CHAPTER - II

GEOGRAPHICAL FRAMEWORK OF THE REGION

2.1 Physical Environment

Relief

The topographical homogeneity of Hugli district is remarkable because this district is located on the flat plains of lower Gangetic delta (O'Malley, 1911). The district may be broadly divided into two main natural divisions, the plain and the upland. The river Dwarakeswar formed the dividing line between the two. The tract of land lying between the Bhagirathi and the Dwarakeswar is a flat alluvial plain intersected by a number of sluggish rivers and streams. The area displays some of the most classical examples of old streams. The slope of this region gradually decreases from the north-west to the south-east direction. The slope of the region is varying from two of inches to more than a foot per mile. The gradual rise of the ground level from the east towards the west is indicated by the fact that Champadanga beside the Damodar River is 8 feet higher than the Baidyabati in the extreme east on the bank of Bhagirathi River. The mean elevation of Tarakeswar area is 36.5 feet (11.1 m.) above sea level. The flat alluvial plane may again sub divided into three regions (i) The Dwarakeswar- Damodar inter river rine plain (ii) The Damodar Bhagirathi inter river rine plain (iii) The char lands and meander loops. The study area is located in the flat alluvial plain between Damodar and Bhagirathi River.

Geological structure

The entire geological structure of Hugli is formed by older alluvial deposits of the Ganges. Geologically the district is located in the stable shelf area of the western flank of the Bengal basin. To the west and north, the basin is bordered by an ancient basement of crystalline rock and Gondwana sediments and to the northwest by the Rajmahal volcanic of the Mesozoic age. The plain of the district was formed through the multiple origin and the principal deposits vary in the age from the cretaceous period to the Pleistocene epoch ranging between 135 and 1 million years from now.
Climate

Climate of Hugli is really pleasant. It normally has tropical savanna climate. The district experiences a climate which is transitional between the cwg3 and Aw1 types where ‘c’ stands for “warm temperate rainy climates with mild winters”. ‘w’ for dry winter not compensated for total rain in the rest of the year, g3’ for eastern Ganges type of temperature with Maximum value before the summer rainy season and ‘Aw1’ for ‘tropical savanna climates, hot in all seasons but moderately comfortable with only 10° to 20°F Annual range of temperature and 5% to 15% annual variability of precipitation. The modified Gangetic monsoon climate of the district is characterized by moderate temperature (due to the nearness of the bay) with cold weather means between 80°F and 85°F (26° to 28°) only.

Temperature Condition
Temperature rise rapidly from the beginning of the month of March. The day temperature reach their maximum in April or may when the mean maximum temperature is about 36°(96.8°F) and mean minimum temperature about 24°C (75.2°F). With the onset of south west monsoon by the first week of June there is an appreciable drop in the day temperature. The monsoon retreat early in the month of October and the temperatures begin to fall. Generally the daily minimum temperature range between 12°C to 13°C and maximum temperature around 25°C in the cold month of winter season.

Rainfall
The average annual rainfall in the district is 1520.1m.m. On an average the district experiences 75 rainy days (i.e. days with rainfall 2.5m.m of more). The rainfall during the Bay monsoon and south west monsoon amounts to about 72 percent of the total annual precipitation. On an average the district experiences 75 rainy days (i.e. days with rainfall of 2.5m.m of more) in a year.

Humidity
The distribution of relative humidity is determined by the characteristics properties of prevailing winds. Relative humidity is generally high throughout the year, especially during spells of very wet weather with incessant rains; but with hot winds blowing, such as is common in the summer months, they are comparatively low though more oppressive, especially in the afternoons when the humidity may be of the order of 30
percent only. In winter, humidity decreases from south to north and east to west and on an average the variations in relative humidity are smaller than in summer.

**Soil condition**

The entire district is covered with alluvium of two different types’ older alluvium and newer alluvium. Both are of recent geological age, but part of the older alluvium might be of late Pleistocene age. The older alluvium is found only in the maximum parts of the western side of the district. The rest of the district is formed by newer alluvium mainly composed of sands, silts and clays brought by the rivers. The eastern part of the district has been built up by the deposits of the Bhagirathi, the western parts of the Hugli and serampur sub divisions by those of the Damodar and the Arambag subdivision by the combined precipitation of Damodar, the Mundeswari and the Dwarakeswar. Our study area is located between Damodar and Bhagirathi River. The alluvium formed from the silt of Damodar contains a large percentage of sand fractions but very little clay is loose and easily permeable and therefore more friable and non-retentive of moisture .This sandy loam does not cake up when it become dry. The soil of the study area as a whole are fertile (content of k2O and P2O5 are high, CaO below 0.6% and nitrogen below 0.20%) and are periodically enriched by fresh deposits of silt from the over flow of the river.

**Drainage system**

The rivers of the Hugli district provide a key role to its geography, regional economy, socio-political pattern, cultural heritage and history. The entire Hugli district is a gift of waterways, notably the Damodar group, though at present the Bhagirathi is more important. The study area is under the influence of river Damodar, Kana Damodar, Madaria Khal.

**Damodar River**

Damodar enters the district from the north between the villages of Shahpur and Habibpur and flows south in a meandering course and separating the Arambagh sub division from rest of the district. The total length of the river in Hugli is about 28 miles. From a point above Rajbalhat it forms for about 8 miles (12.9km) the boundary between Hugli and Howrah .In the upper portion of its course the Damodar has a rapid flow and brings down vast quantities of silt from the chotanagpur plateau. In its lower reaches therefore it
assumes a deltaic character throwing off distributaries. The bed of Damodar is sandy and average half a-mile in width. No islands have been formed in its bed. But several sandy grass covered chars have been thrown up on either bank, some of which are under cultivation.

**Kana Damodar River**
The western part of Hugli and Serampur subdivisions is drained by several streams, apparently old off shoots of the Damodar. One of these, the kana Damodar was apparently once a large channel. It branched off from Damodar a few kms below Salimabad in the Burdwan district. But its mouth is now more or less silted up.

**Madaria Khal**
The Madaria khal rises at the north of Chanpadanga and passing into Howrah district. The khal has fallen into the Damodar before Amta town. Originally this stream appears to have debouched from the Damodar but its intake has been closed by the embankment along its western bank.

**Natural Vegetation**
The tract between Damodar and The Hugli contains the plants generally found in lower Bengal, both cultivated and wild. First, there are reeds, sedges and aquatic plants in the marshes and swampy rice fields, shrubs and smaller plants in the fields and commons a little higher up. Lastly surrounding the village bamboos, coconuts, palms, mangoes and other trees can be identified. The tanks and stagnant pools are covered with lotuses, lilies, water hyacinth both large and small and other aquatic varieties. Generally speaking the most noticeable botanical feature of the study area is luxuriant growth of plant life.

### 2.2 Socio-Economic Environment

**Demographic characteristics**
Population growth in Tarakeswar town continued to increase through the previous four decadal years. In 1981 the total population was 16,518 and this increased to 22,632 in 1991 (Dist. Census Handbook, 1981, 991). Hence 6,114 populations have been added in between 1981 1nd 1991. In 2001 population became 28,187. About 5,555 populations increased from 1991 to 2001. In 2011 the population increased to 30,947 (Dist. Census Handbook of 2011) with a growth of 2,760 population. So from the above figures it is clear that population increased in the town area but with a gradual decreasing rate in the
three decades. The percentage of male population was 51% to 54% and the percentage of female population was 46% to 49% in the three proceeding decades. In 2011 the male:female ratio was 928. The total population also increased in the adjacent area of Tarakeswar during the last three decadal years. About 2,477 population was increased between 1981 and 1991, 6,204 between 1991 and 2001 and 6,690 increased between 2001 and 2011. So population has increased gradually in the adjacent area between the three decades. Male:female ratio was 900 to 1,051 in the three decades in the nine villages of the adjacent area.

**Educational status**

In the urban area of Tarakeswar there are ten private primary schools, six Government middle schools, one private middle school, two government middle schools, one private higher secondary and three government higher secondary schools. In the adjacent nine villages, there are eight primary schools, one junior high school and one high school. So the private primary and upper primary schools, government high schools (Girls’, Boys’ and Coeducation), One Degree College of the town area play very important role to facilitate higher education for the students of the town and its adjacent villages. The economically rich families of the adjacent area usually send their wards to the convent schools of Tarakeswar town for better education. The poor families of the adjacent villages are dependent on the government aided primary schools.

**Healthcare facilities**

In Tarakeswar town there is one rural hospital in Ward no.12 with 60 beds. There are six nursing homes and one eye care centre giving service continuously to the people of the town and its adjacent area. Besides in the town there are ten diagnostic centers which are giving service to the people of the town and its adjacent area. In the adjacent area a few primary health care centers and private dispensaries are serving for the common people of adjacent area. There is no super specialty hospital or healthcare centre in Tarakeswar town. Nursing homes are little better than domestic houses. The infrastructure and services are very poor and ordinary. The intake capacity for the patients is limited in the healthcare centers. Some healthcare centers, pathological laboratories and dispensaries have been developed in particular wards like Ward No. 7, 9, 10 and 11.
Transportation

Mainly four types of road transportation system can be identified and they are in the form of Bituminus road, concrete road, brick road, murrum road and kancha road. The total length of Bituminus road in the town is about 19.06 km. The total length of railway line in the town is about 1.43 km which connect four railway stations in the adjacent districts with Tarakeswar. Every day a variety of agricultural products including green vegetables are transported from the town to different urban centers of Hugli and Howrah through railway. One state highway (SH-12) extends through Tarakeswar town connecting Arambagh, Champadanga, Tarakeswar, Seoraphuli and Champadanga. Another state highway connects Tarakeswar with Burdwan. This state highway is also playing very important role for the thoroughfare of the residents of Tarakeswar and its adjacent area.

Trade and commerce

Trade and commerce have played a decisive role in shaping the development of the economic condition of Tarakeswar town and its adjacent area. Tarakeswar town is one of the biggest consumption centres of Hugli district. The wholesale and retail markets of Tarakeswar deal with major commodities like auto parts, machinery, stationary, food stalls, fertilizer, electronics part, green vegetables, hardware materials, jewellery, warehouse for wood, cloth etc. About 1,500 different kinds of wholesale and retail shops render service throughout the town. The residents of town and its adjacent area are mainly dependent on the market of Tarakeswar town. Pilgrim tourism is the key factor for the development of economy of the region. Many local people are engaged directly and indirectly with the business of hotels, restaurants, lodges and worshiping materials of lord Shiva which is directly associated with religious tourism in Tarakeswar town. Chemical fertilizers are brought in Tarakeswar town through wagons from Haldia. In a wagon about 37,800 packets of fertilizer is normally imported. In the season of agriculture 5-6 wagon come in Tarakeswar in a month with chemical fertilizer. About 126 trucks are employed to distribute the fertilizer to the different shops of Howrah, Hugli and Kolkata. On the other hand potato which is produced locally is sent to different nearby districts of Hugli through wagon from Tarakeswar. Many local people and informal labours are engaged in these activities.