CHAPTER- 5
ENVIRONMENTAL SET UP OF THE STUDY AREA

5.1 INTRODUCTION
Physical features such as physiography, climate and drainage play a vital role in controlling different diseases in any area; and also the required healthcare facilities provided by the Government to the area for the purpose of combating the situation. Malaria and different fevers occurred due to marshy areas of the district in the past. Hence the physical features have a great role to play in the health related issues. In this chapter a very small outline of the physical settings of Howrah district, the study area, are presented.

5.2 LANDFORM
Hemmed in between the Hooghly (Bhagirathi) in the east and the Rupnarayan on the west and intersected by the Damodar, the Howrah district consists of a flat alluvial plain with a gradual, almost imperceptible rise towards the north and north west; the general flow of drainage being consequently to the south and south east. The product of these rivers and their branches it comprises provide two major divisions viz. the Raised River Banks and Large Marshes or Low Lands that separated them.

In this way, three tracts are formed each with depression in the center bounded by the high bank of the rivers, viz. an Eastern Tract stretching away from the Hooghly (Bhagirathi) and its branches like the Saraswati; a Central Tract traversed by the Damodar and its branches like Kana Damodar or Kausiki; and Western Tract consisting of the country between the Damodar and the Rupnarayan.

5.3 CLIMATE
Situated in the Humid Sub-Tropical Zone under the influence of the Bay of Bengal branch of Monsoon, the district’s climate enjoys the moderating effect of the sea. The climate and weather of the district may be summed up on the basis of three conventional seasons. These are as follows-
• **Cold Dry Season (November to February)**

January is the coldest month with a mean daily maximum temperature of 26°C and a mean daily minimum of 13°C. The mean diurnal variation of temperature is thus considerable. Towards the end of February the days begin to be appreciably warmer.

Rainfall in the months of December and January is low as the winds then blow mostly from the inland. The lowest mean monthly rainfall (3.5 cm) is the December while the highest of the season occurs in February (3 cm), the average for the season being 6.5 cm.

• **Hot Dry Season (March to Middle of June)**

A rapid rise of both the mean daily maximum and minimum temperature occurs in March and April. May is generally the hottest month with the mean daily maximum at about 35.3°C and mean daily minimum at about 25.5°C. The temperature falls substantially with the invasion of Thunder Storms (Popularly known as Nor, Westers and locally called Kai Baisakhi), in afternoon from March to May. The period from 6 a.m. to 1 p.m. is comparatively free from such disturbances.

• **Monsoon (Middle of June to October)**

**Temperature** - Monsoon lasts during this period when the south east and south west winds blow with accelerated velocity. The burst of Monsoon towards the middle of June bring merciful relief to the parched country side. The mean daily maximum temperature of 33.56°C in June drops to 31.94°C in July. Towards the end of October and early November when Monsoon withdraws there is an appreciable falls of night temperature with reduced diurnal variations.

**Rainfall** - July and August are the rainiest months with 17.5 and 18 mean rainy days. The late Monsoon months of September and October record comparatively less precipitation unless there are cyclones.

During the post Monsoon period i.e. between October and November, the tropical continental air mass in the process of transition to tropical maritime air mass bring about fair to fine weather.

The average annual rainfall which is 1664.9 m.m generally increases from the South East to North West of the district. The Monsoon rainfall from June to September constitutes about 75% of the annual normal rainfall. On the average there are 81 rainy days in a year in the district. The number varies from 79 at Howrah and 83 at Uluberia.
5.4 DRAINAGE
The principal rivers of the district are the Bhagirathi and its tributary, the Saraswati; the Damodar and its two branches, Kana Damodar (or Kausiki) and the Old Damodar and the Rupnarayan. The district is also intersected by numerous khal or creeks.

The tributaries of the Bhagirathi are mostly tidal off shoots navigable by small county boats for short distance inland. Sankrail and Sijberia Khals are the lower reaches of the Saraswati and the Kana Damodar respectively. The Damodar has twelve distributaries and the Rupnarayan about half that number. The most important among the Damodar are the Madaria, Banaspati and Gaighata Khals. On the other hand, Hoorhoora and Bakshi Khal are important distributaries of the Rupnarayan. The Bakshi and Gaighata Khals combined to form a tortuous channel between the Damodar and Rupnarayan which is used by county boats. In the southern part of the district the most important of such Khal joining the two river systems are the Uluberia, Lahiripara and Nakhali Khals.

5.5: CONCLUSION
Plain land of the district and marshy land in the north bed facilitated the spread of Malaria and Diarrhoeal diseases before the Independence, but with the passage of time the drainage of the district improved and the intensity of these diseases reduced. However, subtropical humid climate is still favourable for some diseases like skin diseases, and Malaria and Diarrhoeal diseases especially during the rainy season.