Chapter 2

THE STUDY AREA

The chapter deals with the general discussion on location, boundary area, geomorphology, drainage, climate & rainfall, economy, tea cultivation and sampling informations of the study area in Gohpur and Biswanath Chariali subdivisions which are under Sonitpur district, Assam, India. The GPS (Geographic Positioning System) points of sampling stations maps are also specified. The following are some of the over view of the study area under consideration.

2.1. Introduction

The name 'Sonitpur' as well as Tezpur literally means "the city of blood". It reminds of the romantic legend of Usha and Anirudha. The legend revolves around Banasura, the great Asura king of ancient Tezpur, his beautiful daughter Usha and her friend Chitralekha. The princess saw a handsome prince in her dreams and fell in love with him. Chitralekha, a talented artist, not only painted his portrait from Usha's description but recognised him to be Aniruddha, the grandson of Lord Krishna and ruler of Dwarka. Using her magical powers, Chitralekha married each other according to Gandharva rites, without the knowledge of the king. When Banasura learnt of the clandestine romance, he imprisoned Aniruddha, which led to the arrival of Lord Krishna to rescue his grandson. A fierce battle followed and the entire city was drenched in human blood, hence the name Sonitpur or Tezpur, i.e. 'the city of blood'.

The story of love between Usha and Aniruddha finds expression in many stories.

2.2. Location of District Overview

Sonitpur district is spread over an area of 5324 sq. kms. on north bank of the Brahmaputra river. In terms of area Sonitpur is the second largest district of Assam after the Karbi Anglong district. The district is bounded on the north by Arunachal
Pradesh and on the east by Lakhimpur district the Brahmaputra stands on southern side and Darrang district is on the west. The population of Sonitpur district are 16,77,874 as per 2001 census. In terms of population it ranks third in Assam after Kamrup and Nagaon districts. The people here are not a homogeneous lot. Rather, they are a mosaic of ethnic groups, an admixture of diverse types of people. The District lies between 26° 30’N and 27° 01’N latitude and between 92° 16’E and 93° 43’E longitude (Figure 2.1). Located between mighty Brahmaputra River and Himalayan foothills of Arunachal Pradesh, the district is largely plain with some hills. The river Brahmaputra forms the south boundary of the district. A number of rivers which originate in the Himalayan foothills flow southwards and ultimately fall in the Brahmaputra. There are large numbers of river islands in the Brahmaputra known as chars in local language. They are generally sandy, some chars are large enough and fit for habitation and cultivation. Water bodies are in abundance in the district. There are lakes and ponds dotting every part of the district. The major lakes are Rowmari, Dighali, Borsola, Rongapani and Dhandi hence water bodies along with the rivers and rivulets provide a lot of vistas for fishing in the district. Tourists can also do angling for pleasure, especially over the Bharali river at bhalukpung. The central and southern portion of the main plain is dotted with hills and hillocks, especially near the river Brahmaputra. Important hills include the Agnigarh and the Bhomuraguri. The region has trees and tea plantations and paddy fields. The northern portion is made up of forest reserves and sparsely populated forest villages. The region abounds in biodiversity with evergreen and deciduous trees of several types. There is a national park (nameri), a few wildlife sanctuaries (sonai-rupai & bor-dikorai), and a number of reserve forests (e.g. chariduar, balipara reserve forest). In the extreme north of the region (bhalukpung, sijushah, pabhoi, etc.), are hills and hillocks marking the starting
of the Himalayan foothills. The main plain is slightly sloping from east to west, and is at average latitude of 1800 feet from the mean sea level. There are three Sub-Divisions of Sonitpur district namely Gohpur, Biswanath Chariali and Dhekiajuli. The present study carried out in the small tea gardens area of the two Sub-Divisions Gohpur and Biswanath Chariali. The location map of Sonitpur district has shown in figure 2.1 and 2.2. The study area Gohpur and Biswanath Chariali Sub-Divisions under Sonitpur district is given in figure 2.3

Figure 2.1: Location map of Sonitpur District in Assam, India
2.3. Overview of Study Area Gohpur & Biswanath Chariali Sub-Divisions

The north-eastern part of Sonitpur district is Gohpur Sub-Division. Gohpur is situated in the north-east of Sonitpur district under 26°53' -26°88' N & 93°38'- 93°63'E covering of area 603 sq. km. (Statistical Handbook, Assam 2007). Gohpur Sub-Division is also called Chaiduar, once 'Chaiduar' covered the area from the river Dikrong to the river Borgang and during this period, tribals (mainly 'Dafalas', now 'Nishis'), from the hills now Arunachal Pradesh, came to the plains through six doors (gates) giving the name of the area as Chaiduar. But for smooth running of administration, the area has been reduced from Howajan to the Buroi river on the eastern part of Sonitpur District is known as Gohpur subdivision. Moreover, it is divided into two blocks. Chaiduar and Pub-Chaiduar. Previously, the whole...
‘Chaiduar’ (undivided) was covered by Halem Revenue Circle but now another circle Gohpur has been created. The north east part of Gohpur Sub-Division is reserved forest with an area of 13,310 hectares of land. People belong to the Bodo, Nepali, Missing, Deuri community are living here. On the south 28 revenue villages are inhabited by the tribal people of the Missing Community.

It is worth mentioning that in Helem revenue circle there are eight big tea gardens under multinational companies and so tea-garden and ex-tea garden laboures are abundant here thereover also the people belong to Bodo, Missing, Nepali, Karbi and also living in this Sub-Division. At least 5000 Islam families live in Tinkhania village in Duflagarh area. Napalies are majority on the southern part of Halem and Kolongpur Mauza in the helem revenue circle. Gohpur Sub-Division is proud of rich historical past. Quit India movement led by Mahatma Gandhi in 1942 paved the Gohpur to immortalize her name in the page of the history. In this year Konoklata and Mukunda Kakoti died when the police aimed their guns at their hearts. Chaiduar gave birth to a number of poets and literates and their contribution to the Assamese literature and culture is unquestionable. Among them Chandrakumar Agarwala, Haribilas Agarwala, Ananda Chandra Agarwala, Hem Boruah are worth mentioning.

The Gohpur Sub-Division is bounded by Lakhimpur District in the east, Biswanath Chariali Sub-Division in the west direction (Buori River), Arunachal Pradesh in the north and the River Brahmaputra in the south direction. According to the 1991 Census the total population of Gohpur Sub-Division are 2,18,210. Gohpur has an average literacy rate of 72%, higher than the national average of 59.5% male literacy is 77%, and female literacy is 66%. Males constitute 53% of the population and females 47%. There are a few numbers of Historical Tempels and
Ponds at Gohpur. Among them Basudev Doul, Dhandi Devalay, Shree Shree Phulbari Devalay, Kalyani Mandir, Bor Pukhuri and Sri Sri Suriya Narayan Temple are main.

Biswa Chariali (26°42' - 26°72' N & 93°08' - 93°68' E) is another important Sub-Division of the Sonitpur District in the state of Assam. It is at a distance of 75 km from Tezpur and 255 km from Guwahati. The Biswanath Chariali Sub-Division is bounded on the north by Arunachal Pradesh and on the east by Gohpur Sub-Division (Buori River). The Brahmaputra and Golaghat district stand on the southern side and Dhekiajuli Sub-Division is on the west. The Sub-Division is famous for its expansive tea estates. The Monabari tea estate, the largest one in Asia is located here. As of 2001 census of India the population in Biswanath Chariali are 1, 68,300. Males constitute 53% of the population and females 47%. Biswanath Chariali has an average literacy rate of 80%, higher than the national average of 59.5% with male literacy of 85% and female literacy of 75%.

There are some holy places in this Sub-Division are Bishwanath Temple, Borola Stone, Bhaluk Gossain Temple. The Nag Sankar, a place very famous for ancient temples, is at a distance of 15 km away from Biswanath Chariali town.

Beyond Biswanath Chariali at Biswanath Ghat, Biswanath temple popularly known as "Gupta Kashi" is located at the confluence of Bridhaganga (Burigonga) river with Brahmaputra. The ghat has a cluster of temples of different gods. From the stone posts, beams and other ruins found there it is believed that once there was a stone temple. During the summer the temple remains under water. Only in winter worship is done by constructing temporary shed which draws lot of tourists. On the third day of Assamese Bihu festival a mela is held there. The location map with sampling point of small tea gardens in the study area Gohpur & Biswanath Chariali Sub-Divisions is shown in Fig. 2.3
Figure 2.3: Sampling points of study area Gohpur & Biswanath Chariali Sub-Divisions

2.4. Climate and Rainfall

Gohpur & Biswanath Chariali Sub-Divisions fall in the Sub-Tropical climatic region, and enjoy monsoon type of climate. The highest temperature is recorded just prior to the onset of monsoon (around May-early June). Summer rain is heavy, and is principally caused from late June to August by the moisture-laden South-West Monsoon, on striking the Himalayan foothills of the north. Such rain is both a boon and a bane for the people. A boon, for it provides natural irrigation to the fields, and a bane as it causes the rivers to overflow their banks and cause floods. Autumn is dry, and warm. It gets cooler as the months progress. Winters extend from the month of October to February, and are cold and generally dry, with an average temperature of \(16^\circ C\). Annual average temperature of the area during winter period varies from \(6^\circ C\) to \(14^\circ C\) and during summer, it varies from \(29^\circ C\) to \(36^\circ C\). It gets quite chilling in late
December and early January, on account of snowfall in the upper reaches of Arunachal Pradesh. Springs are cool and pleasant, occurring in the months of late March and April. Of course, during these months, flash rains and thunder storms are at times caused by cyclonic winds, known in local parlance as Bordoichila. The average annual rainfall in this area is 1979.2 mm (Statistical Handbook, Assam 2007). About 60% to 65% of the annual precipitation is received during south-west monsoon from June to September. The rainfall pattern is almost same though it is slightly more in the northern part than the southern. The relative humidity varies from 93% to 95% during morning hours and during afternoon hours it varies from 53% to 75%. The climate is tropical, hot and humid (http/www.sonitpur profile/sonitpur mht.).

2.5. Geomorphology and Drainage

2.5.1. Geomorphology

Physiographically, both the Sub-Divisions show a monotonous plain topography towards south from north, while the northern part of the area represents an undulating topography (http/www.sonitpur profile/sonitpur mht.). The general elevation of the elevated area is around 100 meters above Mean Sea Level (MSL) and low lying areas show altitude about 50 meters above MSL. The slopes of the Sub-Divisions are towards south from north.

2.5.2. Drainage

The River Brahmaputra flowing in east-west direction in the extreme southern parts of the Sub-Divisions and its tributaries flowing towards the southern direction, control the entire drainage system of the Sub-Divisions and play an important role in the ground water occurrence. Important rivers of the Sub-Divisions are Buroi, Borgang, Kharoi, Burhigang, and Ghiladhari. These rivers have meandering courses with abandoned channels in the form of bils and ox-bow lakes along their courses. The
Sub-Divisions are having a unique water regime with river Buroi and Solengi traversing along the region from north to south direction and Khori east to west. The Burhigang and the Ghiladhari are in the Biswanath Chariali Sub-Division which are coming from Arunachal hills north to south and end at the Brahmaputra. There are also some small tributaries of the river Brahmaputra flowing through these Sub-Divisions. All the rivulets originated from Arunachal Pradesh.

2.6. Land Use & Soil Type

Land use pattern of the Sub-Divisions are as per Assam remote sensing application centre reveals that about 52,674 hectares are covered by reserve forest 3,937 hectares by fallow land, 2, 15, 966 hectares covered by kharif and 51,059 hectares are covered by rabi crops. Principal crop grown in the both Sub-Divisions are paddy followed by pulses, mustard, sugarcane, potato, vegetables, etc. Tea plantation is major cash crops in the highlands covered by older alluvium. Two important soil groups are seen they are (i) deep reddish coloured soil developed over older geological formation and (ii) light grey to dark grey coloured soil covering the major parts of the Sub-Divisions. Low nitrogen, low phosphate, medium to high potash, acidic characters of the soil are representative of the soil found in the Sub-Divisions. Some marshy or peat soil is also found in the perennial water logged areas and is black in colour. It contains higher amount of decomposed or semi decomposed humus giving a muddy nature.

2.7. Demographic Pattern

The demographic pattern of the major communities inhabiting the Gohpur and Biswanath Chariali Sub-Divisions are the Assamese. They are among the original inhabitants of the place, and the typical culture of the place grew with them. While a majority of them follow Hinduism a significant portion of them are also Muslims. The district has a considerable Muslim population. Majority of Muslims have emigrated
from former East Bengal (present Bangladesh). They fill up a large portion of riverine areas of the district. Peoples having Sikhism, Christianity, and Buddhism are also inhabiting this area. The Prominent castes among the Assamese include Brahmins, Kalitas, Baishya, Koch, Ahoms, Yogis, the Scheduled Castes, etc. The Nepali community is fairly dominant in the central and southern part of the district, especially in the Biswanath Chariali Sub-Division. The Bengali community came from erstwhile undivided Bengal, as officials and clerks of the British administration and the tea industry and stayed back. Later on account of the partition of India, people coming as refugees added significantly to the community. The Adivasi people were brought by the British from Chotanagpur area and Orissa to serve as labourers in the tea gardens. In course of time, they assimilated themselves in the greater Assamese society, while retaining their basic cultural traits. The Jhumur dance is their contribution to the culture of Assam.

2.8. Economy

The economy of Gohpur & Biswanath Chariali Sub-divisions is basically agrarian. Approximately 80-85 percent of the population depends on agriculture allied (primary sector) activities for their livelihood (www.irc.assam.nic.in). Rain fed cultivation of single paddy crop still continues in most areas of the Sub-Divisions. The economy of the district is agriculture based the traditional one, no multinationals or software industries, no big business dealings as such. The economy of both the Sub-Divisions is underdeveloped and has its own pace, trend, tradition and development process. Gohpur and Biswanath Chariali towns are trade centers for Bomdilla, Tawang, Seppa and Itanagar of Arunachal Pradesh. The next most important feature of the economy is the existence of large number of small and big tea gardens. There are all together twenty one big tea gardens in the Gohpur & Biswanath Chariali Sub-Divisions.
2.9. Tea Cultivation

Tea cultivation occupies less than a tenth of the cultivated area of Assam. The most important feature of the economy of Sonitpur is the existence of large number of small and big tea gardens. There are all together seventy three big tea gardens in Sonitpur district (Twenty one in Gohpur & Biswanath Chariali Sub-Divisions). These tea gardens cover approximately 45,222 hectares of land in these Sub-Divisions (http://sonitpur.nic.in/economy.htm). The Monabari tea estate in Biswanath Chariali Sub-Division is the largest tea garden with an area of 1096 hectares and the Borgang tea estate is the 2nd largest in the district with an area of 1018 hectares. Most of the tea gardens were previously owned by European concerns like Mecnill & Magor, George Williamson Ltd., Mcleod Russel, British Assam tea garden company, Empire Plantation Limited etc. However in recent years many Indian owned companies like Tata Tea, Brooke Bond etc. are taking over the ownership of the tea gardens. Apart from the big companies gardens a large number of small tea gardens also grow from 1978 (Baruah, K. S., 2008). According to Indian Tea Board the tea gardens which have land from 1.5 hectares to 10.5 hectares are small tea gardens (Borgohani, J. K., 2008). These tea growers are playing great role in the upliftment of the rural economy of the Sub-Divisions. They basically sell green tea-leaves to the big company tea gardens who have own factories for processing (http://sonitpur.gov.in/economy). Assam produced 51% of India’s tea (www.indiatimes.com). The small tea gardens of Assam have a countable contribution to the total tea production in Assam. In Sonitpur district there are 207 registered and a large number of unregistered small tea gardens and covered area of 1209.93 hectares (Tea Board of India, 2004).
2.10. Sampling Information (Soil & Water Sample Collection)

Soil and water samples were collected in and around the fifteen small tea gardens of the Gohpur and Biswanath Chariali Sub-Divisions of Sonitpur district, Assam, India in pre monsoon (February to May) and post monsoon seasons (October to January) during 2008 to 2009. There were three samples of soil and three samples of water collected from inside the small tea gardens and similarly three samples of soil and three samples of water were collected from the outside area of the nearby tea gardens. Water samples were collected from ground water sources like ring well, tube well and deep tube well. The GPS locations of sampling points in the study area have shown in Fig. 2.4.

Figure 2.4: GPS location of the sampling sites in Gohpur and Biswanath Chariali Sub-Divisions, Sonitpur district, Assam