

Chapter 4

SOCIAL ECOLOGY AND SETTING

Research setting refers to the place or locale where the study was conducted. In this chapter under the title of research setting, attempt has been made to delineate some back ground information about the state, district, and blocks of the study area.

The research was conducted in one of the most important district of West Bengal, i.e. **Malda** where whole **Kotowali village of English Bazar Block** was selected as a research area. This section deals with West Bengal and its agro-ecological region, agriculture, demographic data, land use pattern, economic overview of West Bengal.

4.1 A short glimpse about West Bengal

4.1.1. Profile

The name of Bengal, or 'Bangla', is derived from the ancient kingdom of Vanga, or Banga. References to it occur in early Sanskrit literature, but its early history is obscure until the 3rd century BC, when it formed part of the extensive Mauryan Empire inherited by Asoka. With the decline of Mauryan power, anarchy once more supervened.

4.1.2. Demographic Overview

West Bengal is situated on the eastern part of India, stretching from the Himalayas in the north to the Bay of Bengal in the south. The state has a total area of 88,752 square kilometres (34,267 sq mi). It is bounded by Sikkim and Bhutan on the north, by Nepal on the north-west, by Bangladesh and Assam on the east, by Bihar, Jharkhand and Orissa on the west and south-west and by Bay of Bengal on the south. This northern part of the state has a hilly region. The narrow Terai region separates this region from the plains, which in turn transitions into the Ganges delta towards the south. A small coastal region is on the extreme south, while the Sundarban's mangrove forests form geographical area at the Ganges delta.

4.1.3. General information

Table no. 4: General information of West Bengal

Indicator		West Bengal
Geographical Area (Lakh Sq. Km)		0.88
Population	Total	91,347,736
	Male	46,927,389
	Female	44,420,347
Sex ratio		947
Population density		1029 per.km ²
Literacy Rate	Total	77.08%
	Male	82.67%
	Female	71.16%
No of Sub divisions		66
No of Municipalities		120
No of Municipal Corporation		6
No of Blocks		341
No of Mouza		40782
No of Police Stations		456
No of Gram Panchayats		3354

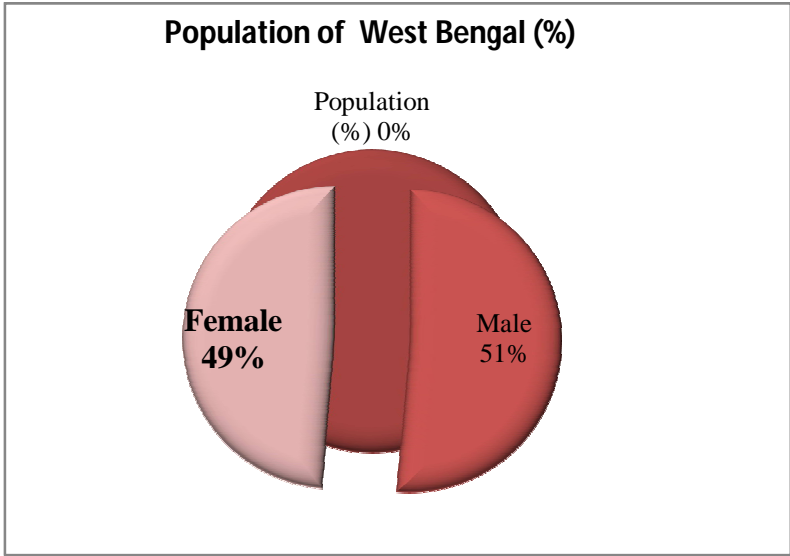


Figure no. 4: Population of West Bengal (%)

Source: (According to 2011 census)

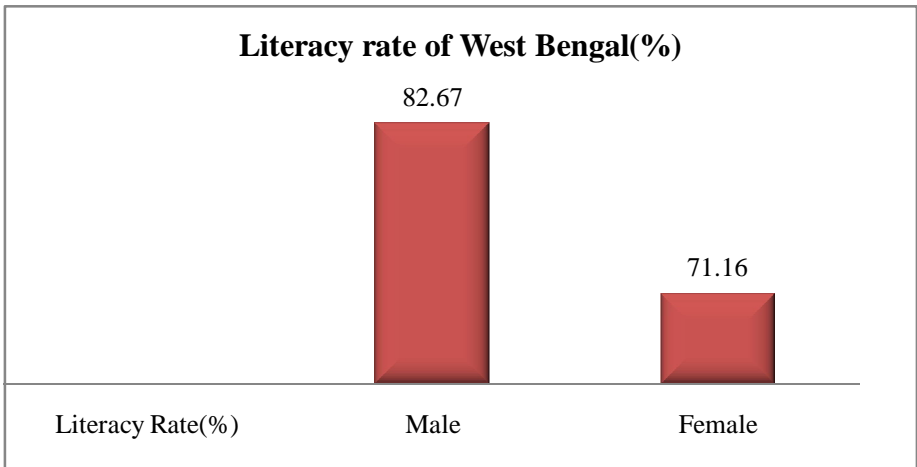


Figure no. 5: Literacy rate of West Bengal

Source: (According to 2011 census)

West Bengal is located between 21°31' and 27°14' N latitude and 85°51' and 89° E longitudes. It is flanked by the Bay of Bengal in the south, Sikkim on the north, Assam on the east and Jharkhand and Orissa on the west. It covers an area of 8.85 million ha, representing only 2.7% of the total area of the country. The State is divided into 19 administrative districts viz. Bankura, Birbhum, Burdwan, Kolkata, Cooch-Bihar, Darjeeling, Hooghly, Howrah, Jalpaiguri, Malda, Midnapore-East, Midnapore-West, Murshidabad, Nadia, North 24 Parganas, North Dinajpur, Purulia, South 24 Parganas and South Dinajpur.

4.1.4. Economic Overview

The state has been experiencing a steady economic growth. When India has grown 6.48 percent, West Bengal has grown 6.55 percent as per CSO's report published on 18th August, 2012. GSDP growth in West Bengal was higher than the National Average for 2011-12. Growth rate in National Average of GDP at Current Prices in 2011-12 was 15.02%, while Growth Rate in GDP in West Bengal for the same period was 15.87%. Growth rate in National Average of GDP at Constant Prices in 2011-12 was 6.48%, while Growth Rate in GDP in West Bengal for the same period was 6.55%. Similarly, the growth rate in Per Capita Net Domestic Product at Current Prices for 2011-12 for West Bengal was 14.86% as against the National Average of 13.64% during the same period.

4.2. Production Base/Resource Mapping

4.2.1. Agriculture

The total production of agri-commodities (food grains, pulses, oil seeds etc) in 2011-12 stood at 16.29 Mn MT. In previous year this figure stood at 14.27 Mn MT. The State is situated comprise of high geographical diversity with six agro climatic zones. The Net sown area is 61% of total Geographic area against national average of 46%, the Gross cropped area exceeds 92 lakh ha with cropping intensity of 171%. Small and marginal farmers account for 92% of total farmer population and own 70% of net cultivated land. Irrigation covers 45% of net cropped area; however there is a high reliance on

monsoons. West Bengal is the highest producer of vegetables in the country and seventh in the production of fruits. Horticultural crop covers 21% of net area. The state accounts for 8% of the total food grains produced in the nation. Paddy is the main crop in the State followed by Sugarcane, Wheat and oilseeds. The State ranks first in the production of Paddy.

4.2.2. Horticulture

West Bengal is the largest producer of vegetables in the country and seventh largest producer of fruits. Horticultural crops cover 21% of net cultivable area in the state. West Bengal accounts for over 11.4% of all India production of Fruits & Vegetables and is the leading producer of cauliflower, brinjal, cabbage and pineapple, and the second largest producer of potato and litchi.

4.2.3. Land use pattern of West Bengal

Table no. 5: Land use pattern of West Bengal

Geographical area (million hectare)	8.86
Net cropped area (million hectare)	5.46
Gross cropped area (million hectare)	9.23
Irrigation Area(million hectare)	4.67
Cropping intensity (%)	165.34
Forest area (%)	13.72
Non agricultural use (%)	18.66
Barren and Uncultivable (%)	0.35
Permanent pastures and Grazing (%)	0.09
Trees and Groves (%)	0.88
Cultivable wasteland (%)	0.53
Fallow land (%)	0.34

4.3. Physiography

Greater part of the State (two-third of its total geographical area) consists of a flat or gently undulating alluvial plain with an elevation below 30 meters. The western part of the State consists of uplands where part of the crystalline rocks from Chotanagpur plateau of Jharkhand extends. The extreme north of the State is comprised of steep hilly area and is a part of the Himalayan mountain ranges. The

flat alluvial plains begin from the foothills of the Himalayas and extend up to the Bay of Bengal. It is divided by the River Ganges into north and south plain lands. Plain lands are found in Siliguri and in the districts of Jalpaiguri, Coochbehar, North Dinajpur, South Dinajpur, Malda, Murshidabad, Nadia, North 24 Parganas, South 24 Parganas, Howrah, Hooghly and in part of the districts of Burdwan, Midnapore, Birbhum and Bankura. PurbaMedinipur.. The district is surrounded by the Bay of Bengal and Balasore district of Orissa state in its South, PaschimMedinipur in its West, Howrah district in the North and South 24 Parganas in the East.

4.4. Climate of the state

In terms of the standard climate types, tropical climate viz. humid, sub humid, semi arid and arid occurs over different regions of the state. Its climate is very much influenced by monsoon rains which, in turn are of two types (I) south West monsoon during the rainy season and (II) north-east monsoon during the winter season. Rainfall in West averages about 1750mm, ranging from 2500 to 3500 mm in Dooars and Tarai regions to 1200 to 1800 mm in the plains. The maximum and minimum temperatures recorded during March to October are 30-40 0C and 16-26 0C in the plains and in hills.



Figure no. 6: Map of West Bengal (Source- Google map)

4.5. Description of the study area

It is important to have a thorough understanding of the study area as the agro-climatic and demographic features of the area also have bearing on the economic activities in the area and the performance of the individuals.

4.5.1. Area of study

Malda district is located in the central part of West Bengal. The general appearance of this district is that of low-lying plain, sloping gently towards the south because of southerly direction in which all the rivers of the district flow. On the basis of topography and alteration in the river courses (Ganga, Kalindri, Tangan, Mahananda etc.) the district has got a massive amount of water wealth. As per the number of water bodies and also its water area, the district comes second in West Bengal.

4.5.2. General background

Malda district has acquired a unique personality with the fusion of his historical and geographical elements. Although part of a very old settled region, Malda came into being as a separately constituted district within provincial Bengal in 1813, through an act of incorporation that amalgamated two of the southern thanas (police stations) of erstwhile Dinajpur district, with three drawn from western Rajshahi district and four from eastern Purnea district. Rice, jute, legumes, and oilseed are the chief crops in the surrounding area. Malda is the largest producer of excellent quality of jute in India. Mulberry plantations and mango orchards occupy large areas; mango trade and silk manufacture are the main economic activities. The Independence Day of Malda is 17 August 1947.

4.5.3. Physical divisions/ Ecological divisions

The district consists mainly of low-lying alluvial plains, sloping towards the south. The North Eastern part of the district contains a few elevated tracts. The river Mahananda flowing from north-east to south-east and divide the district into eastern and western regions. Further the river Kalindri divide the Western region into northern and southern regions. Each of the regions have own distinctive characteristics. The eastern part is comparatively high and undulating, while western part is low and fertile. Three broad sub-regions can be defined physio-graphically within Malda district on the basis of nature of topography and soil, i.e. Barind, Diaraand, Tal.

4.5.4. Climate

The climate of the district is very hot and sultry during summer season, with plentiful rains and moisture in the air throughout the year. The proximity of the Bay of Bengal in the south and the alignment of the Himalaya in the north largely determine the climatic character, i.e., the distribution of the weather elements in the district. Irrespective of the general vagaries and mechanism of the monsoon, seasonal distribution of the elements such as temperature, rainfall and relative humidity are too uneven (Census of India, 1991).

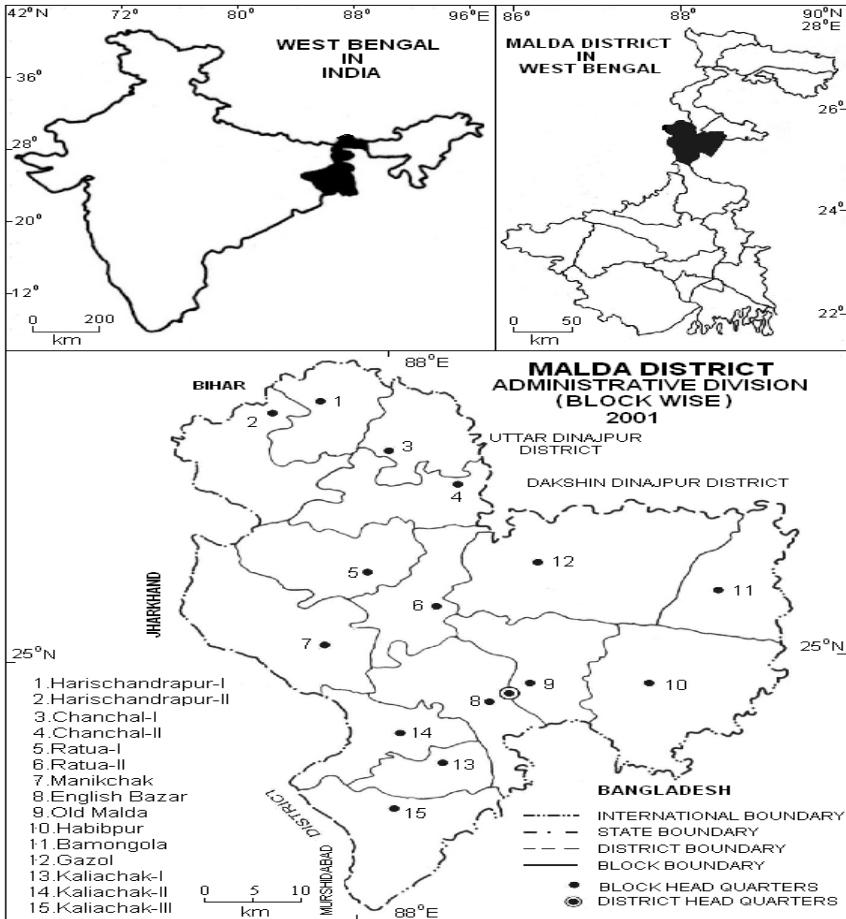


Figure no. 7: Map of Malda District (source- Google Map)

An important feature of the climatic conditions of the district is the periodic wind that blows across it. The seasonal winds are known as the monsoons wind.

Annual precipitation decreases from northern to southern parts of the district and is only 1450 mm per annum around the vicinity of English Bazar. Rainfall is also unevenly distributed over the year, as a consequence of which over 90 percent of the annual precipitation descends during the monsoon months.

The summer season roughly covers the period between March-May, the normal date of arrival of the monsoon. Temperature starts increasing from the month of March and May is the hottest month. In the district, the thunderstorm that rise between April and May are locally known as 'Kal Baisakhi', such storm do not affect extensively and may be considered also as local atmospheric disturbances. These storms bring down the temperature for a short and give relief to the people in hot summer evening. Both during summer and the rainy months, very deep water tables occur in the Barindup land tracts. Deep aquifers descend into the district along the basin of the Mahanand a reaching a depth of 150 m interspersed by intervening layers of clay. The maximum mean monthly temperature i.e. 32^oC was recorded during the month of April. Followed by 31^oC during May. Rain fall occurred during this season varies from 13cm and 130cm in the months of April and May respectively. The summer season starts from March with mean monthly temperature of 27^oC but without any rainfall. The natural causes that guide monsoon winds, present a complex study. By the 15th June, the district is under the influence of monsoon winds. The intensity of rain fall increases in successive months, and highest is recorded during September (last month of the season) 631 centimetres.

Autumn season or the season of returning Monsoon start after the months of September, over head position of the sun shifts to the Southern Hemisphere and hence the intensity of the low pressure over the north-western part of India decreases. As a result, the

south-west monsoon winds start moving back towards south. This is called the retreating of the monsoon winds.

The cold season start from the last week of November to the end of February the district is under the influence of cold season. This wind is off shore and has no moisture. As a result there is no rainfall in the winter season. The weather remains cool and sunny during January, temperature ranging between 09^oC-29^o C with mean monthly temperature 19^oC. Occasional cold spells occurs accompanied with the western disturbances. The Fog appears during the last week of December and first week of January. This is the most pleasant season in the district. The normal rainfall is 1453.1 mm. The maximum precipitation occurs during the period from June to September.

4.5.5. Natural Vegetation

The district has a small vegetation cover, extending from the river of Kosito the Brahmaputra. Old river beds, ponds, marshland etc. have a copious vegetation of vallisneria and other plants. Some portions of Barind area are covered by jungles, which chiefly consist of thorny scrub bush jungle mixed with Pipal, Bat, Simul and Pakur trees and Nepal Bamboos. Species of thorny bamboo are also seen in Pandua areas near villages and embarkment areas of Gourthickest or shrubberies, ordinary Neem, Jack-fruit trees, Tamarind, Bamboo, Pipul and Mango trees are seen in plenty. The soil of the western region of the district is particularly suited for the growth of mulberry and mango.

4.5.6. Soil

The district is situated on the western part of the alluvium filed gap between the Rajmahal hills on the west and the Garohills on the east. The entire area is covered by alluvium that however, is of two different ages displaying different physical and physiographic characteristics (Census of India, 2001).

In the East of the Mahananda River which bisects the district along a north-south line, is found older (Pleistocene) alluvium

forming 'Barid'. The soil of this tract is red in colour implying old alluvium formation and is unfertile. It is composed of still clay containing iron. It becomes extremely hard in the cold weather. The soil in this tract is mostly acidic. This tract is mainly mono cropped and the main crop grown in this region is winter rice. On the northern part of this area, jute and autumn rice as a Kharif crop and wheat as a Rabi are grown on a very limited scale. The soil pH of this tract varies from 4.2 to 5.5 (Census of India, 1991). In the West of the river Mahananda, the soil is light loam called do-ash. It is recently formed alluvia land consists of an admixture of clay and sand. On the eastern side, the proportion of clay is greater, but further west towards the Ganges the proportion of sand becomes greater. The do-ash type of soil is the most fertile in the district and neutral in reaction. The soil is fertile and produces chilly, amanor boropaddy. This tract of highly fertile soil formed the 'Diara' region with diversified cropping. Crops like auspaddy, jute, maize, wheat, pulses, oilseeds, barley and sugarcane are grown here. This zone is mainly mulberry and mango growing tract of the district. The pH of this tract varies from 6.8 to 7.8.

4.5.7. Administrative Divisions

The administrative region is important to gather statistical information and for the purpose of planning mechanization and implementation. The entire state of West Bengal is physically divided into two parts by river the Ganges i.e. North Bengal and South Bengal, the district of Maldais starts to the immediate North of the Ganga river. Maldadistrict is in the southern most of the North Bengal and 347 km. away from state capital Kolkata towards north. Administratively, of Maldais a part of the Jalpaiguridivision of the state of West Bengal. The district covers the geographical area of 3733sq.km. and consists of two sub-divisions, i. e., Chanchaland Malda Sadar. English Bazar is the headquarter of the district as well as the Malda Sadar sub-division (GWB, 2001). Presently the district includes eleven police stations namely Harischandrapur, Chanchal(Kharba), Ratua, Gazol, Bamongola, Habibpur, Malda, English Bazar, Manikchak, Kaliachak and Baishnab Nagar.

The district comprises of fifteen community development blocks divided into two sub-divisions. The blocks are Harischandrapur-I, Harischandrapur-II, Chanchal-I, Chanchal-II, Ratua-I, Ratua-II under the Chanchal sub-division and the blocks of Manikchak, English Bazar, OldMalda, Habibpur, Bamongola, Gazol, Kaliachak-I, Kaliachak-II and Kaliachak-III fall under the Malda Sadar. The apex institution for local governance of the district is the Malda Zilla Parishad (District Council). Every development block corresponding local governance institution is the respective Panchayat Samiti, the jurisdiction of which is coterminous with that of the block authority. At grassroots level there are 147 Gram Panchayats and 2008 Gram Sansads are in the district, covering the 1814 mouzas and 3701 villages that fall within the jurisdiction of the Zilla Parishad. There are two municipalities in the district of Malda namely Old Malda and English Bazar with 17 and 25 wards respectively. Urban governance devolves upon the municipalities.

4.5.8. Malda District Profile

Table no. 6: Geographical information and Administrative set up of Malda

Geographical Area	3733 SqKm.s (As per Census 2011)
Geographical Location	24°40'20"N to 25°32' 08"N 87°45'50"E to 88°28'10" E.
No. of Subdivisions	2
No. Of Police Stations	11 { Out Post – 13 (as in '99)}
No. of Municipalities	2
No. of Blocks/Panchayat Samitis	15
No. of Gram Panchayats	146
No. of Gram Sansads	2008
No. of Mouzas	1814
No. of Villages	3701

Table no. 7: Cooperative and Banking sectors of Malda

Cooperative And Banking (2012)	
Central Banks	Societies- 1, Members- 690
Primary Land Mortgage Banks	Societies- 1, Members- 6199
Agricultural Societies	218, Members- 109252
Non Agri Credit Societies	Societies- 308, Members – 13594

All Credit Societies	Societies- 414, Members- 119086
Non- Credit Societies	Societies- 112, Members- 3756
Total No. of Credit and Non-Credit Societies	526, Members- 122846
Commercial Banking	Rural- 134, Semi Urban- 19, Urban- 8, Total- 145

Table no. 8: Population distribution of Malda district

Population census (Census 2011)	Male	Female	Total
Rural	1,768,336	1,678,849	3,447,18
Urban	283,205	258,455	541,660
Total Population of Malda	2,051,541	1,937,304	3,988,84
Rural (0-6 Yrs.)	270,666	259,960	530,626
Urban (0-6 Yrs.)	41,674	36,740	78,414
Total (0-6 Yrs.)	312,340	296,700	609,040
Rural Literate	961,409	770,268	1,731,67
Urban Literate	190,610	164,145	354,755
Total Literate	1,152,019	934,413	2,086,43
Population as per Religion (2001 Census)	Hindu	Muslim	Others
	1621468	1636171	31478
SC Population (2011 census)	835,430		
ST Population (2011 census)	313,984		
Total Main workers	1,050,995		
Total Cultivators	219241		
Total Agri Labourers	322452		
Total in household industry	98383		
Other workers	410919		
Marginal Workers	486852		
Non-workers	2450998		

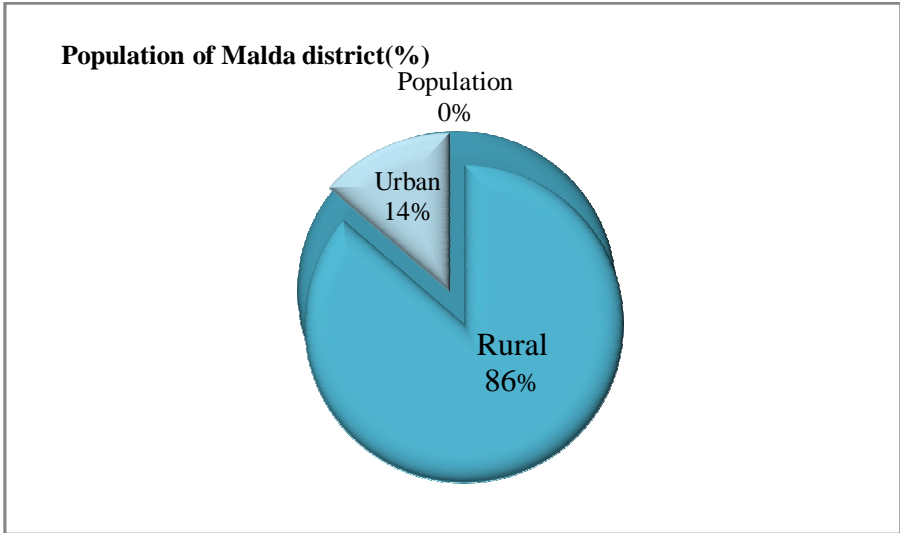


Figure no. 8: Population of Malda district (rural and urban)

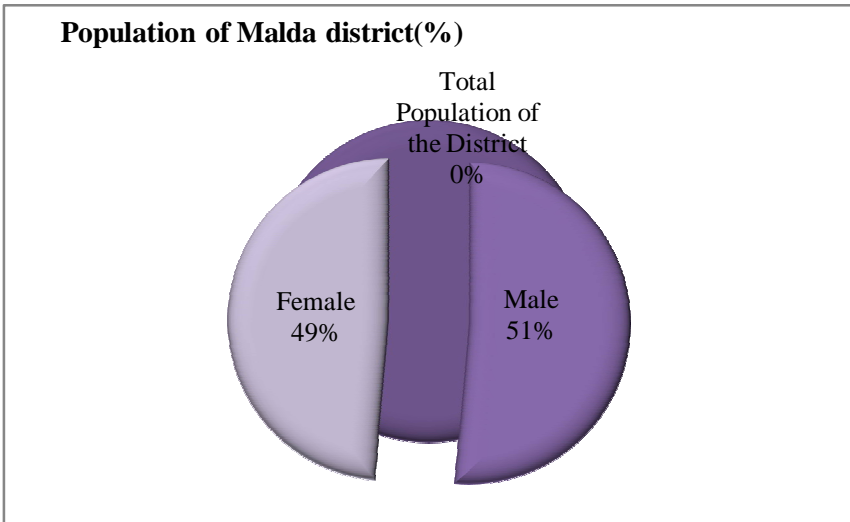


Figure no. 9: Population of Malda district (male, female)

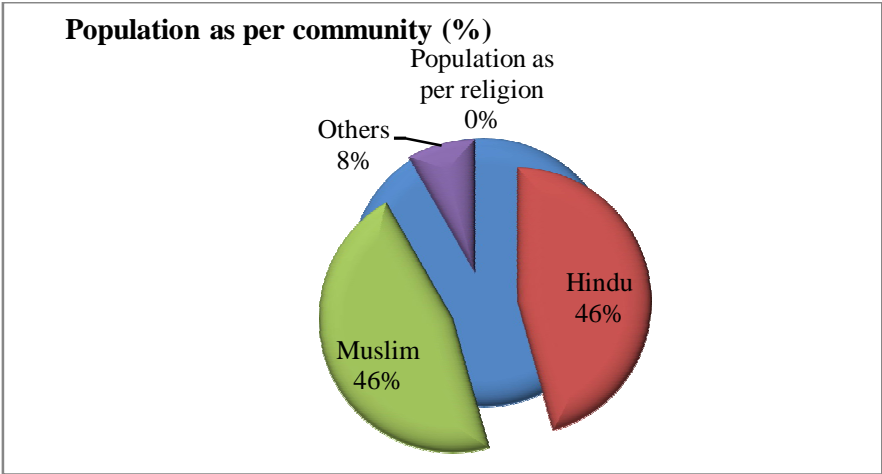


Figure no. 10: Population of Malda; as per community (%)

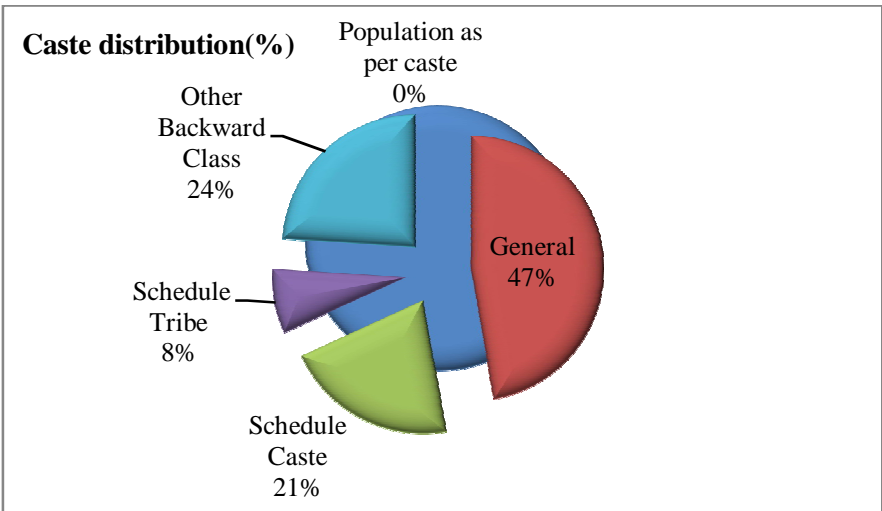


Figure no. 11: Caste distribution (%)

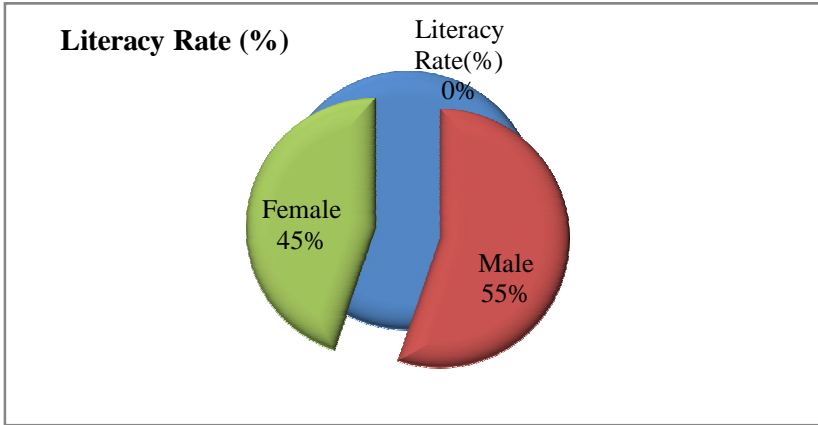


Figure no. 12: Literacy rate (%)

Table no. 9: Agriculture and allied sectors of Malda

Normal Rainfall	1485.2 mm.
Total Area.	373300 Hec
Forest	1680 Hec. { Reserve- 806; Protected-378; Vested Waste Land - 509.80}
Cultivable Area:	2,80,000Hec.
Net Cultivable Area:	2,59,921Hec.
Orchard and Horticultural Crops:	75000 Hec.
Pasture and other grazing Land:	435 Hec.
Gross Cropped Area:	4,74,701Hec.
Cropping Intensity:	196
Cultivable Waste Land:	671 Hec.
Marginal Holding (below 1.0 acre)	310706; Area-171105 Hec. (05-06)
Small Holding (1.0-2.0 acre)	49860; Area-81798 Hec. (05-06)
Medium Holding (2.0-4.0acre)	15012; Area-40121 Hec.
Medium Holding (4.0-10.0acre)	991; Area-4864 Hec.
Large Holding (10.0 acres and above)	01; Area-10 Hec. (05-06)
Vested Land Distributed(30-9-2002)	30332.00 Hec.; { SC-39310, ST-29168; Othrs.-82893}
Area Irrigated	120067 {HDTW - 6150, MDTW - 242, LDTW - 641, STW - 78.494, RLI - 8600, Others Sources - 24627, Tank - 1308, Net Irrigated Area - 1, 44,588Ha., Land Under Non Agricultural Use - 87,940 Ha.}

Minor Irrigation	Tank – 254, HDTW – 326, MDTW – 18, LDTW – 108, STW – 33837, RLI – 384, ODW – NIL, Others - 445
Fertilizer Consumed	Nitrogen- 21910 Tones; Phosphorus- 14380 Tones; Potassium- 13430 Tones.
No. of Agri-Implement Hub	3 (Habibpur, Gazole, Chanchal-I)

Table no. 10: Enterprises of Malda

No. of Enterprises	
Agri	Rural- 526 Urban – 15, Total – 541
Non-Agri	Rural – 1881, Urban – 445, Total – 2326

Table no.11: Some important institutions of Malda

Regulated Market (2012)	Principal Market yard – 2, Sub Market yard – 17
Market (all categories)	136
Regional Research Station on Subtropical Fruits by ICAR (proposed)	1
Jute purchasing centre under JCI (2012)	5
Govt. Farms (all categories)	9
Cold Storage	5 (4 Multipurpose)

Table no. 12: District electricity consumption

POWER	
Total no. of villages electrified	1773
Consumption of Electricity (in thousand KWH)	Domestic – 77560 Commercial – 13454 Industrial – 16199 Public Lighting – 598 Agri Irrigation & Dewatering – 31627 Public water works & Sewerage Pump – 4187. Total- 143625

4.6 A short glimpse about study block: English Bazar

English Bazar, otherwise known as **Malda**, the "Mango City", is a city in Malda district in the Indian state of West Bengal. It serves as the district headquarters. It is the fourth largest city in West Bengal. Malda is a municipal corporation with two municipalities, English Bazar

municipality and Old Malda municipality. This is an Undeveloped City becoming bigger since 1925-1930 and the city is rapidly growing and its population had now crossed over a half of million people. English Bazar is the divisional headquarters of Malda Division in this state

History

The district of Malda formed in 1813 out of the outlying areas of Purnia, Dinajpur, and Rajshahi districts. In 1832 a separate treasury was established, and in 1859 a magistrate and collector were appointed. Up to 1876 this district formed part of Rajshahi Division, and from 1876 to 1905 it formed part of Bhagalpur Division. In 1905, it was again transferred to Rajshahi Division, and until 1947 Malda remained in this division. In August 1947 this district was affected by the Partition of India. Between 12 and 15 August 1947 whether the district would become part of India or Pakistan was unknown. During these few days the district was under a magistrate of East Pakistan; after the details of the Radcliffe award were published, the district became part of West Bengal on 17 August 1947.

Population: As of the 2011 census, English Bazar municipality had a population of 216,083 and the metropolitan city had a population of 324,237. The municipality had a sex ratio of 877 females per 1,000 males and 14.9% of the population were under six years old. Effective literacy was 84.69%; male literacy was 85.44% and female literacy was 83.86%

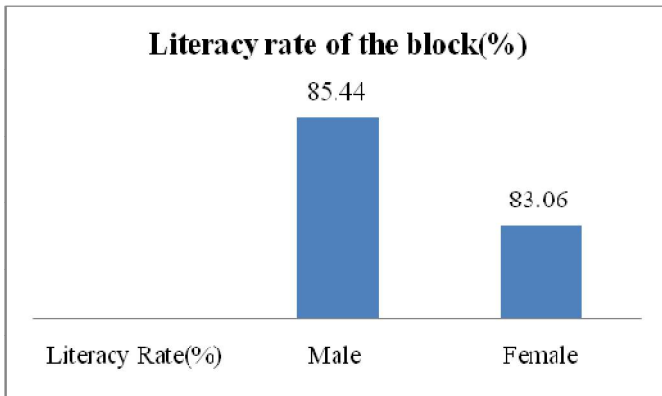


Figure no. 13: Literacy rate of the block

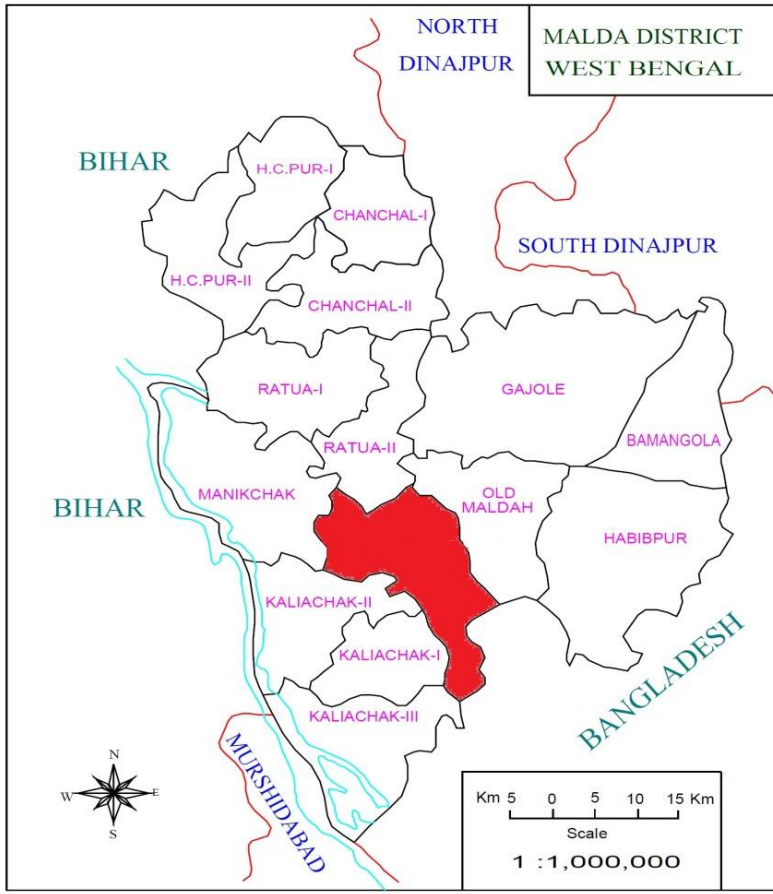


Figure no. 14: Malda district blocks

(Source- Google map)

Table no. 13: Study village information

Village name	Kotowali, Block: English bazar
Area	138.7 ha
Population	3634 (Male- 2548, Female- 1295)
Household	768
Distance from Malda town	5 Km
Demographics of Kotowali	Bengali is the Local Language here.