. The proliferation of militancy in Karbi Anglong, NC Hills and Bodoland areas have also boosted the illegal trade in timber because some of the militant groups are known to raise funds by engaging in illegal timber trade\textsuperscript{22}. Their violent and gun-wielding ways also deter the Forest Department staff from apprehending them or stopping them in their activities.

While the timber trade is managed by people with means and power, forests are also cleared by poor people for subsistence living. The 2011 census report mentioned that firewood remains the main source of cooking fuel used by households in Assam and as many as 72 percent use firewood for cooking. Among the sampled households in Golaghat, only one single household did not use wood as cooking fuel while the remaining 39 households all used wood, either singularly or in combination with other fuel such as LPG. Also among these 39 households, 23 sourced their wood entirely from forests. In Sonitpur also the usage of wood fuel was found to be very high as all 40 households reported using wood. However, unlike in Golaghat, the reliance on wood as a sole fuel source is relatively low and even nil in Bandarhagi Pathar, primarily because of the high economic status of the people in the village.

Although, most families living in the vicinity of forests collect drywood to use as fuel, however, some landless poor families who have no other means of earning during lean seasons also cut trees to sell as firewood in the market. Apart from wood other non-
timber forest products play a significant role in the livelihood of communities living in the vicinity of the forests. The people depend on the forest for resources required for shelter (like hay, reed etc.), food (bamboo shoot, mushroom, yam, banana flower and stalk etc.), fodder for livestock, household herbal medicine etc. which are consumed at home and also sold in the neighbouring markets for money.

4.1.1.8. Hunting, Poaching and Trade in Animal Parts

For many tribal groups in Northeast India like the Nagas, Mizos, Adis, Karbis, etc. hunting is an integral part of their culture. A review article by Vellho et al. (2012) concludes that wildlife in the Eastern Himalayas and Indo-Myanmar is most susceptible to hunting and it is one of the greatest conservation threats in this region. Wildlife is hunted for food, supplementary income, sport, medicine, rituals, and also to protect cattle and crops. Wild meat is a preferred choice among many tribes because it is considered to be superior in taste and unpolluted. Besides meat, wild animals are also hunted for their body parts or derivatives like bone, teeth etc. to be used in traditional healing, embellishments etc. Tribal customs like offering of wild meat as bride price by the Miju Mishmi tribe during weddings, using the upper beak/casque of the Great hornbill as traditional headgear among the Nyishi tribe are examples where wildlife is hunted for ritualistic reasons. The indiscriminate hunting of wild animals is taking a toll on the ecology and biodiversity of the region and also has negative impact on the behaviour and abundance of species. Studies have shown that unsustainable hunting of wild animals for food and derivatives affects the prey base of wild carnivores (Ramakrishnan, Coss & Pelkey, 1999; Datta, Anand & Naniwadekar, 2008), results in skewed sex ratio (Sukumar et al., 1998), leads to loss of genetic diversity (Whitehouse & Harley, 2001) and many such negative consequences.

The incessant hunting and poaching by tribes in the Assam-Arunachal border has been attributed to the growing human-elephant conflict in Sonitpur. It is believed that due to continued harassment by people on the Arunachal side, the elephants have restricted their home range and continue to remain in the forested areas of Assam where disturbance is relatively less. However, these areas are not suitable to support the
It is disturbing to note that with the demand for animal derivates growing in the international market, traditional hunting has given way to modernised poaching in Northeast India. Funded by international mafia, tribals who are experienced hunters are recruited to kill wild animals and source body parts like tusks, horns, skin etc. which fetch good money. In Kaziranga National Park, poaching of rhinos for their horns is a menace. Close examination of cases and interaction with apprehended poachers have revealed that poor tribal youth are lured into poaching by unscrupulous traders from the neighbouring state of Nagaland with money (Martin, Talukdar & Vigne, 2009). These youth living in the neighbouring area who are familiar with the area are also paid by outside poachers to act as guides and lead them to their prey. Like rhinos, poaching of elephants is also a serious issue, not only in Assam but the entire Northeast. Elephants are hunted for ivory and also for meat which is a delicacy among many tribes.

4.2. Behavioural Ecology of Elephants

Studies on the behavioural ecology of elephants engaged in conflict have proved that HEC is also induced by the foraging behaviour of elephants to maximise their nutrient intake in the least possible time (Sukumar, 1989). Under these circumstances, cultivated crops which are not only rich in nutrients but also have high palatability appeal to the taste buds of elephants. The seasonality of conflict, which peaks in the months of Oct-Jan, can be regarded as empirical evidence of the optimal foraging theory because these are the months when crops start to ripen and are ready for harvesting. In addition, this is the time when the dry season sets in and wild grass and forage becomes fibrous and
unpalatable driving elephants to look for nutritious alternatives in the paddy fields. Some studies have also claimed that elephants attack houses to consume stored food (mainly paddy), to drink from water deposits (e.g. home wells or water barrels), or to consume salt from kitchens (Campos-Arceiz et al., 2009).

Elephants are also said to be fond of liquor and although there are very few scientific reports (Siegel & Brodie, 1984) to prove this, popular media is replete with stories of intoxicated elephant ravages and antics\textsuperscript{24}. Locally brewed liquor and rice wine are popularly consumed in Assam and in fact among many communities like the Ahoms, Mishings and Karbis, rice wine has cultural significance as it is needed for ceremonies and festivals. Local forest officials and NGO staff believe that the smell of local wine attracts elephants and strongly discourage people in conflict-prone areas to indulge in making or consuming local liquor. One incident of an elephant drinking liquor in a village near Kaziranga and creating havoc occurred while I was doing my data collection. It was alleged that the elephant had entered an \textit{Adivasi} settlement at night and consumed local liquor. The intoxicated elephant then went around the area in broad daylight damaging houses and chasing people. The Forest Department brought in three \textit{kunkies} (domesticated elephants) to drive away the wild elephant which was not ready to budge and put up a fight. After a lot of effort the tusker was finally driven back to the forest in the evening\textsuperscript{25}.

Elephants are generally not aggressive in nature and normally do not attack humans without provocation. However some scholars believe that changes in the social composition of elephants due to habitat reduction, poaching, starvation etc. can lead to high levels of stress among the animals and they may suffer from Post Traumatic Stress Disorder like humans that maybe manifested in symptoms like aggressiveness and aberrant behaviour (Bradshaw et al., 2005; Bradshaw & Shore, 2007). Solitary movement of elephants in Idduki Wildlife Sanctuary, Kerela (Govindaraj, 2010), aggressiveness in elephants of Rajaji National Park, variations in feeding behaviour in same geographical area (Joshi et al., 2009) all point out to abnormal behavioural

\textsuperscript{24} Drunken Elephants Kill Six People, BBC News, Tuesday 17\textsuperscript{th} December 2002; Drunken Elephants Die in Accident. BBC News, Friday 23\textsuperscript{rd} January, 2004; Drunk Elephant Damages Houses near Kaziranga, India TV News, June 20\textsuperscript{th} 2011, Retrieved from http://www.indiatvnews.com/news/india

\textsuperscript{25} Noting from field diary, 19\textsuperscript{th} June 2011.
changes in elephants due to unfavourable environmental conditions. As already mentioned, people’s narratives in the context of the present study also refer to behavioural changes in elephants in the study area.

4.3. Socio-Political Determinants of HEC

It is evident from the above discussion that HEC is a complex phenomenon involving an array of factors, ranging from biological, to ecological and even social and cultural. There are competing claims and values of nature and resource use throughout the region which accounts for a unique political ecological landscape in Assam. Each of the causes of habitat loss and conflict enlisted by the respondents are embedded deep in the socio-political history of the region which need detailed explanation if solutions to HEC are to be holistic and effective. The study of HEC has received significant attention from ecologists and biologists, however, despite its inherent socio-political tendencies HEC has not been a matter of much sociological inquest. The present study is an attempt to dispel this prevailing trend and aims to look beyond the ‘apparent’. It is an effort to understand the underlying social, political and economic processes which have impacted human nature relationships over time and have had over-arching influences on HEC in the study area. The findings of the study substantially illustrate the inter-connectedness between HEC and the socio-cultural and political context within which conflict takes place. In the study area HEC had been found to be firmly entrenched in the region’s colonial history, capitalist valuation of nature, forest policies reinforcing hierarchical structures, dichotomy of man versus nature and also in the ethno-tribal political wrangling over identity and statehood. The following paragraphs provide an analysis of the socio-political issues which have influenced the occurrence of HEC in Assam.

4.3.1. Forest Administration, Plant Capitalism and Scientific Conservation in Colonial Assam

Forests as sites of power, control and hegemony has received considerable scholarship in recent times, particularly in South-east Asia. Forests, apart from providing invaluable ecological and economic services, are also intrinsically linked with social status and political power. Writing in the context of Nepal, Malla (2001) notes that access to
forests represents, “wealth, power and prestige in society as well as a means of livelihood and resources. (p.301).” Not only in Nepal but in almost all parts of the globe access to and ownership of forests had always been strategically related to elements of supremacy and authority. Thus, wars had been fought and lives lost to acquire control over forests.

Forests and wildlife in Assam had also played an important role in shaping the political and economic history of the region. As an area abundant in forest and wildlife resources, it is imperative that the state’s political economy and demographic milieu had been significantly influenced by nature and in turn influenced nature. Prehistoric accounts of the region suggest that human population was sparse because of its difficult terrain, swampy land and impenetrable forests (Guha, 1966). The political and socio-demographic scenario of Assam underwent massive change in the 13th century with the advent of the Ahom- a Shan tribe of upper Burma- in the upper Brahmaputra valley. They successfully established their kingdom in Sibsagar (now a district in modern Assam) and over the next few hundred years consolidated their reign by annexing other tribal kingdoms. The Ahom are credited for the introduction of wet rice cultivation in Assam which is the primary mode of agriculture in Assam today. It is believed that the Ahom kingdom which had complete control over the forest resources encouraged peasants to clear forest lands for cultivation (Guha, 1982 as cited in Saikia, 2011). However, it is argued that most of the forest lands cleared by the peasants were restricted to grasslands which were easier to clear than dense forests infested by wild beasts (Saikia, 2011). As forests came under the control of Ahom kings, use of forest resources like timber for boat-building etc. started to increase and a rich and complex trade system dependent on forest resources also came into existence in Assam (ibid).

Describing the changing status of forests in Assam during Ahom rule, Sharma et al. (2012) writes:

> The Ahom kingdom had complete control over forest resources. Besides opening up the forests for agriculture, collection of items like agar wood and ivory also attracted taxes. There were administrative officers such as Kathkatiya Barua who oversaw the harvest of forest products and Habial Barua who supervised the extraction of forest timber (Handique
Vast tracts of forests were exploited heavily in order to build numerous boats, important components of naval warfare, particularly between the rivers Dikhow and Dhansiri...As the population in the valley congregated increasingly in villages and opened up forests for agriculture, it may be speculated that the natural vegetation surrounding settlements were gradually depleted over time. Markets were largely local (Guha 1983) although the Ahom had established trade ties with adjoining tribes and indirectly with China and Burma through the Bhutanese and the Singpho (Misra 2005). The materials traded were restricted to rice, *tussar* (coarse silk) woven by Assamese women, iron and lac, buffalo horns, pearls and coral (Misra 2005). Markets for forest produce were, however, not well-developed and hence, the forests and their produce could not be fully commodified. The localised market, with limited linkages outside the valley, ensured that the region’s natural resource economy could not yet establish linkages with a wider, external market system (p.66).

The proprietorship of the rich forest resources of Assam did not come easy to the Ahom kings and there were frequent conflicts between them and Mughal rulers to gain control. These incursions by the Mughals were not successful in dethroning the Ahoms and infact the population prospered under the latter’s patronage. However, towards the end of the Ahom reign in the late 18th and early 19th century, the glory and prosperity started to wane due to frequent internal conflicts, epidemics and external invasions by the Burmese which also took a toll on the population (Guha, 1977). As population plummeted, the process of deforestation not only ebbed but reversed and abandoned agricultural land was again subsumed by the forest (Sharma, Madhusudan & Sinha, 2012). The Burmese finally succeeded in defeating the Ahoms and occupied the kingdom for a brief period (1821-1826) before surrendering to the British.

Assam came under British rule following the signing of the Yandaboo Treaty between the Burmese and British in 1826. The emergence of English rule marked an ‘ecological watershed’ (Gadgil & Guha, 1992) in the history of Assam. Initially, the forests of Assam bewildered the early British administrators and travellers who marvelled at the density and wilderness of it (McCosh, 1837 and Butler, 1855 as cited in Handique,

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Chapter 4  Human Elephant Conflict in Assam: Identifying Reasons of Occurrence

2004). The Britishers who were already aware of the abundance of timber and other forest produce like lac in the forests of Assam, struck gold when native tea plants were discovered in the region in 1823. The prospects of growing tea commercially led the East India Company to set a botanical expedition in various parts of Upper Assam to explore the distribution of the tea plant (Saikia, 2011). The expedition confirmed the commercial viability of the tea-crop and in the process also discovered many new species of plant for the emerging ‘plant capitalism’ (ibid). Thereafter more surveys by British experts were conducted which, as Saikia (ibid) explained:

“…laid the foundations for the mapping of Assam’s centrality in the tropical and semi-tropical vegetation and widened the scope for entry of merchant capital in a speedier way29. However, the most significant dimensions of these explorations could be found in the emergence of a systematic understanding of this region from the perspective of Botanical endowment (p. 25).

Meanwhile, in order to increase the revenue from land, the Company officials tried to encourage European merchants to invest in cultivation of tea in the ‘wastelands’ by providing incentives to the planters. Wastelands basically referred to those lands which were not under cultivation or settlement and included low quality forests, grasslands, swamps etc. These lands did not yield any revenue and thus had no monetary value for the British administration (Handique, 2004). In the coming years, the administration issued many rules like the Wasteland Grant Rules of 1838, Fee Simple Rules of 1826 and the revised set in 1874 and the New Lease Rules of 1876 which offered land to merchants for tea cultivation at very favourable terms (Handique, 2004; Saikia, 2008a; Sharma et al., 2012). As a consequence, huge areas of forest land (which would otherwise be the property of the provincial government) went under the control of private tea-planters and zamindars and only one-fifth of the land claimed by the planters was brought under cultivation (Handique, 2004). The tea industry also contributed towards deforestation of forest land by its demand for wood charcoal used as fuel for drying the leaves and for packaging as manufactured tea was packed in wooden boxes (ibid). While the tea industry wreaked havoc on the state’s forests, it also significantly changed the demographic composition of Assam. The dearth of labour in the tea-

gardens led the planters to source workers from outside the state and impoverished tribals of the Chhota Nagpur region were lured and/or coerced into employment in the tea gardens of Assam (Chatterjee & Das Gupta, 1981). The labourers or coolies were exploited by the planters by paying them low wages, curtailing their freedom and allotting them places to live which were unhygienic, had no proper drainage and were breeding grounds of diseases like diarrhoea and malaria (ibid). Even today these tribes, commonly known as Adivasis, live in the most impoverished conditions and are the outcasts in Assamese society who are discriminated against.

By the fourth decade of the 19th century, trade in forest resources had been firmly established and substantial revenue was generated from timber, lac, rubber, teak, silk etc. However, reckless felling of trees mainly in the sal forests of Kamrup by petty timber traders from Bengal in the beginning of the fifth decade raised concerns about conservation of the forests for the first time (Handique, 2004). Simultaneously, in Upper Assam there was growing awareness amongst the British high officials about the destruction of forests by the saw-mills and tea-planters (Saikia, 2011). The difficulties of the East India Company to secure timber because of unsustainable felling by petty timber traders necessitated some regulation on the timber trade (Handique, 2004). As a result timber tax was levied on the timber traders but it failed to deter the unmindful cutting of trees for timber (ibid).

The first efforts of forest conservation were made with respect to the Nambor forests in Upper Assam’s Sibsagar district (now Golaghat). The Nambor forests were the main source of timber for fuel and construction works to the Public Works Department (PWD) but when around the mid 1850s timber became scarce, the department conducted enquiries to find the reasons (Saikia, 2011). The departmental enquiries stated that the practice of opium cultivation in the area was responsible for the destruction of trees because the cultivators used to slash the tall trees which hindered with the poppy crop (ibid). It was also found that people from the nearby villages also practiced shifting cultivation in the forests (ibid). To ‘save’ the forests from the onslaughts of cultivators and villagers, an executive engineer in the PWD, Lieutenant Colonel D. Reid, suggested that forest lands in Nambor should be demarcated as ‘Reserved’ and should be at the disposal of the PWD to procure ‘any quantity of
timber’ whenever the department needed (ibid). In 1862 Nambor was declared as reserved and peasants who were earlier dependent on the forest for timber and shifting cultivation found their access curtailed and needed written permits to collect limited amount of timber and also to pay for it (ibid).

The Bengal Forest Act, 1865 consolidated the Company’s administration over forests and in the following years a sizeable portion of Assam’s forests were declared either as ‘Reserved’ or as ‘Open Forest’ according to their economic and political significance. The Reserved category allowed absolute state control of these forests, primarily for commercial gain and led to the forfeiture of any traditional or existing claims of communities or private interests. Assam’s forest which came under the provincial administration of Bengal was assigned its own Forest Department in 1868 but it was only in 1874 when the state was declared as a Chief Commissioner’s province that the Department of Forest became an independent unit. This change brought in managerial rigour into forest administration of Assam and opened the forests for further ‘careful surveillance’ by the colonial government (Saikia, 2011). By the year 1888 an estimated 2,957 square miles of forest area were declared as Reserved Forests in all the districts of Assam (ibid). The declaration of Reserved Forests was arbitrarily done which raised the suspicion of the common people that any efforts that they would put in to improve the quality of their forests will ultimately lead to usurpation of these forests by the colonial Forest Department under the pretext of reservation (Ribbentrop, 1900 as cited in Majumdar, 2011). In many cases, fear of appropriation led villagers to willingly destroy their neighbouring forests (Guha, 1991). Disputes over demarcation of forest boundaries between the Forest Department and villagers as well as private tea planters became common. In order, to quell these boundary disputes, the Indian Forest Act was instituted in 1878 which laid down an elaborate procedure to declare any patch of forest land as Reserved Forest (Saikia, 2011). The Act also reorganised the Open Forest category as Protected Forests where community rights were recognised along with crucial rights of demarcation and prohibition of the Department (ibid). This provision was used by the Department to eliminate the practice of shifting cultivation which was considered detrimental to the existence of good forests and set out to include as much area as possible under Protected Forests which could later be converted to Reserved
Forests (ibid). As the colonial forest administration secured its control over the forests of Assam, the ideology of forest management and conservation also underwent significant changes. As Arupjyoti Saikia (2011) writes:

The consolidation of the Forest Department in the form of acquiring reserves into its jurisdiction drastically changed the landscape of nature as well as human habitat. The complex interaction of subordinate revenue officials with groups of peasants remained a constant threat to the character of the Reserved Forests. This change came in the form of the man and forest relationship and the control of the notion of the erstwhile common property. The colonial state turned out to be the sole proprietor of the forest in spite of occasional withdrawal from the forefront. The new space was well defined and properly integrated to the State machinery. The State had total control over the topography of the forest and knew how to work it for the well being of the empire. The command over the forest was made visible by the presence of the khaki-clad foresters and their strict implementation of the Forest Acts and regulation. What was new to the forest was that there was strict supervision and tending of the forestland unlike in the earlier days (p.89).

The management of forests in Assam received a scientific impetus towards the last decades of the 19th century with the introduction of silviculture, teak plantation, taungya etc. Not satisfied with the natural regeneration of forests, the administration introduced silviculture practices such as clear-cutting, selection-cum-improvement, sowing etc. to raise commercially viable species for faster regeneration and production of good quality timber (Saikia, 2011). The introduction of non-native species like teak, monocultures of rubber and growing of exotic species like pine and eucalyptus were successful scientific experiments which yielded revenue but at the same time also led to degradation of biological diversity in the region (ibid). Another significant change that occurred in the forestry sector in the late 19th century was the collection of revenue from minor forest produce like bamboo, cane, grass, lime etc. and grazing on payment of royalty (ibid).

Wildlife conservation was not a priority for the British when they started out and in fact, animals were treated as ‘varmints’ as they destroyed crops and made it difficult for peasants to expand their agricultural activities important for revenue generation (Saikia, 2011). In order to remedy the situation the colonial government followed a policy of eradication with regard to wildlife management (ibid). Wildlife, particularly elephants, was also traded upon and it garnered good revenue for the administration. Along with
the trade in wildlife, the British officials and planters also took to sport hunting in Assam. The richness of the Assam’s forests in terms of availability of game animals for sport hunting was incomparable to many countries and in a day’s shoot it was not rare for three or four sportsmen to, “shoot thirty buffaloes, twenty deer and a dozen hogs, besides one or two tigers” (Butler, 1855 as cited in Saikia, 2009). Hunting was important for the British because it not only provided entertainment but also helped them in upholding their ‘masculine’ image as well as in affirming their status as racially distinct and superior to the natives (McKenzie, 2000). However, it was not only the Englishmen who engaged in hunting but even Assamese elites and peasant communities killed animals for various reasons; the elites to forge a relationship with the British and the peasants primarily for livelihood and utilitarian needs (Saikia, 2009; 2011).

Towards the later part of the 19th century, the depletion in the number of game animals, the growth of zoological science and the pro-animal initiatives of some European administrators like A.J. Milroy and P.D. Stracey, led to some concerted efforts at wildlife management and conservation (Saikia, 2011). An important piece of legislation was promulgated in 1912 called the Wild Bird and Game Protection Act which restricted hunting in reserved forests in rainy seasons, prohibited the shooting of rhinoceros and introduced licences for shooting wild animals (Saikia, 2009; 2011). The excessive hunting and poaching of rhinoceros led the British administration to declare certain tracts in Assam as game reserve where hunting rights were permitted only to a select few, particularly to members of Game Associations who in turn employed watchers to protect the game in these reserves (Saikia, 2009). The creation of such exclusionary reserves were not without conflict and indigenous people did contest the idea of having exclusive animal asylums in the vicinity of human settlements but despite their protestations these reserves stayed and over the years have become fortified spaces of wildlife conservation accompanied by changes in nomenclature.

The scarcity of labour in forestry was a major concern for the provincial administration. To deal with this problem, the British administration introduced the ‘begar’ system which made it mandatory for peasants to ‘furnish labour’ in return for ‘privileges’ (Saikia, 2011). This system was however highly criticised for its coercive nature and peasants objected to it (ibid). In order to deal with this crisis the provincial government
evolved a new system of forest villages wherein settlements were allowed inside existing Reserved Forests or in new areas annexed to the forests (ibid). The villagers were given annual *patta* land at subsidised revenue rates and other privileges such as royalty free wood for building purposes or fuel etc. in exchange for manual labour (Handique, 2004; Saikia, 2011). The success of the forest villages in ensuring uninterrupted supply of labour led to the establishment of many forest villages and by the year 1913-14 as many as 145 forest villages came up.

Parallel to the process of forest conservation, a process of ‘deforestation’ of Reserved Forests which did not have ‘good timber’ was also in progress (Saikia, 2008a). The ‘deforestation’ scheme was introduced to increase agricultural revenue and acreage by opening these forests for cultivation of cash crops like tea or for other agricultural purposes (ibid). In order to accommodate the deforestation of forest reserves, the Assam Forest Regulation of 1891 created a new category of forest called the ‘Unclassed State Forest’ (Saikia, 2011). This category was further sub-categorised on the basis of quality of forests and accordingly leased out to tea-planters and peasants for cultivation (ibid). Around the same time the Forest Department under pressure from various sources reviewed its earlier decision to reserve the Nambor Forest. Conceding to evidence of settlements in the area during Ahom rule, the administration sent out a proposal in 1897 inviting peasants to reclaim land in parts of Nambor (Saikia, 2008b). Accordingly, villages such as Tengani, Durbani and Barhola were set up and their administration was transferred to the Department of Revenue (ibid). The process of deforestation continued in the next century as well when the Assam administration encouraged migrant peasants from East Bengal (now Bangladesh) to take up land and cultivate jute (Saikia, 2008a). The revenue prospects from jute cultivation led the administration to open huge tracts of wastelands, including grazing reserves, for cultivation (ibid). This process of ‘colonisation’ had far-reaching consequences on the society and politics of modern day Assam. As agriculture expanded and population increased in the 1940s, land became scarce and the migrant peasants started clearing and claiming lands inside the Reserved Forests (ibid). This was the first time that ‘encroachment’ occurred in the administrative vocabulary and has since then been in frequent use (ibid). Forests have also been reclaimed by the tea garden labourers in the 1930s who found themselves unemployed
when the tea industry was hit by depression after the First World War (Tucker, 1988). Assamese peasants also got involved in ‘encroaching’ forests when the left-led peasant movement forcibly occupied forest and tea-garden land in the late 1940s (Saikia, 2008a).

A trek through the annals of Assam’s colonial history reveals the changing nature of relationship between forests and people. Forests, which prior to the British rule, were open to everyone, became a private property of the government to be exclusively used and exploited for commercial benefit. When forests were initially ‘Reserved’ by the Department, their primary agenda was to prohibit the harvesting of valuable timber by private traders and prevent loss of revenue. Surveys and mapping exercises enabled the British government to determine the presence and value of botanical wealth in the region which could be traded for revenue. The discovery of tea plants and their subsequent commercial cultivation had been at the expense of thousands of hectares of forests and grassland. The tea industry is still one of the highest revenue generating economic enterprises in Assam, but is besieged by escalating social and ecological costs. Ironically, when conflict between humans and animals occur due to habitat loss and deforestation unleashed by tea planters, it is the poor garden workers and local peasants who have to bear the brunt of elephant atrocities.

Towards the later part of colonial rule, there was serious conflict of interest between the colonial Forest Department and Revenue Department regarding forests. The Forest Department was in constant pursuit to save the forests from being ravaged by tea-planters and other commercial enterprises like the Assam Railways and Trading Company. Unfortunately though, revenue took precedence over forest conservation and at many times the Forest Department had to relent to demands of opening up forest areas for agriculture, plantation or other commercial activities.

Similar to forests, wildlife was also initially treated as a source of revenue by the British. According to accounts of colonial administrators, in the first half of the 19th century nearly 1000 elephants were captured in Assam every year and sold to merchants in Bengal and Bihar. This lucrative trade even prompted the government to bring elephant catching and hunting operation under its direct control. The abundance of wildlife was also a cause of concern for the administration because of the damages
they caused to agriculture. Local peasant communities who had been dealing with animal raids using traditional ways were encouraged to kill raiding animals and were even awarded monetary prizes for killing animals. It was also the British gentry who introduced hunting as a sport which severely depleted the stock of wild animals in Assam’s forests. The declaration of game reserves and sanctuaries in the first part of the twentieth century basically emanated out of the concerns of dwindling game animals due to poaching and unregulated hunting. While the concerns of the British administration to save animals were justified, the creation of game reserves curtailing the accessibility of the indigenous people to the forests was autocratic and exploitative. Unfortunately, the ideology of exclusionary conservation initiated by the colonial rulers still guides India’s wildlife management and the belief still persists that wildlife can thrive only in the absence of humans. Policies based on such ideology and belief have often disregarded the interests of the poor peasants and subjected them to the vagaries of eviction, crop-damage, man-slaughter etc. There have been instances in the past where conflict have arisen between forest staff and local people regarding access to forest resources in Protected Areas\(^{30}\) and with a steady increase in area coming under protection\(^{31}\) it can be imagined that these conflicts are bound to be more frequent, more fierce and extremely detrimental for the conservation of flora and fauna in the country.

The import of labour and peasants from other parts of India and erstwhile East Bengal had also changed the demographic and cultural pattern of the state for ever. The Santhali speaking tea-tribes are still regarded as ‘outsiders’ and have been the victims of ethnic cleansing drives in recent times. The immigration of Bengali Muslims from East Bengal at the behest of the colonial government to cultivate jute has resulted in one of the worst forms of ethno-religious conflict in the state. The xenophobia against illegal Bangladeshi migrants, which reached its crescendo in the early 1980s, continues to simmer in the state.

\(^{30}\) See Gadgil and Guha (1992) for details

\(^{31}\) According to India’s Fourth National Report to the Convention of Biological Diversity (MoEF, 2009) the Protected Area network of India covers approximately 4.80% of the total geographical area of the country and has grown by 15% since the adoption of the Programme of Work on PAs in 2002.
4.3.2. Nature-Culture Antithesis and People-Park Confrontation in the Kaziranga Landscape

The word landscape had been introduced in English vocabulary as a technical term of artists and painters. In this sense, Stewart and Strathern (2003) describe landscape as, “the artistic presentation of a scene, it can well be applied to the creative and imaginative ways in which people place themselves within their environments.” But in the modern sense landscapes are no longer treated as mere artistic renditions of Earth’s surface. Rather, landscapes are ‘cultural processes’ that form an integral part in the creation of community identity and history. As Ken Taylor (2008) said in his presentation at UNESCO’S 3rd International Memory of the World Conference:

One of our deepest needs is for a sense of identity and belonging and a common denominator in this is human attachment to landscape and how we find identity in landscape and place. Landscape therefore is not simply what we see, but a way of seeing: we see it with our eye but interpret it with our mind and ascribe values to landscape for intangible – spiritual – reasons. Landscape can therefore be seen as a cultural construct in which our sense of place and memories inhere.

The ideology of landscape as a cultural entity is, however, counteracted by a contrary idea which considers landscape as inherently natural and emphatically separate from culture. This interpretation links ‘landscapes’ to the concept of wilderness, which is exclusive of humans. The separation of humanity from nature is a western concept which had its roots in the rationalist and science oriented developments in Europe and America. The environmental movement, particularly in the United States, began as an attempt to protect American wilderness from the westward movement of the European settlers (Guha, 2000). This generated an idea of wilderness, “as the last remaining place where civilization, that all too human disease, has not fully infected the earth. It is an island in the polluted sea of urban-industrial modernity, the one place we can turn for escape from our own too-muchness” (Cronon, 1996). Viewed in this way, wilderness appeared to be “pristine” refuges devoid of any human presence which need to be protected for their aesthetic value. The creation of the Yellowstone National Park in 1872 thus, heralded the idea of setting aside an area as a pleasure ground for the benefit and enjoyment of the people (Merrill, 2003). The wilderness movement in America received an impetus when the Wilderness Act was passed in 1964. The Act defined
wilderness as, “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain” and contrasted this with “those areas where man and his works dominate the landscape” (Mulvaney, 2011).

However, this understanding of wilderness is far removed from reality and fundamentally flawed. Wilderness holds multiple meanings and interpretations and the wilderness recreation view has failed to take into account the broad array of value orientations held by a multitude of stakeholders toward wilderness resources (Watson et al., 2011). Culture is an integral part of wilderness and all wilderness areas have human history (Cowley et al., 2012). The binary conceptualisation of nature and culture is a western perspective which does not apply to communities living in close proximity with nature and deriving their everyday meanings of life in consonance with nature. Wilderness, in this context, have been defined as a cultural construct as, “people have been manipulating the natural world on various scales for as long as we have a record of their passing” (Cronon, 1996). Cultural meanings are often attached to places which are drawn from the history of interaction of humans with the natural environment. Kuster (2004) holds that the decision to transform a cultural landscape into natural landscape is also influenced by cultural considerations. As Simon Schama (1995) says:

> The wilderness, after all, does not locate itself, does not name itself. It was an act of Congress in 1864 that established Yosemite Valley as a place of sacred significance for the nation, during the war which marked the moment of Fall in the American Garden. Nor could the wilderness venerate itself. It needed hallowing visitations from New England preachers like Thomas Starr King, photographers like Leander Weed, Eadwaerd Muybridge, and Carleton Watkins, painters in oil like [Albert] Bierstadt and Thomas Moran, and painters in prose like John Muir to represent it as the holy park of the West; the site of a new birth; a redemption for the national agony; an American re-creation. (p.7)

Landscapes as cultural constructs act like a link between the past and the present; they are the repositories of intangible values and human meanings that nurture our very existence (Taylor, 2008). As Stewart and Strathern (2003) muse, “The sense of place and embeddedness within local, mythical, and ritual landscapes is important. These senses of place serve as pegs on which people hang memories, construct meanings from events, and establish ritual and religious arenas of action”(p.3). Landscapes change but
memories associated with landscape remain and while some memories bring in pleasure, some also cause pain and loss of sense of belonging.

The past lives on in art and memory, but it is not static: it shifts and changes as the present throws its shadow backwards. The landscape also changes, but far more slowly; it is a living link between what we were and what we have become. This is one of the reasons why we feel such a profound and apparently disproportionate anguish when a loved landscape is altered out of recognition; we lose not only a place, but ourselves, a continuity between the shifting phases of our life (Virginia Woolfe as cited in Drabble, 1979).

World over protected areas have been created following the logic that these are areas where human intrusion is minimal and nature is at its ‘purest’ form. And yet in reality, most of these landscapes are deeply embedded in many layers of human history which has profoundly influenced the ‘untouched wilderness’ of these areas over time. While proponents of protected areas consider only the natural endowment of these landscapes, the creation of ‘inviolate spaces’ out of their familiar and loved land alienates the indigenous people occupying these landscapes since ages. From the perspective of these indigenous communities, these wildlands are the symbols of shared histories of collective empowerment and at times even resistance to outside control (Harper, 2003).

A resident of Mohpara village in Kaziranga narrates,

Even before the advent of British, during Ahom rule, Kaziranga’s, earlier known as Kaampith, forests existed. During the reign of Swargadeo (a title in Ahom monarchy meaning ‘Ruler of Heaven’) Suhungmung, a game reserve was created by erecting an embankment on the southern bank of the Diffolo river which flows through the forest. While the game forest remained on the northern side of the embankment, villages were set up on the southern side and peasants were engaged in cultivating the land. The ‘maidams’ (graves) of royal family members and courtiers can still be found inside. Apart from these there are ruins of satras (Vaishnav monasteries) inside the park. When the Maan\(^{32}\) attacked Assam, people loaded their valuables on boats and sank them in ponds to save them from the marauders. The Burmese invasion went on from 1911 to 1926 till the signing of the Yandaboo treaty and during the attacks people fled from the villages and abandoned those places. After the people returned to their villages when the war was over, they

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32 Maan invasion refers to the Burmese invasion of Assam during the period between 1817 and 1826 when the Ahom Kingdom in Assam was invaded three times by Burmese and the kingdom briefly came under the control of Burmese rulers (1821–1825) before being expelled by the British.
found that the villages were replaced by forests. Instead of clearing the forests, the people came and settled here at the present villages. Our ancestral village still lies inside the Park (Kaziranga National Park).

Excerpts from In-depth Interview, Transcript 9 (Parentheses mine)

The Kaziranga landscape contains within its ambit the world renowned Kaziranga National Park famous for its one-horned rhinoceros. The Kaziranga National Park is a prodigious example of successful conservation in the history of wildlife protection in India. After more than a century of reservation, protection and conservation, Kaziranga today has emerged as the “largest undisturbed floodplain on the Brahmaputra” (UNEP, n.d.). The natural history of Kaziranga National Park has been extensively written about and details of the Park’s floral and faunal diversity have been meticulously recorded from time to time. The official version of Kaziranga National Park hails the exemplary foresight and concern of the British official, Viceroy Lord Curzon and his wife Lady Curzon, for transforming the forests of Kaziranga into a reserved forest and marking an area exclusively for animals. Critiquing this version in the context of the prevailing forest policies of that period, Saikia (2009) writes, “Ignoring the fact that there was hardly a conservation programme of wild animals in the British imperial polity, such an understanding also refuses to emphasise the complex interplay of the park’s socio-political dynamics” (p.114).

By the mid 19th century, Kaziranga where large tracts of land had been allotted to European tea-planters for tea cultivation, the area also emerged as a favourite hunting ground for the planters and administrators due to abundant game animals particularly rhinos. However, the excessive killing of rhinos by sportsmen as well as poachers threatened the survival of these animals and this was noticed both by the government and public alike. In 1902, describing the condition of the rhino in a letter to the Chief Commissioner, J.C. Arbuthnott, Officiating Commissioner of Assam wrote, “the animal which was formerly common in Assam has been exterminated except in remote localities at the foot of the Bhutan hills in Kamrup and Goalpara and in a very narrow tract of country between the Brahmaputra and Mikir Hills in Nowgong and Golaghat where a few individuals still exist” (as cited in Saikia, 2011). In order to protect the animal from indiscriminate hunting and poaching, a tract of forest land in Kaziranga was declared as a game reserve in 1908 and later as a game sanctuary in 1916 which put
restrictions on the agricultural and grazing practices (Saikia, 2009). The dispossessed villagers objected to the creation of the game reserve and petitioned the government against this move and some reprieve was provided by allowing grazing in the adjacent unclassed forests till independence (ibid). After independence, the efforts towards wildlife conservation became more rigorous due to the growth of the international environmental movement in America and Europe and wildlife sanctuaries and parks were further consolidated in the country. The rhino became the state symbol of Assam in 1948 and this gave further political credibility to the cause of saving rhino (Saikia, 2009). Kaziranga also received the highest order of protection in 1974 when it was declared as a National Park under the Assam National Park Act, 1968 and subsequently was declared as a World Heritage site by UNESCO in 1985. Since 1938, when the Park was first opened for public, Kaziranga today sees a footfall of approximately 0.1 million every year (Bharali & Mazumder, 2012). The Park officials take great pride in the success of Kaziranga and attribute this success to the strict vigilance and authorisation of forest guards with a shoot-at-sight order to deter poachers and hunters.

While this narrative of success is hugely publicised and applauded, there is a parallel narrative of the villagers living around Kaziranga National Park which has been repeatedly omitted from the national and international conservation discourse on Kaziranga. The Park which is spread across an area of 430 km\(^2\) has no human settlements inside this area but it is very densely bordered on three sides by human settlements and tea plantations. There are 39 villages within a 10 km radius of the Park, with an estimated population of 22,300 people in 1983-1984, most of them subsistence farmers and tea garden labourers (UNEP, n.d.). Most of these villages are located on the southern and eastern boundary of the Park and are inhabited by people from different ethnic groups and communities. As already described, some of these villages are believed to have been inside the Park during Ahom rule that were ousted from there during the Burmese invasion. The relationship of these people with Kaziranga National Park thus goes a long way; people consider the forests as the land of their ancestors and consider it as a part of their heritage. While the residents take pride in the fact that they have the world famous Kaziranga National Park in their backyard, there is also a general sense of mistrust and animosity towards the Forest Department and its policies of management.
In an interview with a resident of Mohpara village, the respondent said:

*The people in these villages have been residing here for a very long time; even before the Park came into existence. Our ancestors have freely used forest resources. A plan was made in 1979 to evict our village after it was discovered in an old file in Delhi that where the villages are was initially a cattle ranch run by Nepali people. A group of us went to Delhi and met the Secretary. The concerned file was from 1971 and it recorded that this area was a cattle ranch. This is not entirely false but the ranch was not in this area but further inside the Park which was open for grazers then. But when it came to eviction, the authorities included these villages as well; they demarcated an area of 1000ft from the National Park which included the villages as well. This decision was later stayed after the High Court ordered so.*

Excerpts from In-depth Interview, Transcript 2

Another respondent said in this regard:

*After the Yandaboo treaty, British rule began in Assam. Here in Kaziranga also the people who had fled gradually started coming back and the villages came up. During that time, the British allowed for 'grazer permission' to graze buffalos. One year's grazer permission cost Rs 7.50. After independence Kaziranga became a game sanctuary. As soon as it became a sanctuary, restrictions came into place. This created a flutter amongst the local people.

Then came the addition scheme. In 1970 the Deputy Commissioner of Jorhat had come for discussion with the villagers regarding the future of the park. But unfortunately this did not happen and he went away only after meeting forest officials. After going back the DC declared Kaziranga as a National Park. How the villagers will benefit or lose from this decision was never discussed with the people. They did not consult those people who have been living there for so many years and declared. We reconciled thinking that a national property had been created and took the decision in our stride. However they did not only stop at that and proposed that 1000ft of land should also be added to the existing area. If this scheme would be implemented the villagers would lose all their cultivable land bordering the Park. In the entire belt stretching from Kuthori to Bonkawal, the villagers challenged the scheme and lodged a case at the HC in 1974. The court put a stay order on the 1000ft addition scheme which still exists.

Even though the stay order on the addition scheme still prevails but the forest rangers sometimes conspire to extend the park boundary. They will use strategies like building forest camps on civilian land which leads to conflict with the villagers.*
Once the Park authorities tried to encroach upon village land by building a road 2-2 1/2 kms outside the official park boundary. We resisted this move and people from our village went and protested against this construction and heated words were exchanged between the two parties. The youth from our village then went and complained to the MLA and DC. The MLA sent the SDC and the Mondol (Patwari) for a survey. They brought along with them existing maps of the area. The survey revealed that the road was on revenue land and when their claims were proved right, the village youth dug up the entire road. Thus, the conflict with the Forest Department (FD) had existed in the past, still exists and will continue to exist because they treat the villagers as animals.

In the context of conservation, our village plays an important role. If God forbids, someday our village has to move from here, the villages on the opposite side of the road (National Highway 37) will also not be able to save their crops. If we go, these villages will also have to go, because if there is no agriculture, no food, how will the people survive? This village acts like a fence for all the animals coming out of the Park. Secondly, if our village moves out, poachers and hunters from Karbi Anglong will have a free run to the Park and kill animals. We are like the watchdogs here. But when we say that we are conserving the animals, the FD pays no attention to this. In return for our services, we are just asking them to let us live a dignified life but that is being denied to us. We want good facilities in education, health, recreation, infrastructure like roads etc. We are conserving these animals because they had been protected by our forefathers as well. Conservation is a legacy which we are carrying forward.

The National Park has become a golden egg laying goose for the FD. The Park needs scientific management. Flood is important for Kaziranga because the flood waters wash away a lot of impurities but the water should be limited. Because the Park is not being scientifically managed, animals are fleeing upto Dibru-Saikhuwa. Its been written about in newspapers. The flood waters also bring a lot of debris with it which gets deposited in the wetlands inside the Park. Because the debris is not removed regularly these keep piling up and gets deposited in the wetlands, gradually filling them up. The mimosa weed is also colonising the Park leading to a shortage in food for herbivores. Highlands had been created inside the Park for animals to take shelter during floods, but again because these had been haphazardly constructed most of them are collapsing.

Those areas that had been added to the Park are also not being attended to. There is so much of land but has the FD or the Assam government till date made any attempt to grow fodder for the herbivores? However, the FD gets crores of rupees every year in the name of Park development. They are here just because of their job and the salary which they draw
monthly. If they do their duty well, then why do animals come out of the forests? Rhinos come out, roam on the streets, are shot down by poachers near the National Highway, and they are unaware. If this is the fate of the celebrated rhino what importance is the elephant for them? Why will they monitor the movement of elephants? They are not here to conserve animals; they are merely performing their jobs.

After the flood waters recede, it takes a minimum of month's time for new foliage to emerge. So, the animals cannot starve inside the forest during time and come out to the villages in search of food. When this happens people in our villages do not complain. Most animals also head towards the Karbi Anglong Hills. Animals, particularly deer, get killed on the highway when they try to crossover to Karbi Anglong. When the animals are crossing the highway at night, the glare of vehicle headlights blinds them, they panic and run towards the tea gardens, hit the fence and in their disorientation head back to the road and collide with vehicles. This happens because of the fences erected by the tea gardens along their boundary parallel to the highway. Can the FD not direct the garden authorities to remove the fencing during those times? But no they do not do so because they are scared of the rich tea garden owners.

The Park authorities have also become like wild animals after spending time with the animals. Just like the wild animals attack humans, similarly park authorities also attack humans. They are unable to catch the actual poachers and rather target innocent villagers randomly brand them as poachers and shoot them.

Excerpts from In-depth Interview, Transcript 9 (Parentheses mine)

The strict rules of the National Park prohibit the villagers from grazing, fishing, or using any resources from inside the Park. It is true that tourism in Kaziranga has benefitted many local families but agriculture still remains the major source of income in the area and the losses incurred by the villagers in agriculture due to animal raids are still high in comparison to the benefits accrued from tourism. Moreover, tourism is a capital intensive option, for instance buying a vehicle for jeep safaris, or opening a lodge, restaurant or eatery, and not many people have the means or resources to make such high investments. It can be observed that it is generally the educated Assamese class who are benefitting most from tourism. The luxury resorts and hotels are employing local youth in their establishments as safari guides, waiters, housekeeping staff, bell boys etc. However, the wages are low and working hours during tourist season extends upto 10-12hrs. It is a disturbing trend that many such luxury hotels and resorts have cropped up
in the last few years in the critical animal corridors linking Kaziranga with the Karbi Anglong Hills. The concrete walls and high powered lights of these establishments pose hurdles to uninhibited animal movement.

Many people living in the forest fringe villages accuse the Forest Department of highhandedness and feel that the officials are harassing the local people in the name of conservation. People have gone on to say that the Park has become a ‘curse’ for them because while on the one hand they have to bear the costs of living in the vicinity of wild animals which cause harm to their lives and livelihood, on the other hand they are also under constant surveillance of the Forest Department who treat them as nothing more than ‘nuisance’. The sons-of-the-soil sentiment is also high among the people who feel that local boys who understand the topography and nature of Kaziranga better should be employed as forest guards. They question the recruitment of people from outside the region and allege that the appointments are made by ministers and officials by taking bribes. As one villager said:

*Every year these forest guard posts are announced, and our boys apply. They do so well in the written and physical exams but finally when the results come out, their names are not there. Why does this happen? Are there no talented boys in Kaziranga? These boys have grown-up seeing Kaziranga, know this place, and love it, love the animals. But rather than employing them, the government would employ someone who have never seen a rhino in his life, never confronted a poacher before.*

Excerpts from In-depth Interview, Transcript 8

They also have a grievance that because of the Park in the area, the people are deprived of improved infrastructural facilities like roads and railways. It needs to be noted here that a proposal to construct a railway line parallel to the National Highway-37 was shelved in the 1980s after stiff opposition from conservationists (Choudhury, 1987). More recently, it is the widening of the National Highway-37 which has emerged as a bone of contention between the Park authorities and conservationists on end and the residents of Kaziranga on the other. The two-lane highway which runs across the state of Assam, follows parallel to the southern boundary of the Park for nearly 50kms. In 2002, a proposal was mooted to convert this two-lane highway to a four-lane one keeping in view the increasing vehicular traffic. This proposal rang alarm bells amongst
the forest officials, NGO functionaries and conservationists who debated that such a move will be disastrous for the Park animals that use this highway to cross-over to the Mikir Hills, primarily during flood. Citing the heavy toll of animals killed in vehicular collision in the stretch running along the Park, the wilderness lobbyists rallied against the proposal and finally the Union Ministry of Road Transport & Highways (MoRTH), suggested that a 21 km long flyover would be constructed at Kaziranga to allow safe movement of animals. However, this alternative is being discarded for another more elaborate and expensive one which plans a detour which starts at Numaligarh, cross the Brahmaputra, travel upto Tezpur on National Highway 52, cross the Brahmaputra once again to take the National Highway 37 at Kaliabor Tiniali before reaching Nagaon and Guwahati thus bypassing Kaziranga but adding travelling distance of at least 50kms. The second alternative is not going down well with the residents of Kaziranga who feel that such a move would adversely affect their growth and development and jeopardize the livelihoods of many. A demand committee called the Conversion of National Highway-37 to 4-Lane Road from Koliabor to Numaligarh has been formed which is demanding the construction of the highway in its original alignment. The Demand Committee has argued that the State government along with some influential NGOs have turned Kaziranga into a money-making machine in the name of conservation and want to eventually elbow out the local people from the area. A member of this Committee said:

First it (Kaziranga National Park) was a Game Sanctuary, then National Park, then UN World Heritage site and now we talk about Tiger reserve. But its just a image creation exercise and every time an image is created, the local people loose out on something. The UN World Heritage convention states that management of Kaziranga is not upto standards; there is encroachment, there are frequent road-kills on the Highway running through Kaziranga. Now the question is who reported it. We came to know that in 2007 a UN team visited Kaziranga. X was the Director of Kaziranga National Park then. He was here only for the animals. All these officials are career oriented people and have no compassion for local people. He with support from the state Forest Department reported that a large number of animals are killed by speeding vehicles while crossing the NH and hence this stretch of the Highway should not be upgraded to 4 lane. In 2008 the UN Heritage Committee termed it as problematic highway and cautioned that if 4-

* Name of official withheld
Chapter 4 Human Elephant Conflict in Assam: Identifying Reasons of Occurrence

Lane is developed in this stretch the Committee will have to discontinue the Heritage status of Kaziranga. As a result the state government did not give a NOC to the Highway Authority for conversion of the Highway to 4 lane. The government cannot jeopardise the Heritage tag because it brings good money.

First the 4 lane that was originally planned up to Sadiya was diverted to Silchar. Then when extension project worth 11000 crores was sanctioned, the stretch from Koliabor to Numaligarh was kept out. They have proposed a bridge connecting Gohpur with Numaligarh that will connect to the 4 lane NH to Upper Assam. But till now they cannot even decide about the position where this bridge will be made. The Chief Minister is adamant that the bridge has to be constructed at any cost. This has flummoxed the technical engineers because they say if sand is found at a depth of 10-15 feet no bridge post can be laid. We are not against bridge construction. Let there be 10 more bridges. But how landslide will be taken care of? If this bridge is built, then another heritage site Majuli will vanish. When a 35kms wide river will be compressed to 4kms definitely there will be pressure. Today Jakhalabandha is already facing problem of landslide because of the Kolia Bhamora Bridge. We took all these problems to Delhi and even met the PM twice. We also formed a 4 lane demand committee. We gave memorandum to the PM. Our cause is also supported by a few MPs. The PM had agreed to consider our complaints and wrote to the then Surface Transport minister to clear the matter. But then the government changed and new people came to head the MoEF and MoST. We went again and laid down our arguments in front of them. They marked the matter to the State govt. But the state government won’t relent citing that the animals are in danger. We say that it is only during floods and periods of food crisis that animals come out of the Park and some get hit by vehicles. So we have proposed an alternative of making over-bridges in this stretch. We proposed 7 over-bridges at strategic points. But even this was rejected by the government. Then we said that we have no other option but to undertake a democratic movement but the government has paid no heed to it. What we have come to know that the main man behind this is an NGO personnel who is also a member of the Indian Wildlife Board. All that these NGO people want is to control Kaziranga. If new concepts like community forestry is introduced and local people get directly involved, the funds that these NGOs get will dry up. They prevent the general public from benefitting from Kaziranga. If today the rhino population has increased from 8 to 2000, credit goes to the local people. But there is nobody to appreciate it. There is no college in Kaziranga, no dispensary, no cultural complex, no public relation office and now not even a road.

Excerpts from In-depth Interview, Transcript 81 (Parentheses mine)

† Name withheld
The Kaziranga National Park was declared as a Tiger Reserve in 2006 under the Project Tiger scheme of the Union Government. The tiger reserves are spread across the country are created to maintain viable tiger population. However, fearing stricter regulations on tourist operations in Kaziranga as a tiger reserve, the Kaziranga Jeep Safari Association and the Kaziranga Resort Association with support of 20 other organisations sent a memorandum to Prime Minister Dr Manmohan Singh and Union environment minister Mr Jairam Ramesh in the early part of 2011, demanding withdrawal of Project Tiger from Kaziranga. Demonstrations and processions were also held to protest against the move. They also criticised the environmental organisation, Aaranyak, for supporting the decision through their research findings\textsuperscript{33} and insisted that the NGO had done this clandestinely without taking the local people into confidence. The demand was later withdrawn after assurances from forest officials that Project Tiger would enhance the tourism value of the Park and thereby boost the industry as well. Although, the protests of the commercial interests were pacified, the villagers in the vicinity of Kaziranga are consumed by a different kind of fear:

\textit{The Project Tiger is a bone of contention between us and the FD. Earlier it was only about conservation of tigers existing in Kaziranga but now the plans have changed. It is no longer only about the existing tigers but the govt has clandestinely released tigers from elsewhere in this Park. If there are tigers all around how will people survive in this area? This is a source of fear in the mind of the public. No one can say how far a tiger will roam. How did the government arrive at a decision to declare KNP as a tiger project?}

\textit{The Tiger Project had been opposed by the Jeep Safari Association on the grounds that it will impact tourist inflow and reduce their income. Nobody has been able to accurately ascertain how many tigers are there in KNP. Aaranyak has recently published a survey report saying that the Park has the highest density of tiger? How have they arrived at this conclusion? I questioned Aaranyak members about the findings. If there are 33 tigers in 100sq kms, how many tigers will be there altogether in the entire Park? Tiger Project has more funds as it’s a Central Government scheme and therefore politicians and bureaucrats are insistent in declaring the Park a tiger reserve.}

Excerpts from In-depth Interview, Transcript 2 (Parentheses mine)

\textsuperscript{33} Aaranyak had conducted a tiger survey in Kaziranga using camera traps in 2009. The study revealed that the Park has the highest density of tigers in the world i.e. 32 tigers per 100km\textsuperscript{2}. The findings were published in 2010 which created a world-wide sensation, while many rejoiced and hailed the findings, some were sceptical. The people living around Kaziranga also had their reservations about the findings which they alleged were manipulated to suit the claims of declaring Kaziranga a tiger reserve.
Another resident of Mohpara who is also a member of the village’s Eco-Development Committee said:

*I went to the Sundarbans last year on an exposure visit conducted by the FD. There I go to know that if an area is declared as a tiger reserve, 30% of the funds should be earmarked for development of peripheral villages.*

*I have no objection to KNP being a tiger project provided the Department can take the necessary measures to ensure the safety and security of people as well as livestock. If the FD is not equipped to do so then making KNP a tiger project would be a disaster.*

Excerpts from In-depth Interview, Transcript 7

While the concerns of the villagers about releasing tigers in Kaziranga might not be based on facts, but the many incidents of cattle-lifting and tiger attacks have fuelled the imagination of the people. Unfortunately, the Forest Department is doing little to allay the fear of the people and instead blame the villagers for spreading “baseless rumours”. In the absence of proper information and awareness about Project Tiger and tiger reserves, combined with incidents of cattle lifting and tiger attacks, non-payment, late payment or inadequate payment of compensation and frequent sighting of tigers in human habitations it can only be assumed that these “rumours” will start gaining ground and defeat the very purpose that the Project started with i.e. conservation of the tiger.

The Kaziranga National Park, thus, suffers from a range of issues that are afflicting many such Protected Areas in other parts of the world today. Most of these Protected Areas situated in the erstwhile colonies are the product of neoliberal conservation

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34 Two people were killed in tiger attacks around Kaziranga National Park in November 2011. One of the victims was attacked by the tiger when he entered the forest illegally to collect firewood. He was killed on the spot while one of his accomplices was seriously injured. The other incident occurred in Mohpara village (details mentioned in Chapter 3, p. 84). [Field Diary Notings, 11th Nov 2011]

35 On one of my visits to Mohapara village for an interview, I came across a group of people gathered by the village road looking intently at a clump of bamboos that skirts the village on the Park side. On inquiring, I came to know that a villager had seen a Royal Bengal tiger in the bamboo groove in the early morning hours when he went to graze his cattle. When he alerted the villagers, people went and said they saw pug marks in the mud. This had created a sense of unease and fear in the minds of the villagers who were keeping guard and looking for signs if the tiger was still there. In the midst of all this, somebody in the crowd made a sarcastic comment, “Go and call the Tiger Project people now to catch the tiger by the tail.” While this comment was made in jest, it definitely communicates the hard feelings harbourer by the people against the Tiger Project and the NGOs supporting the project. [Field Diary Notings, 12th Oct 2011]
controlled by international organisations and NGOs. The role that the international organisation, UNESCO, plays in defining Kaziranga as human-free wilderness cannot be overlooked. The pressure to maintain the prestigious tag of a World Heritage site is immense and leaves very little space to accommodate the needs of people who have been categorically eliminated from the Park and its resources. The administration in its bid to create a pristine natural landscape in Kaziranga had antagonised the people living in the area for generations. Following an exclusionary approach to conservation, authorities in Kaziranga do little more than paying lip-service to the sacrifices that people have endured and the good-will services that they have offered in making the Park what it is today. This friction or discord between the forest officials and the local people erodes the tolerance level of communities towards animal-caused damages and intensifies HAC.

4.3.3. Tribal Polities and Ethnic Conflict

The strategic location of Assam surrounded by the nations of Tibet, Bhutan, China and Myanmar has had significant impact on the politics and demographics of the region. The population of Assam is a broad racial intermixture of Mongolian, Indo-Burmese, Tibeto-Burmese, Indo-Iranian and Aryan origin. The state is home to many tribes and it is believed that the Bodo-Kacharis are the earliest settlers on this land and today accounts for the largest plains tribe in Assam. Racially, the Bodo-Kacharis belong to the Tibeto-Burmese stock of Mongoloid origin and hence, closely related to descendants of the greater Bodo-Kachari family, like Mech, Rabha, Dimasa, Hojai, Sonowal, Thengal, Lalung, Tiprah and Garo scattered over different parts of Northeast India (Guha, 1991).

While the diversity in tribes, ethnicity, languages, customs and religion have given Assam its distinct social and political identity, at the same time it has also been a source of many ethnic conflicts and strife in the state even before independence. Commenting on the nature of ethnic conflict in Northeast India, Das (2009) writes that ethnic conflict in Northeast India had always emanated out of the feelings of, “in-group-out-group, perceived marginalisation, and ‘minority-consciousness’” which have been manifested and articulated differently by different tribes.
Historically, the plains tribes had their own separate kingdom before the advent of the Ahoms and Aryans but when these groups invaded Assam, the plain tribes started assimilating with them (Konwar, 2006). This process of assimilation continued in the colonial and post-colonial times as well and by independence major sections of Bodos merged with the Assamese population. The first streaks of tribal identity assertion among the plain tribes can be traced to the formation of the Plains Tribal League in 1933 with the purpose of bringing all Mongoloid tribes and communities to a common platform (ibid). After independence, the Constituent Assembly granted tribal autonomy to the hill tribes under the Sixth Schedule of which the plain tribes were not a part.

The political mobilisation for a separate state for the plains tribe began in Assam in 1967 with the formation of the Plains Tribal Council of Assam (PTCA) which demanded a separate territory for the Bodos and other tribes of the region to be called Udayachal. In the same year the All Bodo Students Union (ABSU) was formed with the demand for a separate Bodo state. The demand for a separate Bodo state became more intense in the 1987 when the ABSU under the leadership of Upen Brahma raised the slogan of “divide Assam fifty-fifty”. They came up with a 92-point charter related to the establishment of a separate state for the ‘plains tribes’ of Assam on the north bank of the Brahmaputra. The civil disobedience campaigns led by the moderate parties were also punctuated by violent militant attacks by radical groups (Baruah, 1999). To end the violence and impasse, the central government signed an accord in 1993 with the All-Bodo Students Union and the Bodo People’s Action Committee (BPAC). Under the provisions of the Accord the Bodoland Autonomous Council (BAC) was formed comprising the Bodo majority areas of Assam. The BAC however failed to realise the demands of the Bodo people mainly because of insufficient financial powers and overwhelming domination of the state government over most of the transferred subjects (Nath, 2003). This led to disenchantment among the movement supporters and a fresh spate of violence was unleashed by the militant groups. Finally, in 2003 a new Bodo Accord was signed for creation of a ‘Bodoland Territorial Council’ (BTC) and the area included under the Sixth Schedule. The signatories of the Accord are the ABSU and one of the ex-militant groups the Bodo Liberation Tigers (BLT). Another militant group, the National Democratic Front of Bodoland (NDFB) which is demanding a
sovereign Bodo nation has criticised the Accord and called it an “insult to the Bodo nation”. The group is presently in a ceasefire agreement with the Central and Assam government and peace talks with the ultras are on the cards.

A review of the origin of the Bodo movement brings to light some fundamental socio-economic and political reasons which have perpetrated the ensuing unrest. The most significant among them is the relative economic deprivation of Bodos which has its roots in the land rights regime introduced by the British (Baruah, 1999). Historically, the Bodos were shifting cultivators and had no fixed land tenure. When the colonial government came they introduced the system of recording land rights which alienated a lot of tribals from their lands (ibid). The process of tribal land alienation was further intensified when migrants from East Bengal came to Assam and started to occupy cultivable land under the patronage of the British (Banerjee, 2011). Also liberal wasteland rules made way for the British planters to grab grazing and jhum land from tribal cultivators and use it for tea cultivation and also for settling the tea garden labourers brought in from mainland India to work in the plantations (ibid). A system of establishing tribal belts and blocks exclusively for the plains tribe was introduced after independence but it failed to contain the transfer of tribal land to non-tribals by fraudulent means (George, 1994; Baruah, 1999). In 1986, the then AGP government declared all settlements in forest areas made after January 1, 1980 as illegal in accordance with the Assam Accord which led to eviction of many Bodo peasants dependent on these areas for a living.

When the second wave of the Bodo movement started in the late 1980s, it was pursued with a vengeance. The insurgent groups encouraged Bodo people from all over Assam to move to the proposed Bodoland to ensure a Bodo majority. In Sonitpur district many Bodo people were lured by political “leaders” to come and occupy land, mostly forest land, at nominal prices (Kalpavriksh Environmental Action Group, 2009). These so-called leaders directed people towards the large tracts of forest land stretching upto the Arunachal border and very soon villages and fields occupied the once forested areas of Charduar RF, Behali RF, and even Sonai-Rupai WLS. In some areas, non-Bodos, particularly Adivasis tried to salvage the forests from Bodo settlers but when they failed
to do so they themselves started occupying forest land, to prevent ‘outsiders’ from entering their region\(^{36}\).

Bert Suykens (2006) wrote that the incursions into forest areas by the Bodos was also to challenge the authority of the Indian state and defy the ‘borders’ erected by the administration restricting the tribals in their own lands. The National Parks, WLS and RFs were regarded by the Bodo extremists as symbols of suppression and set about destroying them. The Manas National Park located in Baksa district\(^ {37}\) suffered huge losses after militants gunned down forest guards, set forest camps on fire, killed rhinos and other animals and disrupted the entire management of the Park in the 1990s. The relentless terrorist attacks severely scarred the Park and its image and in 1992 UNESCO declared it as a ‘world heritage site in danger’. Elements of warlord politics and greed also got into the Bodo conflict and trade in illegal timber and endangered species flourished in the region (Suykens, 2006).

Bodo insurgents also engaged in ethnic cleansing by killing hundreds of Bengali-speaking and Assamese people and reclaiming their lands as tribal property. The conflict generated nearly 0.3 million Internally Displaced People (IDP) by the later part of the 1990s, some of whom are still languishing in refugees camps due to inadequate rehabilitation measures. Most of these camps were erected in forest areas and people living in these camps started cultivating the nearby areas to support themselves (Suykens, 2006).

The militancy along with the strategic location of Sonitpur (closer to China border) has also led to the heavy military presence in the district. At Misamari, near Sonai-Rupai WLS, construction of new military camps was going on in full-swing while I was doing my data collection in the area. Locals informed me that land cleared for making the military barracks were forested areas where elephants could often be seen, sometimes even in the daytime. It was also observed that a military firing range and camp was positioned right inside the boundary of the Sonai-Rupai WLS. It has been clearly mentioned in the Forest Rules that no non-forestry activity can take place inside wildlife

\(^{36}\) Interview 67

\(^{37}\) Baksa district was carved out of Nalbari, Barpeta, Kamrup and Darrang districts in 2003 when the Bodo accord was signed and the Bodoland Territorial Autonomous Districts (BTAD) were formed.
sanctuaries but despite this the Army continues to operate a shooting range inside Sonai-Rupai citing defence needs. The Assam Forest Department had ordered the dismantling of the shooting range in April 2011 after repeated requests to stop shooting practice in the range. The Union Ministry for Environment and Forests, which took up the case after representations from various quarters, however, overruled the dismantling order in June 2011 and asked the Army not to practise shooting till it receives the necessary clearance from the apex court.\textsuperscript{38}

The continued loss of forest cover in Sonitpur due to ethnic conflict is one of the main reasons for the increased incidence of HEC in the district. Incidentally, it is tea gardens and areas with forest cover that are experiencing intense conflict because these are the last remaining habitats for the elephants. People in these areas are enduring sleepless nights because the elephants which take shelter in the nearby forests regularly come out at night and raid granaries and kitchens for food. In the encroached villages, the tolerance towards elephant raids is low because the people know that since they are living in encroached land, any damage done by animals will not be compensated. Therefore, when it comes to securing their livelihood on their own residents of encroached villagers have to fight with the animals even if it means slaughtering them.

The decades of violence and ethnic cleansing in the region have also caused so much damage to the social fabric that it is like a tinder box which might flare up with ethnic violence again. In their bid to assert their tribal identity the Bodos have alienated the large chunk of non-Bodo population living on the north bank of Brahmaputra who also calls this place home.

From the ongoing discussion it is clear that occurrence of HEC is intrinsically related to the socio-political history of the region. In Assam, an array of factors starting from colonial forest and administrative policies, to post-independence policies of exclusionary conservation, to inter-community relations have all affected the natural habitat in ways which are not conducive for the coexistence of humans and wildlife. While there is no denial of the fact that intensity of HEC is on the rise in Assam but in some cases, like Mohpara, the intensity of conflict is further accentuated by the

presence of other forms of conflict. Political dynamics and ideologies influence ecological decisions and this is true in the case of HEC conflict as well. For instance, the Numaligarh Refinery was proposed under the Assam Accord and thus carried sentimental value for the indigenous Assamese people. The overriding regionalist sentiments inhibited people from raising concerns about setting up the Refinery in an ecologically sensitive area. It is only now that people are realising the ill-effects of the decision but then again such understanding is still highly localised and is restricted to those experiencing conflict. Moreover, it is very often difficult to find unanimous answers from people (villagers, experts as well as officials) regarding conflict causes. As seen in the study areas, while NGO and forest officials considered stone quarrying as a cause of conflict, village people employed in these establishments did not say so. Thus, to conclude it can be said that HEC has myriad dimensions and a proper understanding is possible only through rigorous inter-disciplinary analysis.