Chapter 3
Mapping HAC in Golaghat and Sonitpur

“But man is a part of nature, and his war against nature is inevitably a war against himself.”

Rachel Carson, Silent Spring (1962)

3.1. Golaghat: District Profile

The district of Golaghat lies in Central Assam covering an area of 3502 km$^2$ and bordered on the North by the river Brahmaputra, in the South by Karbi Anglong and Nagaland, Jorhat and Nagaland in the East and Nagaon and Karbi Anglong in the West (Fig. 3.1).

![Figure 3.1: Map of Golaghat District (Red spots indicate sample villages)](image)

According to the 2011 census, Golaghat has a total population of 1,058,674 with 51 percent males and 49 percent females (GoI, 2011). The district has a high literacy rate among both males (84.2 %) and females (72.18 %) and has a sex ratio of 961 (ibid). The majority of the population (90.76 %) in the district live in rural areas. The 2001 census reported that 5.4 percent of the district’s total population belong to SCs and 9.9
percent belong to STs (GoI, 2001) and almost 86 percent of Golaghat’s population are Hindus.

Administratively the district is divided into three sub-divisions, Golaghat, Bokakhat and Dhansiri, and eight Community Development Blocks, namely South Development Block (Sarupathar), West Development Block (Bokakhat), East Development Block (Podumoni), North Development Block (Dergaon), Central Development Block (Kathalguri), Gomariguri Development Block, Morangi Development Block and Kakodonga Development Block.

The economy of Golaghat is principally agro-based with rice, tea and sugarcane being the major agricultural crops grown in the district. The river Brahmaputra and the vast network of small rivulets and water bodies make the land fertile for cultivation. Tea has remained the major plantation crop in Golaghat since colonial times and the district along with Sibsagar accounts for nearly 25 percent of the total tea production of Assam.

The Numaligarh Refinery Limited (NRL), built under the provisions of the Assam Accord\(^1\), 1985 and operational since October 2000, is the only major heavy industry in the district.

The river Brahmaputra runs to the north of the district and the world renowned Kaziranga National Park, a UNESCO World Heritage site, is nestled on its banks. The Park is famous because it is one of the few remaining places with a substantial population of the Asiatic one-horned rhinoceros. The other significant reserved forests in the district are Nambor-Doigrung Wildlife Sanctuary, Deopahar RF, Doyang RF, Panbari RF and parts of Rengma RF and Diphu RF. The forests of Golaghat form a contiguous landmass spreading across the Karbi Anglong district and play an important role in the conservation of elephants in the Kaziranga-Karbi Anglong Landscape\(^2\). One

---

\(^1\) The Assam Accord (1985) was a Memorandum of Settlement (MoS) signed between representatives of the Government of India and the leaders of the Assam Agitation in New Delhi on August 15, 1985 to end the political deadlock in the state. The Accord brought an end to the six-year long Assam Agitation launched by the All Assam Student’s Union (AASU) against undocumented migrants in Assam from Bangladesh.

\(^2\) The Kaziranga-Karbi Anglong Landscape (KKAL) is a contiguous landmass encompassing the Kaziranga National Park, parts of Karbi Anglong District and touching the neighbouring states of Nagaland and Meghalaya. The KKAL is a vital site situated in the Himalaya Biodiversity Hotspot and is home to about 2,500 elephants, 40 per cent of Assam’s tigers and 90 per cent of India’s one-horned rhinoceros population.
of the five Elephant Reserves in Assam, the Kaziranga-Karbi Anglong ER, is a part of this landscape and is a major elephant habitat in the region. Tigers, Gaur, Asiatic Buffalo, Wild Pig, Hollock Gibbon, Sambar deer and many more animal species are also found in the forests of Golaghat. Presence of many rare and threatened avifaunal and floral species also enrich the biological diversity of the district and makes it a prime tourist spot for wildlife tourism.

3.1.1. Bokakhat: Block and Village Profiles

Bokakhat is both an administrative Block and a Sub-Division within the Golaghat district. The Block has a total population of 1,80,451 out of which 18.33 percent are STs and 8.47 percent are SCs (GoI, 2001). The Bokakhat Block, also referred to as the West Development Block, has 20 Gram Panchayats (GPs) and around 150 revenue villages. The Bokakhat town is the commercial hub of the Block with most of the important offices and institutions located therein. Bokakhat is inhabited by people from various social-religious and ethnic groups like the Ahoms, Kaivatras, Nepalis, Bengalis, Mishings, Adivasis\(^3\), Marwaris, Muslims, Christians etc. A major portion of the world famous Kaziranga National Park falls within the ambit of Bokakhat Block.

The study was conducted in four revenue villages of Bokakhat Block, namely, Mohpara, Gorhmur Bortika, Mikirchang Bagicha Gaon, and Panbari Aadarsha Gaon randomly selected out of all the HEC affected villages in the Block.

3.1.1.1. Mohpara

Mohpara is one of the villages lying on the southern boundary of the Kaziranga National Park. The village had been there since the third decade of the 19\(^{th}\) century and popular history states that previously it was located within the area presently declared as the National Park. Mohpara is an Assamese village with majority of the families belonging

\(^3\) Adivasi in common parlance means tribe or pertaining to a tribe but in the context of Assam, the term is used to denote tribes that are not indigenous to the region but have their origin in central India who had been brought by the British to work in the tea-gardens as labourers. They are one of the most marginalised social groups in the state and the Government of Assam has recognised the Tea Tribes Communities as Other Backward Classes (OBC) in the early 1980s. However, majority of the population continue to live in impoverished conditions in the lesser developed pockets of the state.
to Ahom community. There are a few Adivasi families scattered within the village. According to the Census of 2011, Mohpara has 79 families with a total population of 469 individuals of which 254 are male and the remaining 215 are female. The nearest primary school is located in the neighbouring village at a distance of less than 500 mts. A paved road connecting the village to the National Highway-37 runs through most part of the village but no public transport plies on the road and people have to depend on their own means of transport to commute. The primary health centre is located at a distance of 7kms from the village and the nearest hospital is the Bokakhat Civil Hospital which is nearly 25kms from the village. A lot of families are engaged in wildlife tourism in Kaziranga National Park and runs eateries, work in the hotels and resorts, perform cultural programmes in hotels for guests and, conduct jeep safaris but agriculture is still the mainstay of almost all households in the village.

### 3.1.1.2. Gorhmur Bortika

Gorhmur Bortika is a village located to the east of Bokakhat town at a distance of nearly 15kms. The village has a total population of 1853 individuals (GoI, 2011) who are Adivasis, Assamese and Mishings. It is a relatively larger village with 364 households most of whom are Adivasis. The village is about 2kms from the National Highway but the approach road is *kuccha* and becomes inaccessible during the rains. A huge Tea Garden owned by Tata Industries lie at one end of the village with the Mikir Hills, running parallel to its southern boundary. The village was earlier known as Gorhmur but Bortika was suffixed to the name when in 2000, a group of Mishing tribal families were rehabilitated in the government land adjoining the village. These families were originally from Bortika, a village located on the southern bank of the river Brahmaputra which was washed away by erosion and flood. There is a primary school in the village, but no dispensary or health centre and people have to commute to Bokakhat town for medicines and/or treatment. Most of the houses in the village are *kuccha* and some pockets still do not have electricity. Agriculture is the mainstay of most families, while some Adivasi families are also engaged as permanent or temporary workers in the neighbouring tea estates.
3.1.1.3. Mikirchang Bagicha Gaon

This village is located at the periphery of the Golaghat-Karbi Anglong border, around 15 kms from Bokakhat town. The Mikir Hills lie on the southern part of the village and the vast expanse of the Behora Tea Garden lies to its north. The village has a total population of 1360 comprising 281 households (GoI, 2011). All the families in the village are Santhali-speaking Hindus belonging to the Tea Tribes category. The people in Mikirchang village are employed as workers in the tea gardens and factory. Apart from working in tea gardens, families also own land which they cultivate on their own or give up for share-cropping. The village has two parts: Bagan line (or Garden line) and Pahar line (or Hill line). The Bagan line is inhabited by permanent workers who live in company provided accommodation and are economically better off than the Pahar line inhabitants who are mostly temporary or contractual workers and/or agriculturists owning small plots of land and/or engaged in share-cropping. The study was concentrated in the Pahar line part of Mikirchang village. There is a primary and middle school in this part of the village and the nearest health establishment is the company owned dispensary within the factory premises. Malaria and typhoid are common health complaints in the village. The village is nearly 4 kms from the National Highway and has no public transportation facilities. A motorable road links the village to the Highway but it ends at the boundary of the Bagan line and from thereon to the Pahar line is a small kuccha road through the fields. Source of water in Pahar line is a small perennial creek that flows from the Mikir Hills and none of the houses are electrified.

3.1.1.4. Panbari Adarsha Gaon

Panbari village is located at the foothills of the Mikir Hills, south of Kaziranga National Park, which is nearly 3 kms to its north. The Panbari Reserve Forest (RF) which is an important animal corridor and wildlife habitat falls to the west of the village. Panbari village was established in 1969 when a group of 33 Assamese families who lost their land and belongings to erosion in Majuli\(^4\) were allotted land there by the government\(^5\).

---

\(^4\) Majuli is the world’s largest fresh-water deltaic island and is located in the upper reaches of the river Brahmaputra in Assam.

\(^5\) Interview with Gaon Burha of Panbari village, Interview No. 31
Since then the village had expanded and presently there are 228 households with a total population of 1265 individuals (GoI, 2011). These households are a mixture of Assamese, Adivasis, Nepalis and Mishings. The village is just 300mts from the National Highway and a gravelled road leads to it. At the entrance of the village is the Centre for Wildlife Rehabilitation and Conservation (CWRC) run by the Wildlife Trust of India (WTI) in association with the International Fund for Animal Welfare (IFAW). Paddy cultivation is the main source of livelihood in the village but a trend is developing wherein people are partially shifting to small-scale tea cultivation. Panbari is 5kms from Bokakhat town and less than half a kilometre from Borjuri, where a daily market takes place in the evening and villagers buy and sell products like vegetables, poultry, bamboo items etc in this market. The Community Health Centre at Borjuri is the nearest health facility and although there are no schools in the village, educational institutions are located within walking distance.

3.2. Sonitpur: District Profile

Sonitpur is one of the 27 administrative districts of Assam and is located on the northern bank of the mighty Brahmaputra (Fig. 3.2). Sonitpur was part of the larger Darang district till 1983 when it was carved out as a separate district with its headquarters in the historic town of Tezpur. The district is spread across an area of 5324 km$^2$ and bordered on the north by Arunachal Pradesh, on the south by the river Brahmaputra, Lakhimpur district on the east and Darang district on the west. It has three sub-divisions and 14 Development Blocks, namely, Dhekiajuli, Borchala, Gabharu, Bihaguri, Balipara, Rangapara, Naduar, Sootea, Biswanath, Sokomatha, Behali, Baghmara, Chaiduar and Pub-Chaiduar.

According to the 2011 census data (GoI, 2011), Sonitpur has a population of 1,925,975 (a 15.67 percent rise in population as compared to 2001) of which 989,919 are male and 936,056 are female. The initial provisional data released by census India 2011, shows that density of Sonitpur district for 2011 is 365 people per km$^2$. The district is populated by people from different religion and communities like Assamese, Bodos, Nepali, Bengali Muslims, Adivasis, Koch-Rajbongshi etc. According to the 2001 census (GoI, 2001), Scheduled Castes (SC) and Scheduled Tribes (ST) comprised 5.23 percent and
11.60 percent of the total population of Sonitpur respectively. The average literacy rate of Sonitpur in 2011 is 69.96 percent with males at 76.98 percent and females at 62.53 percent (GoI, 2011). The district is primarily rural with 91.11 percent people living in villages and the remaining 8.89 percent living in the urban areas (ibid).

The economy of Sonitpur is primarily agriculture based with nearly 80 percent of the population engaged in agriculture and allied activities to earn their livelihood. Paddy is the main food crop grown in the region. Apart from paddy tea, pulses, jute, and vegetables are also some of the major crops grown in the district. The district has a large number of tea gardens previously owned by European companies like Mecnill & Magor, George Williamson Ltd., Mcleod Russel etc. and which are now run by Indian companies like Tata, Unilever etc. There are no major industries in Sonitpur but the district has a lot of small-scale industries such as saw mills, rice mills, flour mills etc. which generate substantial revenue and provide employment to locals.

Sonitpur was once very rich in natural vegetation but the district had suffered massive deforestation in the early 90s. Today the district has an area of less than 1500 km$^2$ under forest cover. The Nameri National Park is located in the district and is home to a wide variety of flora and fauna. Nameri is the only place in Assam where the white-winged wood duck, the state bird of Assam, is found. Apart from Nameri, there are two Wildlife Sanctuaries in Sonitpur, namely, Burha Chapor and Sonai Rupai. The Burha
Chapori Sanctuary is located on the southern bank of river Brahmaputra and has an area of 44.06 km$^2$ while the Sonai Rupai is located in the foothills of Himalaya with an area of 220 km$^2$. The district also has many Reserved Forests but many of these have been encroached upon and converted to settlements and agricultural fields.

3.2.1. Dhekiajuli: Block Profile

The Dhekiajuli Development Block is located nearly 35kms west of Tezpur town. The National Highway 52 connecting Assam and Arunachal Pradesh passes through Dhekiajuli town, the urban centre of Dhekiajuli Block. The Block has a total population of 3,94,054 individuals of which nearly 95 percent live in rural areas (GoI, 2011). Like in other parts of Sonitpur, wet rice cultivation is the main source of livelihood of the people. Dhekiajuli Block has a mixed population of Assamese, Bodos, Nepalis, Bengali Muslims and Koch-Rajbongshis living in nearly 400 revenue villages. The Block also has a large number of Kachari settlers who came to live there during the late 80s and early 1990s. A part of the Sonai Rupai Wildlife Sanctuary falls within the boundary of Dhekiajuli Block.

3.2.1.1. No.1 Jia Gabharu

No.1 Jia Gabharu village is located in the Jia Gabharu Panchayat of Dhekiajuli Block. It is a relatively large village with 327 households with a total population of 1671 (GoI, 2011). The village gets its name from the eponymous river that skirts the village on the north-eastern side. The village is nearly 25kms from the National Highway and is connected by an all-weather motorable road and small public vehicles ply regularly transporting people and goods. The village lies in the midst of a high security army area with several army camps located there and one has to pass through several army check-posts to reach the village. The main occupation of the people in Jia Gabharu is agriculture and paddy is the main cultivated crop. People belonging to the Koch community are in majority along with a few Adivasi, Nepali and Bodo families residing in the village as well.

The Sonai Rupai Wildlife Sanctuary lies to the north of the village and is separated by a power fence installed by the Forest Department and maintained with help of the wildlife
NGO, WWF. There is a Forest Beat Office under the Sonitpur West (Territorial) Division of the Assam Forest Department in the village manned by a Beat Officer and 5 other staff. There is also a Forest Range Office under the Sonitpur West (Wildlife) Division 3kms west of Jia Gabharu at Kolamati, Bengenajuli. The village has a primary and a high school and the nearest Community Health Centre is at Gorubandha, 3kms from Jia Gabharu.

3.2.1.2. Rikamari

Rikamari is the village adjoining Jia Gabharu and lies on the same line to its west. The Sonai Rupai WLS also runs parallel to the north of the village. Rikamari has 263 households (GoI, 2011) belonging to Adivasis, Nepalis, Bengali Muslims and a few Koch families. Like Jia Gabharu, the economy of Rikamari is also agri-based with paddy as the main crop. There are no schools in Rikamari and children from the village attend the schools in Jia Gabharu or Gorubandha.

3.2.1.3. Bandarhagi Pathar

Bandarhagi Pathar is a pre-dominantly Nepali village along with a few Adivasi and Bodo families living in the village. It has 230 households with a total population of 1482 individuals (GoI, 2011) and falls within the jurisdiction of Gorubandha Panchayat. This village lies to the east of Sonai Rupai WLS and is one of the HEC affected villages of the region. The village does not have a motorable road and is connected to Gorubandha by a kuccha road from where public transportation is available. Agriculture and allied activities are the main source of livelihood of majority of the people. For all essential services and commodities the people of Bandarhagi come to Gorubandha.

3.2.1.4. Bengenajuli

Bengenajuli is a relatively smaller village with 103 households and 572 individuals (GoI, 2011). There are Nepalis, Bodos and Adivasis living in Bengenajuli and following agriculture as a means of livelihood. The nearest schools are at Jia Gabharu and
Gorubandha and the health centre is also at Gorubandha. It is another village lying on the southern boundary of Sonai Rupai WLS. The power fence that starts at Jia Gabharu runs up to this village and as mentioned earlier a Forest Range Office is also located at the entrance of the village. This is one of the last revenue villages at the south-western edge of Sonai Rupai and further ahead lies the villages built on encroached forest land. People from Bengenajuli, Rikamari, Bandarhagi and a few nearby villages have also ‘occupied’ land in these encroached areas to prevent land from going to ‘outsiders’.

3.3. Socio-Economic Profile of Respondents

As already mentioned in Chapter 2, a total of 80 respondents from equal number of households (40 in each district; 10 in each village) had been interviewed for the study. Majority of these respondents were the male heads of household but in a few cases where they were not available at the time of interview, the spouse or any other adult member of the household was approached for the interview. 34 of the respondents in Golaghat and 36 in Sonitpur were male. Two households in Golaghat and four in Sonitpur had women as heads of household and all of them were widows.

Majority of the household respondents in both districts are in the age-group of 30-60 years [Fig. 3.3(a) & (b)]. Within this group also a significant number of respondents [Golaghat (n=18) and Sonitpur (n=28)] are above 40 years of age. This number is significant because HEC in Assam has been reported to be on the rise since 1990s due to rapid habitat loss (Talukdar and Barman, 2003; Choudhury, 2004; Chartier et al., 2011). Considering this, majority of respondents in the study had witnessed the changes in habitat and the accompanying changes in HEC profile in the area and therefore were in a position to lucidly narrate the incidents. Almost all the interviewees said that the coming of elephants to villages is not a new phenomenon because of the presence of forest area in their vicinity, however, majority added that the intensity of conflict witnessed in present times is far higher than what it was twenty years back. They said that there is a perceptible increase in the frequency of visits, incidents of crop and property damage and most importantly in the aggression of elephants which has rendered most of the traditional methods of mitigation ineffective.
In terms of education, nearly 3/4th of the respondents in Golaghat (n=31) and half of the respondents (n=23) in Sonitpur are literate (Fig 3.4). Educational status of respondents holds significance in the study because it helped us in understanding the role of education in shaping people’s perception about conservation vis-à-vis conflict. It was observed that irrespective of their educational status, all respondents affirmed the need for conservation of elephants, although for many this attitude was prompted by humanitarian or moralistic reasons rather than an awareness of the ecological role played by the animals. The attitude of majority of respondents towards conservation was shaped more by their cultural affiliations and value orientations which are not necessarily generated through formal education.
Agriculture is the most important source of livelihood in both the districts; 37 respondents in Golaghat and all respondents in Sonitpur are engaged in cultivation either as land-owning cultivators or share-croppers. Crop depredation by elephants is an important form of HEC and negatively impacts farmers. Considering the fact that majority of the study respondents are engaged in agriculture, it was worthwhile to explore the losses incurred and the corresponding impacts on the two different sets of cultivators.

Figure 3.5: (a) Annual Income (in lakh) of Household Respondents in Golaghat; (b) Annual Income (in lakh) of Household Respondents in Sonitpur
Corresponding to their occupational engagement, 25 respondents in Golaghat and 18 respondents in Sonitpur (out of which 10 respondents were from Rikamari) earn less than Rs. 50,000 a year [Fig. 3.5(a) & (b)]. Moreover, 6 respondents of Golaghat and 11 respondents of Sonitpur are BPL (Below Poverty Line) card holders. Income of HEC affected individuals helped in determining the impact of their economic losses on their livelihood and well-being and how this influenced their tolerance capacities vis-à-vis others in the community.

The religion of respondents is important in HAC research because the cultural and religious beliefs surrounding animals help us in understanding the manner in which communities perceive animals and the need for their conservation. In the study, all the respondents in Golaghat and majority (n=36) of respondents in Sonitpur were Hindus. Only in Rikamari village of Sonitpur, three of the respondents were Muslims and one was Christian. It was found that irrespective of their religious faith, all respondents revered the elephants and restrained from hurting the animals because of their ‘godly’ status.

3.4. HAC Profile: Golaghat and Sonitpur

As mentioned earlier, HAC has been part of human society since the beginning of time and is indeed not a new phenomenon. This holds true in the case of our sampled districts as well. Known for its well-endowed floral and faunal wealth, Assam had its own share of HAC in the past. What has changed is the frequency or rate at which HAC is spreading. Earlier restricted to isolated pockets in forest fringe areas, HAC has now spread even to towns and cities, with more and more species getting involved, more instances happening, more damages caused, and both animals and men getting more aggressive.

In order to determine the nature of HAC in general and HEC in particular, in Golaghat and Sonitpur, village respondents were posed questions on some of the aspects of conflict like species involved, damaged caused, seasonality of conflict etc. An attempt has been made to quantify the data so that dominant trends are easily identifiable and these trends would help the reader to make appropriate estimates about the nature and magnitude of HAC in the two districts of Assam. The following figures, tables and paragraphs present an understanding of HAC and HEC as emerged from the interviews and discussion.
3.4.1. HAC: Species Involved

The elephant is one of the most conflict-prone wildlife species in India, causing widespread damages to crops, property and human lives. However, at times the conflict between elephants and humans is further complicated by the involvement of other wild species (large-bodied or otherwise) in the conflict, particularly in forest frontage areas. The eight villages in the study are located in the periphery of forests, which are not necessarily protected areas, and have been experiencing conflict with elephants as well as other wild species like tigers, leopards, wild pigs etc. Figures 3.6(a) and (b) show the different species involved in conflict in each of the sampled villages in Golaghat and Sonitpur.

![Bar chart showing different species involved in conflict in different villages.](chart.png)

**Figure 3.6:** (a) Wild Animals involved in HAC in Golaghat; (b) Wild Animals involved in HAC in Sonitpur
From Figures 3.6(a) and (b), it is clear that there is a greater diversity of animals involved in conflict in Golaghat as compared to Sonitpur. Even within Golaghat, Mohpara has the highest number of wild species involved in conflict ranging from elephants, tigers, buffaloes, deer, wild pigs, rhinos and wild cats. As a village located at the periphery of Kaziranga National Park, Mohpara is prone to conflict with most species living within the protected area. Apart from elephants, which had been enlisted by all the respondents as a species in conflict, significant number of respondents also named tiger (n=9), rhino (n=8) and deer (n=7) as problem animals that cause damage to life and/or property. In comparison to Mohpara less number of respondents in Gorhmur (n=5), Mikirchang (n=4) and Panbari (n=4) listed tiger as a conflict species. However, respondents from Gorhmur (n=8) and Mikirchang (n=9) listed leopard as a conflict species. The fact that both these villages are surrounded by tea gardens which is an ideal habitat for leopards might be an explanation for this trend. The rhinoceros which is found in the grasslands of Kaziranga is an endangered species and highly vulnerable to poaching. The Forest Department, therefore, closely monitors the movement of these animals to avoid straying outside the Park. This is probably why only Mohpara, which is a Park bordering village experiences conflict with rhinos while the other three villages located on the opposite side of the busy National Highway do not encounter this species. The village headman of Panbari village, however, remarked that rhinos frequented their village till the late 1990s but the mushrooming of settlements on their route gradually stopped the animals from reaching that far\textsuperscript{6}.

Another species which was listed only by respondents of Mohpara is the wild buffalo, a species declared as ‘endangered’ by IUCN. In Assam, wild buffaloes are found mostly in the swampy grasslands of Kaziranga National Park with nearly 1400 of them occupying this habitat and few of these do occasionally stray into the nearby villages. Another herbivore which has been listed as a problem species in Mohpara and Panbari is the deer which also lives in the grasslands of Kaziranga and sneaks into the villages to feed on crops and vegetables. The wild pig is another herbivore which is considered as a problem species by people from all the villages, although the number of

\textsuperscript{6} Interview 31
respondents in Mikirchang (n=8) and Panbari (n=9) are high in comparison to Mohpara (n=3) and Gorhmur (n=4). Unlike the rhino, buffalo or deer, wild pig is abundantly found in the forests of Mikir Hills as well, and does substantial damage to crops. Similarly, the jungle cat which is a small wild cat found in the jungles of Kaziranga and Mikir Hills has been listed as a problem species because it preys on poultry.

Elephants, tigers, wild pig and monkeys are the four species that have been identified by the respondents in Sonitpur as conflict species. While elephant has been commonly listed in all the four villages, tiger and wild pig were reported only from Jia Gabharu village (n=2 and n=1 respectively). The large-scale encroachment of forests in Sonai Rupai had severely depleted the faunal wealth of the sanctuary. Many respondents narrated the sightings of tigers, deer, bear etc. in the forests in the past but said that the indiscriminate felling of trees and killing of animals by encroachers have robbed the forests of its animals. Another animal which has become a menace for the villagers of Jia Gabharu, Rikamari, Bandarhagi and Bengenajuli is the monkey. It raids kitchens, destroys gardens, devours fruits and vegetables and even scratches and bites people if they get too close.

3.4.2. HAC: Identifying the Animal(s) Most Commonly Engaged in Conflict

From the list of animals that each respondent named, they were asked to rate the animal or animals which they considered as most common and problematic conflict species in terms of frequency of visits, nature of damage, extent of losses and risks to human safety. Judging by these parameters, respondents in all the four villages of Golaghat considered elephant as the most common conflict animal [Fig. 3.7(a) & (b)]. In Mohpara, apart from elephants, tiger was also ranked as one of the most common conflict animals by two respondents, while buffalo and rhino had been placed in the most common conflict species category by one respondent each. Similarly in Gorhmur, one respondent each ranked tiger and leopard as most common and problematic along with elephants. While elephant had been considered as the only commonly engaged species in conflict in Mikirchang, three respondents from Panbari also placed wild pig in the top slot along with elephants.
It is understandable why all 40 respondents considered elephants to be the most common and problematic animal amongst all the others. The nature of damages caused by elephants includes crop depredation, property damage, human injury, and manslaughter. Also as a large bodied animal, elephants are more likely to be feared because, “People’s perceptions of risk are influenced by more “visible” species (i.e., size), the degree to which wildlife are considered to be dangerous, whether species are diurnal or nocturnal, and the degree of control an individual feels they have over wildlife activities” (Hill,
Elephants can cause potentially more damage per conflict incident than other species (Naughton-Treves et al., 1998) and are more dangerous to humans as compared to other herbivore species (Sitati, 2003) which might have influenced the perception of the respondents to consider elephants as the most problematic species.

A similar trend is witnessed in Sonitpur district also where all the respondents named elephant as the most commonly engaged, dangerous and damaging conflict animal. It is only in Jia Gabharu village where three respondents also ranked monkeys as the most problematic animal, more for their nuisance value rather than their risk value.

### 3.2.3. HAC: Seasonality and Occurrence

Seasonality of human animal conflict had been the subject matter of many studies in Asia and Africa (Hoare, 1999; Parker & Osborne, 2001; Datta-Roy, Ved & Williams, 2009; Gubbi, 2012). Seasonality study of conflict is important, primarily in the case of species like elephants because they are migratory in nature and their movements are determined by the availability of food and water. Determining the seasonality of HAC thus, enables for adoption of effective coping strategies and mitigation measures.

![Figure 3.8](image-url) **Figure 3.8:** (a) Elephant Visit in Different Seasons in Golaghat; (b) Elephant Visit in Different Seasons in Sonitpur

In order to understand the seasonal pattern of animal visits to the villages, respondents were asked to rank the visits of each species as High (15 or more than 15 visits a
month), Medium (less than 15 but more than 5 visits a month) and Low (5 or less than 5 visits a month) across four seasons. These seasons \( (S_1=\text{Aug-Oct}; S_2=\text{Nov-Jan}; S_3=\text{Feb-April}, S_4=\text{May-July}) \) were categorised according to the cropping pattern which is generally the standard of reference for the local people. It must be clarified here that this data is based on the perception of the local people and not on actual count of elephant visits.

It can be inferred from Figures 3.8(a) and (b) that elephant visit as perceived by the villagers in both Golaghat and Sonitpur is the highest in \( S_2 \). Respondents in both the districts have unanimously ranked the Nov-Jan period as the season when elephants come to the village the most. The fact that this season coincides with the ripening of the wet paddy crop, which is the main crop grown in the region, cannot be overlooked. Elephants are known to prefer food crops because of their high nutritional content and palatability (Sukumar, 1989) which can be an explanation for the high incidence of visits in the \( S_2 \) season when crops are ripening. Along with the availability of ripe paddy, the dearth of fresh grass and browse in the forest during the dry winter months might also be a reason for the frequent elephant visits during these months. Alternatively, the abundance of fresh foliage in the forests after the monsoon rains might account for the relatively low visits in the \( S_4 \) quarter i.e. May-July. Although, there is considerable variation in the frequency of elephant visits across the seasons, it needs to be noted that during no time of the year the visits stop completely. The fact that all the eight villages are located in the periphery of forests areas might explain the perenniality of the visits. Villagers also mentioned that female-led herds are more common during peak seasons and generally limit themselves to raiding crops in the fields. On the other hand, loners and small groups of tuskless male (locally known as makhna) come throughout the year and are more aggressive, cause greater damage and difficult to chase away.

With regards to tiger, respondents from Mohpara \((n=9)\), Gorhmur \((n=5)\), Mikirchang \((n=4)\) and Panbari \((n=4)\) replied that occurrence is low throughout the year without any seasonal variation. Tigers generally do not migrate out of their home-ranges and restrict their movement to their individual home-ranges. Along with tiger, the occurrence of
leopard in Gorhmur, Mikirchang and Panbari, buffalo and rhino in Mohpara and jungle cat in all the four villages were reported to be low across all the four seasons. In Mohpara and Panbari where deer was named as a species involved in conflict, majority of the respondents said that occurrence is medium \((n=12)\) in the S\(_1\) quarter and high \((n=14)\) in the S\(_2\) quarter. The flocking of the ungulates to feed on the winter crops like mustard and vegetables in the S\(_2\) quarter has been offered as an explanation for the high incidence of visits by the respondents. 21 of the 24 respondents who enlisted pig as a conflict species said that the visits are moderate throughout the year. In Sonitpur, where only few respondents reported the involvement of tiger \((n=2)\) and wild pig \((n=1)\) in conflict, the results of seasonality mapping was inconclusive. For monkeys, the respondents of all four villages rated it as high in all seasons as the monkeys could be found in the villages all throughout the year. Rhesus monkeys have been found to be very successful in adapting to human habitat and are seen living in a semi-wild state in villages, towns and even cities. At most times they are not regarded as wild in the same sense as elephants or tigers are and therefore, damage done by monkeys does not generate the same kind of response in people as compared to damages caused by other wild species.

### 3.2.4. HAC: Nature of Damages

The definition of HWC given by the IUCN (2004) states that either humans or animals or both need to be negatively impacted for conflict to take place. On the human side these negative impacts can lead to economic costs such as crop damage, injuring or killing of domestic animals, killing people, destruction of property etc. Apart from the economic and physical costs, HWC also burdens people with its far-reaching social costs which include loss of bread-winning member in family, missed school and work, additional labour costs, loss of sleep, fear, restriction of travel etc [FAO, 2009; Human Elephant Conflict Working Group (HECWG), n.d.]. On the other hand, HWC also leads to species extinction due to injury and death at the hands of humans.

The types of damages resulting from HWC vary according to the species involved in conflict (Table 3.1). Elephant as a large-bodied animal can cause extensive economic
damages. They are known to damage all kinds of crops by feeding, trampling and even uprooting saplings and trees. Not only in the crop field but elephants cause damage in human settlements as well, knocking down houses and destroying household items, raiding granaries and home gardens and pillaging kitchens. Apart from these, elephants also pose a great threat to the physical well-being of humans by injuring or killing them. Elephants are herbivorous and do not prey on cattle but a few respondents reported that elephants had attacked or killed their cattle\(^7\) when the animals came in their way during raids. Such behaviour among elephants can be considered more as an aberration of an individual rather than as a norm of the species. Tiger is another animal that had been named as a conflict species in both Golaghat and Sonitpur. The damages caused by tiger include predation on cattle and attack on humans leading to injury or death. Although, tigers are generally not associated with property damage but sometimes they do break cattle pens and cattle sheds while preying on livestock. Similar damages are also caused by leopards which have been reported in the villages of Gorhmur, Mikirchang and Panbari in Golaghat. Like the elephant, rhino and buffalo also engage in crop depredation, property damage and cause bodily harm to people. The wild pig and deer also cause crop depredation but are not known to destroy property, however, wild pigs attack humans causing injury or death. Unlike elephants which mostly damage the ripe paddy crop, deer mainly feed on paddy seedling and also winter crop such as mustard and vegetables. The wild pig diet consists mostly of roots and tubers and thus, tuberose crops such as colocacia, ginger, turmeric, potato etc. grown by farmers as subsistence crops suffer immensely from wild pig raids. Another animal which had been identified as a conflict species in Golaghat is the jungle cat locally known as ‘hepa’ which is notorious for preying on poultry. Monkeys, which have been listed as a problem species in Sonitpur, are known to destroy crops, mainly vegetables and fruits, damage household items and also injure people. It needs to be mentioned here that although the type of damages are same for species like elephant, rhino and buffalo, but people consider elephants to be the most problematic animal because the frequency and scale of damages caused by elephants is far greater in comparison to the others.

\(^7\) Interview 52, 41
### Table 3.1: Type of Damages Caused by Wild Animals in HAC

<table>
<thead>
<tr>
<th>Species</th>
<th>Type of Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CD</td>
</tr>
<tr>
<td>Elephant</td>
<td>√</td>
</tr>
<tr>
<td>Tiger</td>
<td></td>
</tr>
<tr>
<td>Leopard</td>
<td></td>
</tr>
<tr>
<td>Rhino</td>
<td>√</td>
</tr>
<tr>
<td>Buffalo</td>
<td></td>
</tr>
<tr>
<td>Deer</td>
<td></td>
</tr>
<tr>
<td>Wild Pig</td>
<td></td>
</tr>
<tr>
<td>Jungle Cat</td>
<td></td>
</tr>
<tr>
<td>Monkey</td>
<td>√</td>
</tr>
</tbody>
</table>

CD= Crop Depredation; PD= Property Damage; LP= Livestock Predation; HI/HD= Human Death and/or Injury

The Elephant Task Force has estimated that on an average approximately 400 people are killed annually by elephants in India (Gajah, 2010). Concurrently, HEC also results in the killing of nearly 100 elephants each year by affected communities in retaliation (ibid). Choudhury (2004) stated that between 1980 and 2003, as many as 1,010 people had died in human-elephant conflicts across the state of Assam. Data published by the Department of Forest and Environment states that 282 people have lost their lives in wild elephant attacks in 21 districts of Assam from 2007 to 2011 (See Table 1.3, p. 14). In Golaghat and Sonitpur, 25 and 53 persons respectively, had been killed by wild elephants during the same period. Human deaths in HEC occur both in the forests and in settlements and men by virtue of their work like grazing cattle in the forests during day and guarding fields at night are more likely to be killed than women (Sukumar, 1989). At most times, death of the bread-winning male member in HAC leads to degeneration of the economic, physical and mental well-being of the dependent members (Chowdhury et al., 2008b; Jadhav & Barua, 2012).

Among the sampled households in Sonitpur, none reported death of family member(s) in elephant attacks in the last five years. Whereas in Golaghat, four (two each in Mikirchang and Panbari) households had lost one member each in elephant attacks.
during the same time. In Mikirchang village one of the victims was a 24 year old man who died when he was attacked by an elephant when he had gone to fetch his cattle from the fields at dusk. The other victim was a 55 year old man who was killed in the early morning hours when he had gone to bathe in the river. In Panbari both the victims were killed at night, one while he was returning home in the evening and the other while he was chasing the elephants that had entered his compound at night. The timings of the incident corroborate the people’s accounts that elephant attacks take place from dawn to dusk which is crucial because the darkness increases the vulnerability of the people. Also the fact that villages like Mikirchang have no electricity or even in the villages that have electricity, supply is erratic which makes the act of guarding against and chasing elephants at night highly risk prone. Apart from elephants, none of the respondents in both the districts reported loss of family members in attacks by other wild animals. Having said that, an incident occurred in the village of Mohpara in November 2011 (by then data collection in the village was over) when a seventy year old man (father of one of the respondents) was attacked by a Royal Bengal tiger in broad daylight when he went to graze his cattle in the field. He was seriously injured in the attack and died before he could be administered advanced medical treatment. In Mohpara itself, respondents also said that in 2009 one man was crushed to death by elephants while guarding crops at night (not part of sampled households), a woman was killed by a wild buffalo in 2010 and two people died in rhino attacks in the village in last five years. In Panbari village, although two sampled households reported death of family members, respondents informed that there have been more than 12 deaths in the village in the last ten years. The fact that the village is located next to the Panbari Reserved Forest, which is an important corridor for animals moving between Kaziranga and Mikir Hills, might explain the high incidence of fatalities in the village.

Apart from death, elephant attacks also lead to human injuries, sometimes resulting in permanent impairment. Figure 3.9 shows the number of individuals injured in elephant attacks under Golaghat Forest Division and Sonitpur (West) Forest Division between 2007 and 2011. 17 incidents had been reported from Golaghat Division (data for 2011 is not available) while 13 cases of injury had been registered in Sonitpur (West) Division.

---

8 Field Diary Notings, 11th Nov 2011
While these figures represent only those who had been injured in direct elephant attacks, it can be expected that the number would increase manifold if the other injuries sustained during chases or escapes from elephant attacks are also taken into account. Since, such types of injuries are not compensated for by the Forest Department, they go unreported and undocumented. People who live in encroached villages also do not report injures incurred in elephant attacks as they are not entitled to any compensation and on the contrary might be penalised for living illegally on forest land.

![Figure 3.9: Number of people injured by wild elephant in Golaghat and Sonitpur (2007-2011)](source: Adapted from data provided by Golaghat Forest Division and Sonitpur (West) Forest Division)

Among the sampled households in Golaghat, one person had been severely injured by wild elephants in Panbari village. The incident occurred while the man was chasing the elephants that had entered his house at night. He suffered grievous injuries and was bed-ridden for months. Even now, because of the multiple injuries suffered, he is not fit to work in the fields and agriculture being the primary occupation, his condition has become an impediment in earning his livelihood. Apart from this case, one respondent in Gorhmur and another respondent’s sister in Mikirchang had been mauled by leopard while working in the tea-gardens. As mentioned earlier, tea-gardens are the ideal habitat for leopards and they occasionally attack humans in self-defence. Leopard is also one of the problem species that had been named by most number of respondents in
Gorhmur and Mikirchang. Although none of the victims suffered any permanent impairment and have resumed their daily duties but the person in Gorhmur had to spend a considerable sum of money in his treatment as he is a temporary worker in the garden and thus received no help from the garden authorities. The absence of any social security measures increases the vulnerability of the temporary workers, daily-wagers and contractual employees in tea gardens where leopard attacks can be considered as an occupational hazard.

In Sonitpur, one respondent in Jia Gabharu village and two respondents in Rikamari village, said that they/their family member had been injured in elephant attack. Bhabaram Koch of Jia Gabharu village had been attacked by elephants in 2007 and severely injured when he went to fetch firewood in the forest. Since the incident occurred inside the forest he did not receive any compensation from the Forest Department. He was hospitalised for five months and subsequently bed-ridden for another eleven months. The extensive damage to his limbs have made him unfit for heavy manual labour in the fields and these days he earns his living by doing odd jobs in other people’s homes. In Rikamari village, a respondent’s brother was injured three years back when he fell and injured his back while chasing elephants in the night. Another respondent also said that her son broke his leg in 2010 while he was running away from elephants that had entered their house at night. As it was dark and there was no electricity, the boy tripped on a piece of wood and broke his leg. In both the cases the victims’ family did not apply for compensation because such cases, where injuries had not been incurred in direct attack by elephants, are not regarded as elephant caused damages by the Forest Department and hence not liable to pay.

Crop damage by wild animals have been considered as the most recurrent form of HWC. Researches have shown that crop depredation by wild animals can compromise local food security (Hill, 2000), reduce tolerance of wildlife (Nyhus, Tilson & Sumianto, 2000; Sitati, Walpole & Leader-Williams, 2005) and undermine management efforts (Osborn & Parker, 2003). Of all the wild animals, crop damage by elephants is the most pervasive because of the ability and propensity of these animals to cause extensive damages and that too within a very short period of time. Elephants are known to damage all kinds of cereal and millet crops like paddy, maize etc., as well as
legumes, fruits like mango, banana, coconut and even commercial crops like rubber and palm oil (Sukumar, 1994). Poor farmers with small land holdings can lose their entire livelihood overnight from an elephant raid and thus suffer colossal economic and nutritional losses (www.panda.org).

The data from Golaghat reveal that majority \((n=30)\) of the respondents in all the four villages have lost paddy crops in elephants raids in the period between 2007 and 2011 (Table 3.2). It is significant to note that, all those who reported crop loss said that elephants have damaged their crops more than once, some \((n=12)\) even reporting losses in all the five years. Moreover, a few respondents \((n=4)\) said that their crops were damaged more than once in the same season. In Sonitpur, more than \(3/4^{th}\) \((n=33)\) of the respondents reported crop damage by elephants from 2007 to 2011 and majority of these respondents \((n=30)\) said that they faced crop losses multiple times in these five years. Out of the 33 respondents who suffered crop loss, 6 respondents said that they suffered loses more than once in a year. In both the districts, the crop area damaged by elephants, as reported by the respondents, ranged from approximately 3 acres to 0.03 acres for a single household in a single year.

In addition to paddy, which is the principal crop grown in the villages, respondents in both the districts also reported damage to horticulture and home-garden crops, tea crop and, winter crop like mustard. Elephants cause extensive damage to home-gardens and horticulture crops like vegetables, coconut, bettlenut etc. when they enter human settlements. Other species like deer, wild pig, wild buffalo, rhino and, monkey also engage in crop depredation although the scale is lower than the damages caused by elephants. In both the districts, villagers said that they have gradually given up cultivating crops like sugarcane, mustard and legumes due to regular crop-raiding by animals.

Another tangible impact of HAC is damage to houses and household items, including farm property like fences, agricultural tools etc. Among the sampled households of Golaghat district, nearly one-third \((n=15)\) respondents had suffered damage to house and/or household property in the last five years and almost half of them \((n=7)\) have suffered house damage more than once, sometimes as many as six times. One of the
respondents of Gorhmur village said that on one occasion elephants damaged his house twice within a span of eleven days and the second time damage was so severe that the family had to shift to the local school building for 23 days before the house could be made habitable. Compensation either in cash or kind is rarely paid, applications take long to be processed and the amount is often much less than the actual loss. Therefore, most people said that they mostly do not apply for compensation and invest their own money and labour to rebuild the houses. In Sonitpur district, 12 respondents said that they have suffered damage to household property in elephant attacks out of which four have suffered losses more than once. The state of compensation is similar to that of Golaghat and a few of the respondents (n=4) said that they had never applied for any. The remaining affected households have applied but only one among them have received compensation once in the last five years.

Table 3.2: Damages Caused by Animals in Golaghat and Sonitpur from 2007-2011

<table>
<thead>
<tr>
<th>Name of Village</th>
<th>No. of Households Losing Family Member</th>
<th>No. of Households Suffering Injury</th>
<th>No. of Households Losing Paddy Crop*</th>
<th>No. of Households Losing Property*</th>
<th>No. of Households Losing Cattle*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohpara</td>
<td>Nil</td>
<td>Nil</td>
<td>8(8)</td>
<td>4(1)</td>
<td>4(1)</td>
</tr>
<tr>
<td>Gorhmur Bortika</td>
<td>Nil</td>
<td>1(Elephant)</td>
<td>6(6)</td>
<td>4(2)</td>
<td>3(2)</td>
</tr>
<tr>
<td>Mikirchang</td>
<td>2 (Elephant)</td>
<td>1(Leopard)</td>
<td>8(8)</td>
<td>3(2)</td>
<td>2(2)</td>
</tr>
<tr>
<td>Panbari Adarsha Gaon</td>
<td>2 (Elephant)</td>
<td>1(Elephant)</td>
<td>8(8)</td>
<td>4(2)</td>
<td>2(1)</td>
</tr>
<tr>
<td>Jia Gabharu</td>
<td>Nil</td>
<td>1(Elephant)</td>
<td>9(9)</td>
<td>4(4)</td>
<td>1(0)</td>
</tr>
<tr>
<td>Rikamari</td>
<td>Nil</td>
<td>2(Elephant)</td>
<td>7(5)</td>
<td>4(0)</td>
<td>1(0)</td>
</tr>
<tr>
<td>Bandarhagi Pathar</td>
<td>Nil</td>
<td>Nil</td>
<td>8(8)</td>
<td>2(0)</td>
<td>Nil</td>
</tr>
<tr>
<td>Bengenajuli</td>
<td>Nil</td>
<td>Nil</td>
<td>9(8)</td>
<td>2(0)</td>
<td>1(0)</td>
</tr>
</tbody>
</table>

*Figures in bracket indicate number of households suffering multiple losses.

The socio-economic data of the respondents show that three-fourth (n=30) of the houses in Golaghat and more than half (n=23) in Sonitpur are kuccha dwellings, which cannot withstand even the weakest attack by the mighty elephants. As one respondent said, “Elephants always do not knock down houses intentionally; they are such huge creatures and our houses are just bamboo and mud, so sometimes even when they...
simply brush against our mud walls in passing, the damage is extensive. Even concrete houses are knocked down by elephants, but the vulnerability is definitely higher in mud houses as compared to brick walls. Graneries and kitchens are the parts within a house which are most often damaged by raiding elephants in search of food-grains and salt. Narrating incidents of elephant-raids in his house, a respondent of Jia Gabharu said:

_Elephants damaged my house three times. The first time it was my kitchen which was destroyed. It was a makeshift kitchen at the back of the house. Two elephants came at around 11 in the night and it was raining that night. When rain falls on these tin sheets it makes a lot of noise, therefore, I did not realise that elephants have entered my yard. They came from the back and broke down the kitchen. The salt tin was kept on a wooden stool and after years of use, salt had seeped into the wood as well. While breaking down the kitchen, the salt tin fell off from the stool into the earthen stove. Not being able to retrieve the salt, the elephants instead ate up the wooden stool which had salt in it. When we got to know that elephants were there I woke up a few neighbours and together we chased away the elephants. I started repairing the kitchen from 4 in the morning and by mid-day it was done. The next night four elephants came again. I was anticipating that they might come again because they had tasted salt. This time also they attacked the kitchen, but since I was alert I made noise and called my neighbours who came and helped me chase away the elephants. This time they could not do much harm. Next time around seven elephants had knocked down one of the walls in search of paddy._

Excerpts from In-depth Interview, Transcript 45

Preying on domestic animals by wildlife is also a major type of damage incurred by humans in HAC. A few respondents (n=11) in all the four villages of Golaghat, said that they have lost cattle in wild animal attacks, atleast once in the last five years, mostly to tigers and leopards. Cattle had been killed while they strayed into the forests as they grazed or at night when they were tied in their sheds. Generally cattle sheds are built of reed and thatch which makes it easier for the wild animals to break-in and prey on the cattle. Apart from large-bodied carnivores preying on cattle, small species, like jungle cat also prey on poultry. Since, wild carnivores are rare in Sonitpur, cattle-lifting is a relatively smaller problem and only three households reported loss of cattle in
animal attacks. Moreover, all three incidents occurred in the forests when the cattle had strayed inside while grazing.

While the preceding paragraphs dealt with the nature of damages on the part of humans, another significant damage in HAC is killing of wild animals involved in conflict. As described in Chapter 1, it is difficult to ascertain the exact number of animals killed by people because of lack of substantial evidence. Data collected from Golaghat Forest Division during the study show that 22 elephants had died under the Division from 2005 to 2010 and the causes ranged from illness, accident, injury, electrocution to natural death. The data, however, does not give any information whether deaths classified as electrocution or injury had been human-induced or accidental. To the question of wild animal deaths in the villages, only respondents of Panbari said that in the last five years two elephants had succumbed to injuries, presumably suffered during raiding, within the preiphery of their village. According to the villagers’ narratives, the elephants had many wounds, probably inflicted by people while chasing them away. The wounds had festered and become septic which resulted in the death of both the animals. The official number of elephant deaths under Sonitpur (West) Division from 2007 to 2011 is 16, caused due to both natural and accidental causes. However, there was no case of elephant death reported by respondents in the sampled villages of Sonitpur. A detailed explanation of the impact of conflict on animals and animal conservation is given in Chapter 5.

The data represents that HAC is a definite problem in villages bordering forests and Protected Areas and both humans and animals are fighting a losing battle. Not only elephants but other species such as wild pig, tiger, deer and, monkeys cause damage to crops, property and even cattle. Exact figures of crop or property loss incurred in conflict are difficult to arrive at because of scarce data, but rough estimates show that recurrent incidents of crop-depredation or house damage can cause economic losses and severely disadvantage affected households. However, HAC is not a simple equation where animals destroy crops and humans kill animals in retaliation. Rather a range of factors, like ownership of property, political connection, implementation of regulatory measures etc., determine the extent to which people tolerate damages and cope with conflict (Treves, 2007). In the following chapters each of the components of conflict have been explained exclusively and extensively.