

B.Sc HONOURS SEMESTER-V

EXAM, 2021

PRACTICAL

SUBJECT : GEOGRAPHY (GEOA)

PAPER : CC 11 (Research Methodology
& Fieldwork)

CU ROLL NO. : 193044 -11 - 0042

CU REG. NO : 044 -1212 -0278 -19



**UNIVERSITY OF CALCUTTA
ADMIT**

**B.Sc. SEMESTER - V (HONOURS) Examination-2021
(UNDER CBCS)**

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Subjects Enrolled :

GEOA

Name of the College :

MURALIDHAR GIRLS' COLLEGE



Tania Saha

SCHEDULE FOR EXAMINATION IN THEORETICAL PAPERS **

Examination Day & Date	Examination Starting Time	Subject Code ++	Course Code	Course Name	Number of Answer book(s) to be used	Signature of the invigilator on receipt of the answer script/s @
Saturday	15-01-2022	2 P.M.	GEOA	CC11	RESEARCH METHODOLOGY AND FIELDWORK	1
Sunday	16-01-2022	2 P.M.	GEOA	CC12	REMOTE SENSING, GIS AND GNSS	1
Monday	17-01-2022	2 P.M.	GEOA	DSE-A2	CLIMATE CHANGE : VULNERABILITY AND ADOPTATIONS	1
Tuesday	18-01-2022	2 P.M.	GEOA	DSE-B1	CULTURAL AND SETTLEMENT GEOGRAPHY	1

Signature of the Principal/TIC/OIC of the College with Seal

Pentapras
Controller of Examinations (Actg.)

** Subject to unavoidable changes
++ In no circumstances subject/s to be altered

N.B. Please follow University Notification No.
CE/ADM/18/229 Dated 04/12/2018 in www.cuexam.net for
instruction of Examinee/Invigilator/Examination centre.



Muralidhar Girls' College

P-411/14, GARIAHAT ROAD, BALLYGUNGE, KOLKATA - 700 029
(NAAC ACCREDITED - B+ +)

Ref. No.....

Date..14/01/22

TO WHOM IT MAY CONCERN

This is to certify that Smt. TANIA SAHA,
bearing Roll No: 193044-11-0042, Registration
No: 044-1212-0278-19 an examinee of B.A./B.Sc. Geography
(Honours) Semester V, CBCS Examination, 2021 of the University of Calcutta, has
successfully completed her field report on five Wards (Ward No: 84, 85,86, 87 and 90) of
Kolkata Municipal Corporation (KMC) under my supervision.

Due to the outbreak of COVID-19 global pandemic, this year physical visit to the field
was not possible. Hence this field report has been exclusively prepared by the examinee
from the secondary data sources that have been collected from disparate sources, as per
the University Guidelines.

This field report partially completes the Core Course Paper 11 of the Semester
system of the CBCS Pattern of Geography Honours Course.

Suvasree Dutta 14/1/22

Dr. Suvasree Dutta (Dasgupta)
Assistant Professor & HOD
Department of Geography

HEAD
DEPARTMENT OF GEOGRAPHY
MURALIDHAR GIRL'S COLLEGE

Kinjalkini Biswas 14.01.22

Dr. Kinjalkini Biswas
Principal
Principal
Muralidhar Girls' College
Kolkata - 700029

ACKNOWLEDGEMENT

Due to this pandemic situation (Covid-19), we were not able to go to the field for primary data collection of study area. So we have done this field survey based on secondary data.

I would like to express my special thanks to gratitude to my respected teacher, as well as our parents, friends and most important Google who have me the golden opportunity to do this wonderful survey of some parts of Kolkata borough 8 which also helped me in doing a lot of research and I come to know about so many new things.

Secondly, I would also like to thank my classmate who helped me a lot in finishing this survey within the limited period. GI helped me increase my knowledge and skill.

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CHAPTER-1

1.1 INTRODUCTION:

The field work in geography is very important in understanding the changing dynamic of man in relation to environment. The field work in geography helps to understand the various aspects of society, economy and culture of different communities. It helps to understand and insight the people problems faced by people.

Every region has its unique composition physical and cultural features which gives a scope to geographers to examine and understand the geographical phenomenon. Thus, the field work provides a way to enhance and observe the situation more carefully with remedial measures and suggestion.

1.2 STUDY AREA:

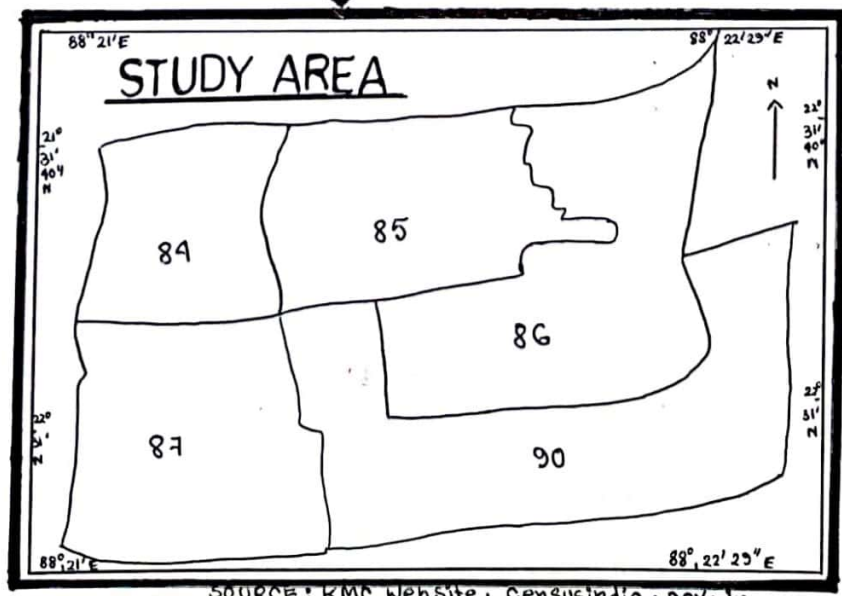
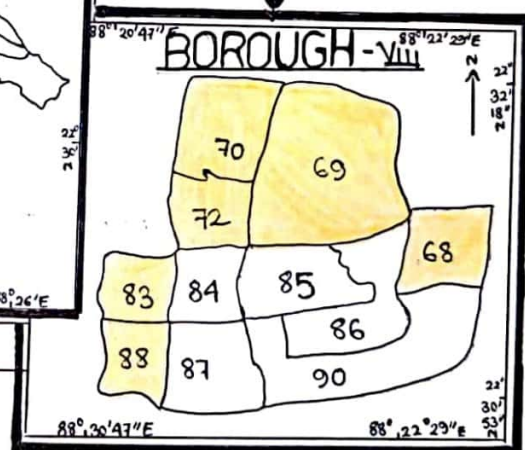
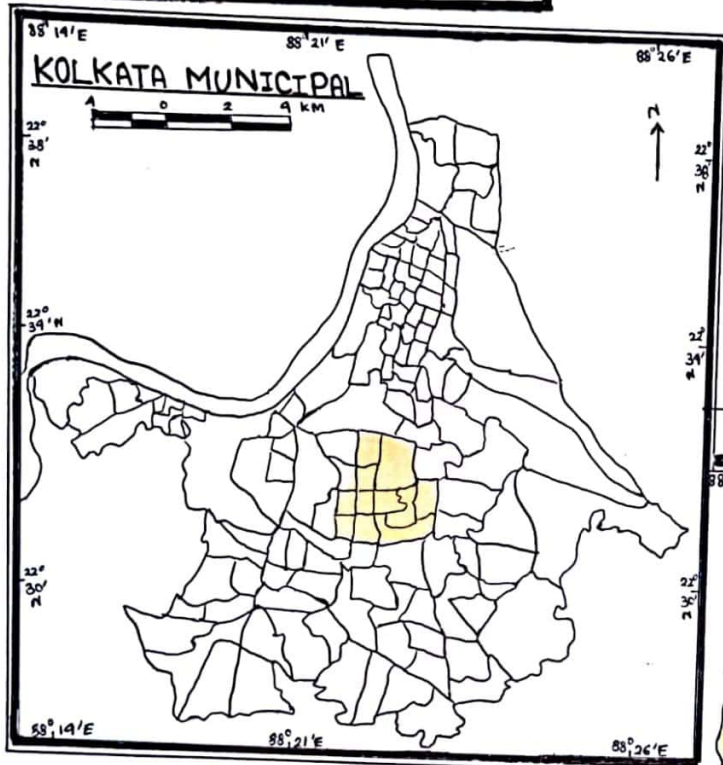
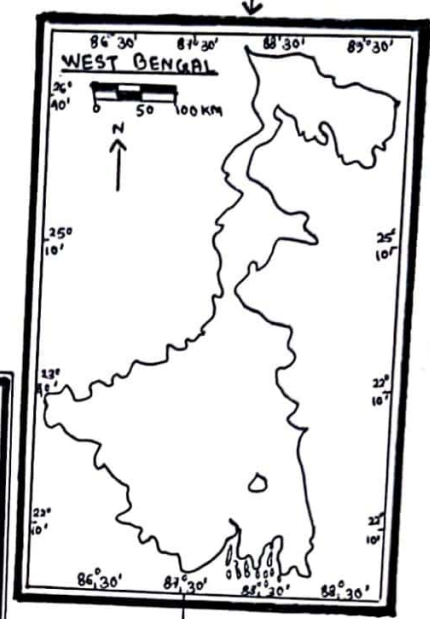
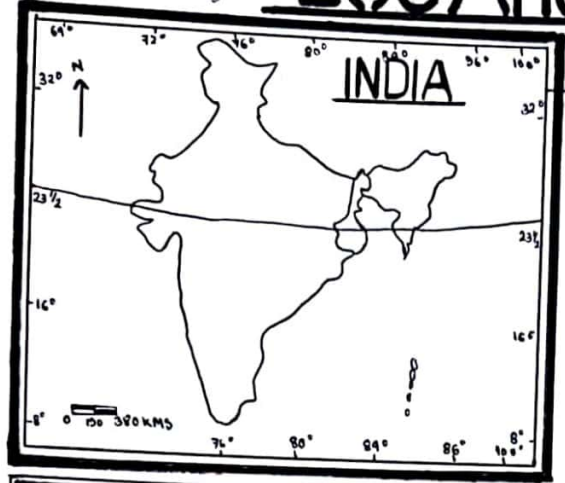
The study area comes under the administrative jurisdiction of Kolkata municipal corporation. Our study area is ward No. 84, 85, 86, 87 and 90 of Kolkata municipal corporation. The study area has latitudinal extension of $22^{\circ}32'18''N - 22^{\circ}30'53''N$ and longitudinal extension of $88^{\circ}20'47''E - 88^{\circ}22'29''E$. It is a part of borough VIII of Kolkata municipal corporation. The study area is bounded by ward no. 68 in the east, ward no 70 and 69 is north. Ward no. 83 and 88 in west. Ward no 90 in south.

1.3 REASON FOR THE SELECTION OF THE STUDY AREA:

The study area ward no. 84, 85, 86, 87 and 90 is selected on the basis of following reason:

- The ward represents perfect assemblage of physical, social, cultural and economical factors.
- To understand the socio economic condition of urban dwellers.
- To understand the process of development and problems faced by the people of the study area.

LOCATION MAP



SOURCE: KMC Website, Censusedia.gov.in

1.4 AIMS AND OBJECTIVES:

- To understand the physical setup of the study area.
- To have a proper insight in the social and economic life of the people.
- To understand basic infrastructure of the study area.

1.5 METHODOLOGY:

Field study requires certain processes and methods which could be systematically followed in order to have an organized field report. The three important stages include -

- i. Pre-field study.
- ii. Field Study.
- iii. Post field study.

i. Pre-field study:

Comprises of having an idea about the place before visiting it with respect to its location, geology, climate etc. It also involves the collection of base map and topographical sheet from National Atlas and the map-making organization. The census data was from the census office and National Library.

ii. Field study:

Involves the work that is done in the field. It involves collection of both primary and secondary data, drawing maps and conducting market and traffic surveys and so on. Due to COVID-19 situation, we were unable to go to the field survey personally so all the data regarding the socio-economic condition of people are based on secondary data obtained. Secondary data was also collected from various sources like KMC website, census of India etc. Regarding the climate, economic and social conditions. The land

use map for the villages studied were also collected for reference from the land Reconde office.

iii. Post-Field Study:

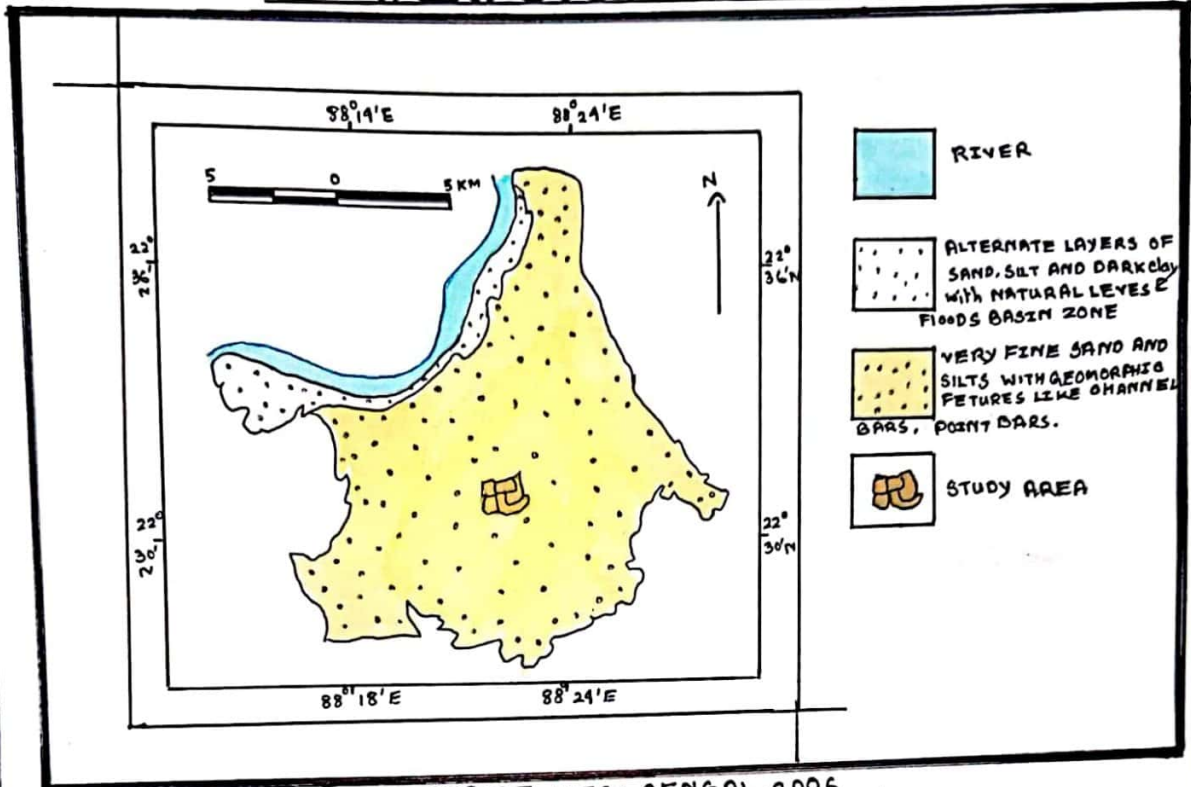
Post Field study was the most vital part of the study. The huge data and information collected on obtained is processed and analyzed using various statistical and other techniques to arrive at the analysis of the study area.

1.6 SOURCES OF INFORMATION :

Due to COVID-19 Pandemic we could not visit the study area physically. That's why instead of primary data we had to rely on the secondary data sources only. we have collected the information from disparte sources like District Statistical handbook, District census hand book (census 2011), District Gazzetter along with different website for example - www.kmc.gov.in, censusindia.gov.in. More over some reports from IMD (Indian Meteorological Depertment) and different books have been consulted.

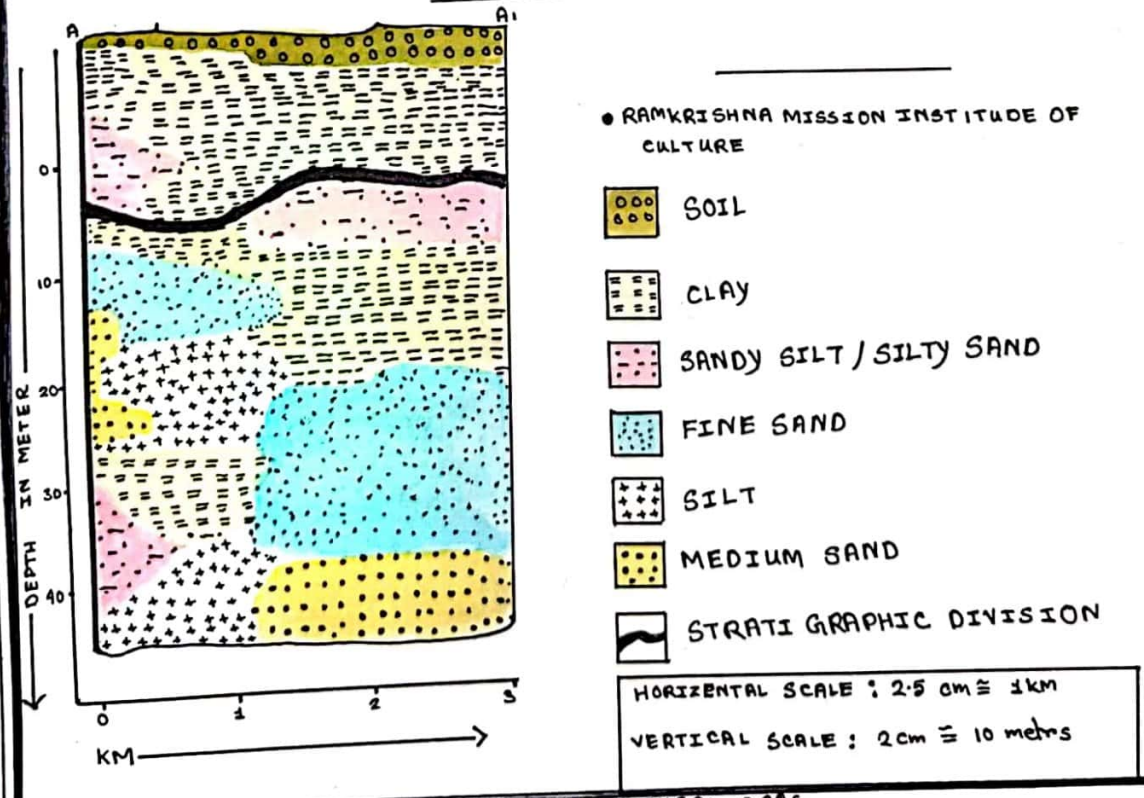
CHAPTER - 2

GEOLOGICAL MAP



SOURCE: KMC REPORT, WEST BENGAL, 2006

SUB SURFACE LITHO STRATIGRAPHIC PROFILE ALONG THE CROSS SECTION A-A1



● RAMKRISHNA MISSION INSTITUTE OF CULTURE

HORIZONTAL SCALE : 2.5 cm \equiv 1 km
 VERTICAL SCALE : 2 cm \equiv 10 metres

SOURCE: KMC REPORT, WEST BENGAL, 2006

PHYSICAL ATTRIBUTES

2.1 GEOLOGICAL SETTING:

Kolkata is located over a tiny part of the huge pericratonic Bengal basin with an enormous thickness of fluvi-marine sediments.

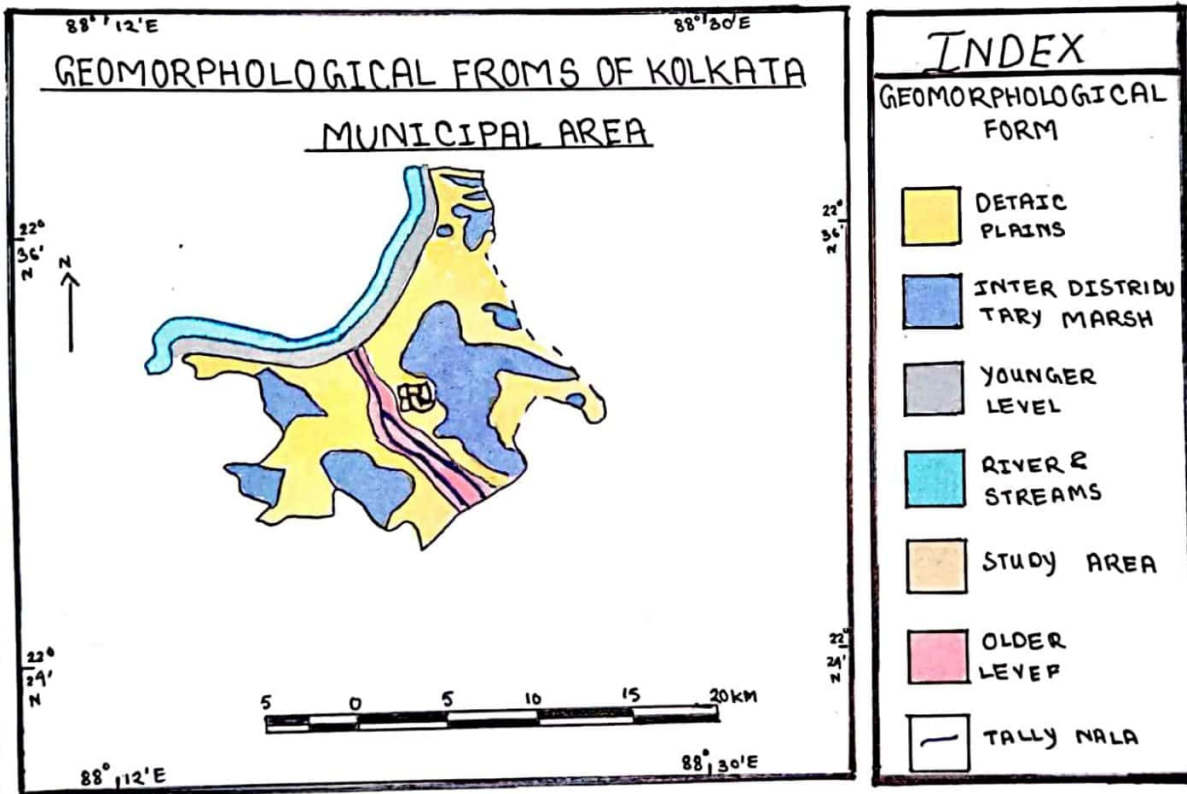
The sediment thickness and facies are significantly varied from the shelf area and the west and the deep basinal region in the east. The total sedimentary thickness below Kolkata is in the order of 7500m above crystalline basement out of which the top 350-450m is Quaternary sediment followed by 4500-5500m of Tertiary Sediments, 500-700m of Cretaceous Trap/Trap wash and 600-800m of Permian-Carboniferous Gondwana rocks.

The geography is and around Kolkata is rather uniform, characterized by the presence of 30-60m thick grey sticky clay followed by relatively coarser sediments consisting of either silt/fine to medium sand or coarse sand with or without pebbles/cobbles.

The late Quaternary sediments in the Ganges Delta and its surrounding region consists mainly of sand, silt and distinctive beds of latest Pleistocene and deposited after the lowest stands of sea-level during the last glacial maximum. A conceptual model of Holocene and upper Pleistocene sediment distribution constructed from the borehole data is shown in Geological Map.

The cross-section marked as AA' depicted in shows that depth wise layers. Upper most and youngest layer is top soil and lower most and oldest layer is medium sand and silt. Other layers between these two layers are according to younger top soil, clay, sand silt/silty sand, Fine sand, silt, Medium sand.

GEOMORPHOLOGICAL MAP



SOURCE: GROUND WATER INFORMATION BOOKLET, KMC, WEST BENGAL

2.2 GEOMORPHIC FEATURES :

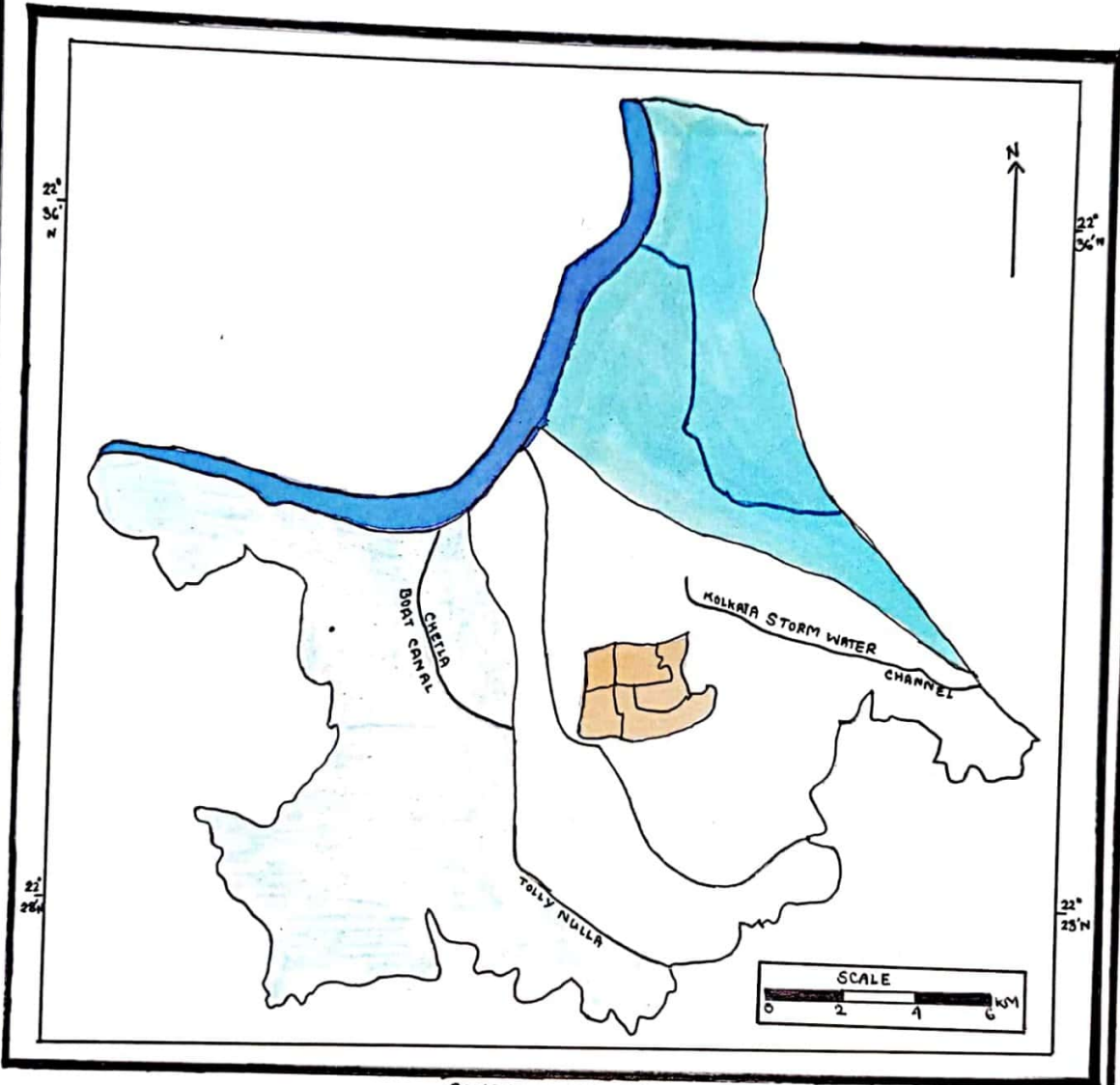
Kolkata forms a part of the lower deltaic plains of the Ganga-Bhaginathi river system. Several low lying depressions in the form of marshes, shallow lakes or jills occur within the city and most of these represents rivers scars of the post river channels of Bhaginathi. The master slope of the land is towards south, younger levee, deltaic plain, inter distributory marsh paleo channels and younger levee adjacent to river Hugli and Older levee on both side of the old Adi Ganga are the important geomorphological units present in the area. The study area is located in the east and older levee in the south, So the slope orientation of the study area is from south south-west to North North-east.

2.3 DRAINAGE SYSTEM

A greater part of the city of Kolkata is served by underground drainage system of the combined type in which both sewage and storm water flows. The slope of the ground of the city area is west to east is general. The sewers are also sloped in that direction. The area is very flat and low like the shape of source with scattered and localized pockets. The drainage water is lifted and discharged through channels ultimately into the tidal river further down to the east through out fall channels.


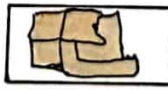
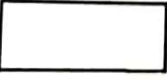
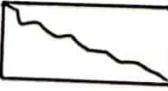


On the basis of drainage, state water investigation departments has divided Kolkata Municipal area. The basins area Bagjola Khal Basin in North Kolkata storm water basin is center part of Kolkata and Adiganga Basin is southern part of Kolkata. Our study areas ward no. 84, 85, 86, 87 and 90 is under storm water.

DRAINAGE MAP



SOURCE : KMC, WB

INDEX

	BARJOLA KHAL BASIN		STUDY AREA (Ward No. 84, 85, 86, 87, 90)
	STORM WATER CHANNEL BASIN		CANAL
	ADIGANGA DRAINAGE BASIN		
	RIVER		

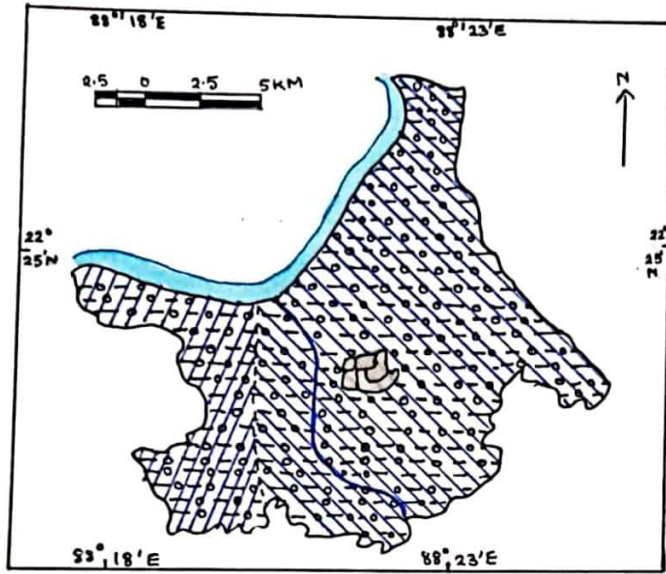
basin in central part of kolkata. Those two channels meet at north eastann part of the basin. The storm water basin channel system comprises of two main channels which are kolkata storm water channel and Tollygunj panchanangram channel. They play an important role to discharge the storm water in the monsoon season. This basin has a so much higher carrying capacity of water from these two channels is used for innigation and pisciculture.

2.4 HYDROLOGICAL SCENARIO:

The KMC area is underlain by 762 m thick uncon soil dated alluvium. Which overlies a huge pile of unconsolidated to semi consolidated sediments deposited on the basement. The structure and lithology of the sediments indicates number of plses of sedimentation, marine transgression and regression and tectonic uplift from cenelacuous to pleistocene times. The study of the lithological logs of borough hole data indicates that the upper 300m to sediments are the quaternary age but the exact boundary between the quaternary and Tertiary sediments could not be established due paucity of data. The quaternary alluvium comprising several cycle of sand, silt and clay and shows facies variation in both vertical as well as in horizontal Section.

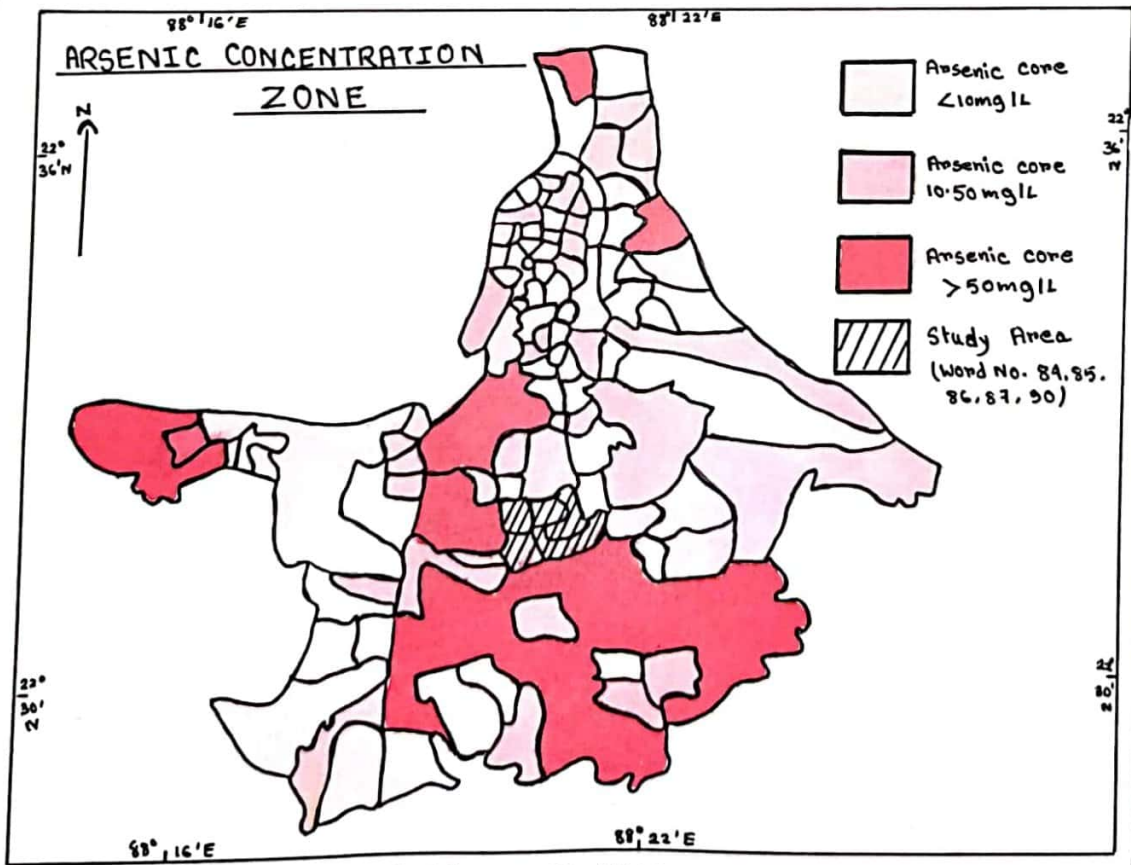
The profile diagram prepared indicates that there are two regionally extensive clay beds along the study area. The depth of occurrence of the basal clay varies from place to

HYDROLOGICAL MAP



INDEX	
	Area where fresh ground water underlone by saline water
	Area where fresh ground water overlone by saline ground water
	Fairly thick regional extensive confined aquifer down to 360m
	River Hoogly
	Tolly Nala
	Study Area (Ward No. 84, 85, 86, 87, 88)

SOURCE: WB, KMC



ARSENIC CONCENTRATION ZONE	
	Arsenic conc < 10mg/l
	Arsenic conc 10-50 mg/l
	Arsenic conc > 50mg/l
	Study Area (Ward No. 84, 85, 86, 87, 88)

SOURCE: WB, KMC

place but in general it occurs from 300 to 450 m. The top clay bed is 20 to more than 60 m thick. It occurs above the entire alluvium sequence from the ground surface in KMC area. Both top and bottom clays are dark grey in colour, sticky, plastic and often found to contain strings of silt and fine sand. Sand has various grades with occasional gravel occurring between these two clay beds from the main aquifer system in KMC area. This sand zone between two clay layers is ground water carrying layer or aquifer.

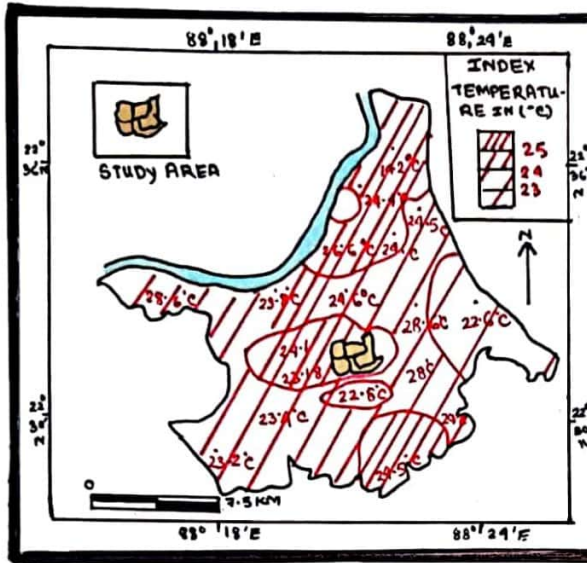
In general ground water in KMC area occurs under confined to semi confined condition. In the major part of KMC area fresh ground water underlain by the saline ground water. Our study area is lying in this area.

Now Kolkata is not safe from ground water contamination like arsenic contamination. Ward wise sample data represent that there are three types of arsenic values are available. The arsenic contaminated map shows that our study area is lying in moderate contaminated area which indicates that the value of arsenic in one litre of water is 10-50 micro gram where normal quantity is 6 micro gram per litre drinking water (WHO).

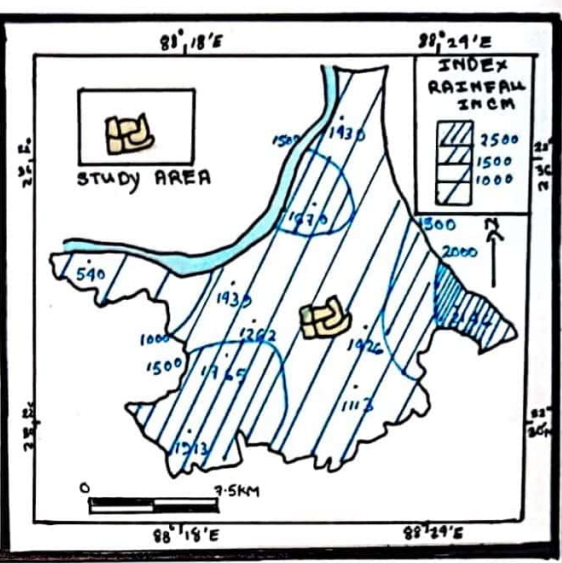
2.5 CLIMATE CHARACTERISTICS:

The annual rainfall is 1647 mm. The mean temperature

TEMPERATURE AND RAINFALL DISTRIBUTION IN KOLKATA

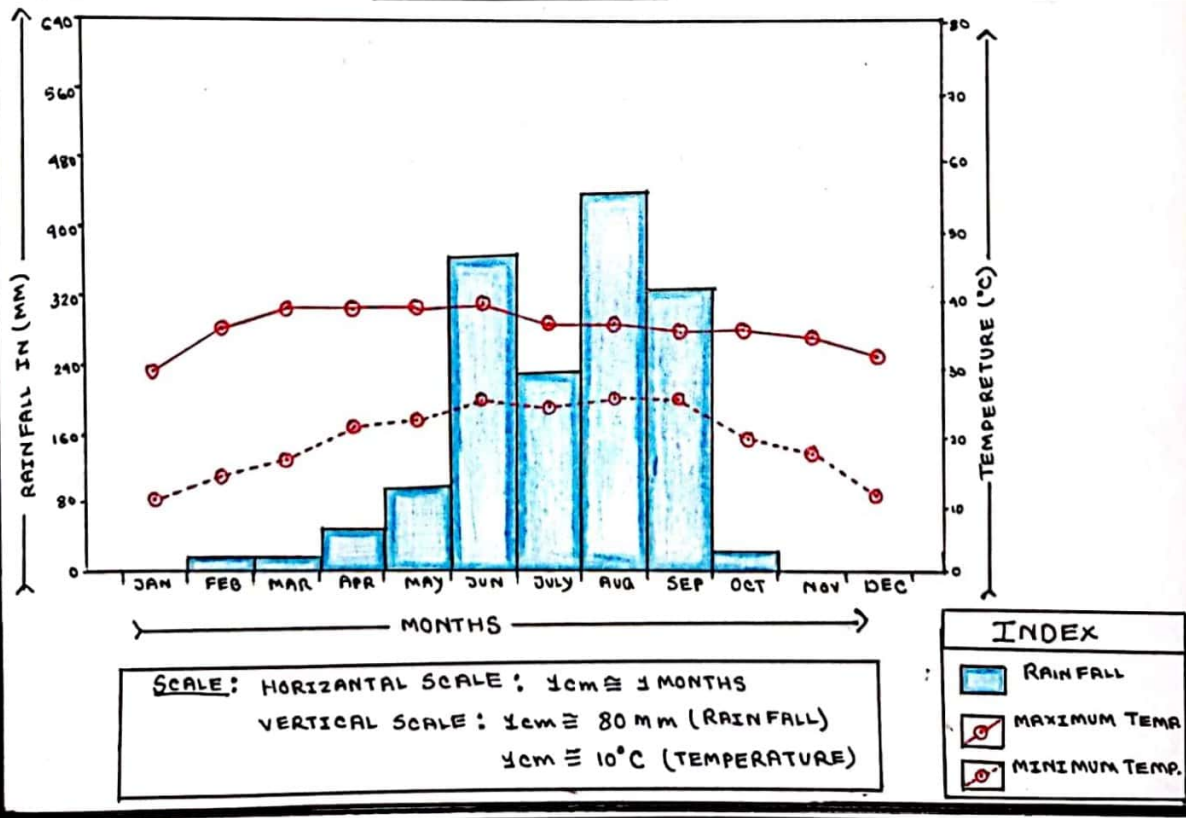


SOURCE - IMD, KOLKATA



SOURCE : WEATHER KOLKATA WB PAGE, LIVE RAINFALL AND FLOOD MONITORING, KMC, WB

MAXIMUM AND MINIMUM TEMPERATURE AND RAINFALL IN KOLKATA (2011)



in winter is 22.5°C , which goes down to a minimum of 10°C in the month of december - January. The mean temperature in summer is 29.25°C and goes up to a maximum of 40°C in the month of April. The climate during monsoon months is warm and humid. Our study area is located in the second highest temperature distribution zone that range from 24 degree celsius to 25 degree celsius. In respect to rainfall distribution in kolkata city, our study area is located in the second lowest rainfall distribution zone that ranges from 1000 mm to 1500 mm.

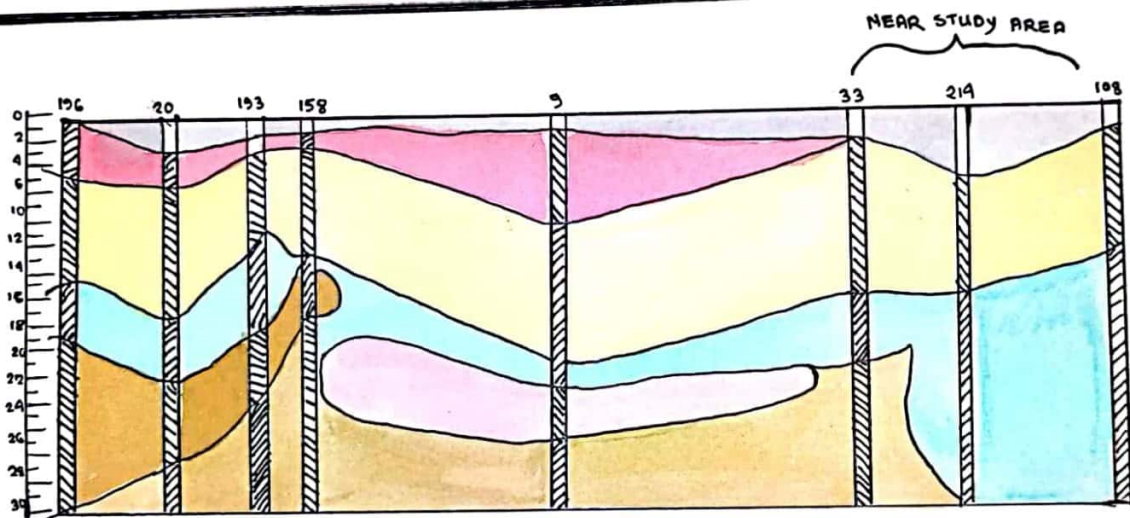
The graph shows the temperature and rainfall of the year 2011. This year maximum Rainfall occurred in the month of august (444mm) and minimum amount of rainfall has been recorded in the month of february and march (16mm).

There was no rainfall in the month of November, December and January as this are the winter months. In 2011 maximum temperature recorded was in the month of june (39°C) and the minimum temperature occurred in the month of january (10°C).

2.6 SOIL & VEGETATION CHARACTERISTICS

Since the above study was undertaken for microzonation of the area against liquefaction under earthquake, the soil information below, the city was undertaken upto a depth of 30m for soil mapping. Sub surfaces soil data for the KMC area

SOIL PROFILE



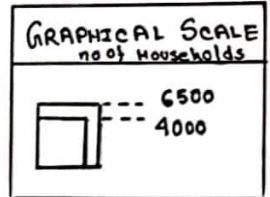
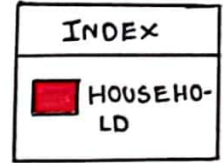
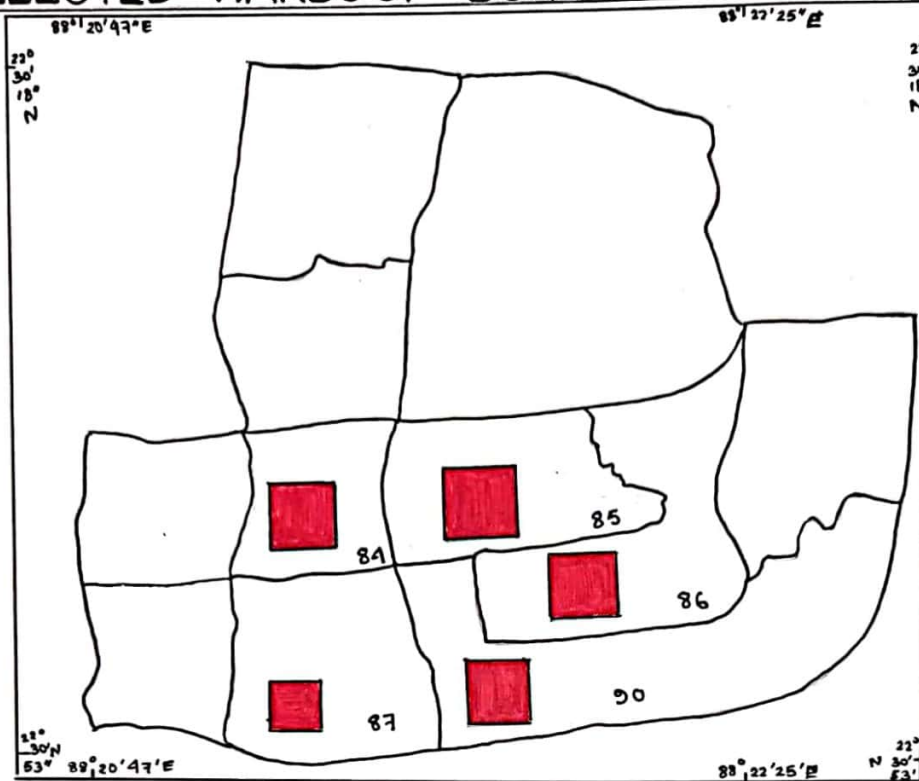
- | | | | |
|---|--|---|---|
|  | Brick Bats, cinder, stone chips Etc. With silty / Silty clay / clay silt / sandy silt. |  | Brown / Brownish Grey silty clay / clay silt. |
|  | Grey / Yellowish / Light brown silty clay / clay silt |  | Brown laminated incandescent silt Fine Sand / silt clay |
|  | Grey / Dark Grey silty clay / clay silt with decayed wood. |  | Dense Brown silty Fine Sand |
|  | Bluish Grey silt clay with kankar | | |

SOURCE: Das and Chattopadhyaya characterization of soil over Kolkata KMC Area
 GEOTIDE, INDIAN GEOTECHNICAL SOCIETY.

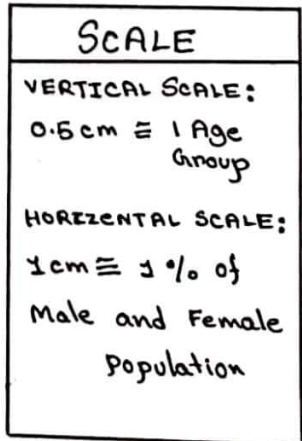
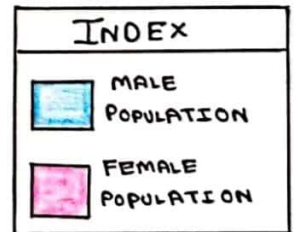
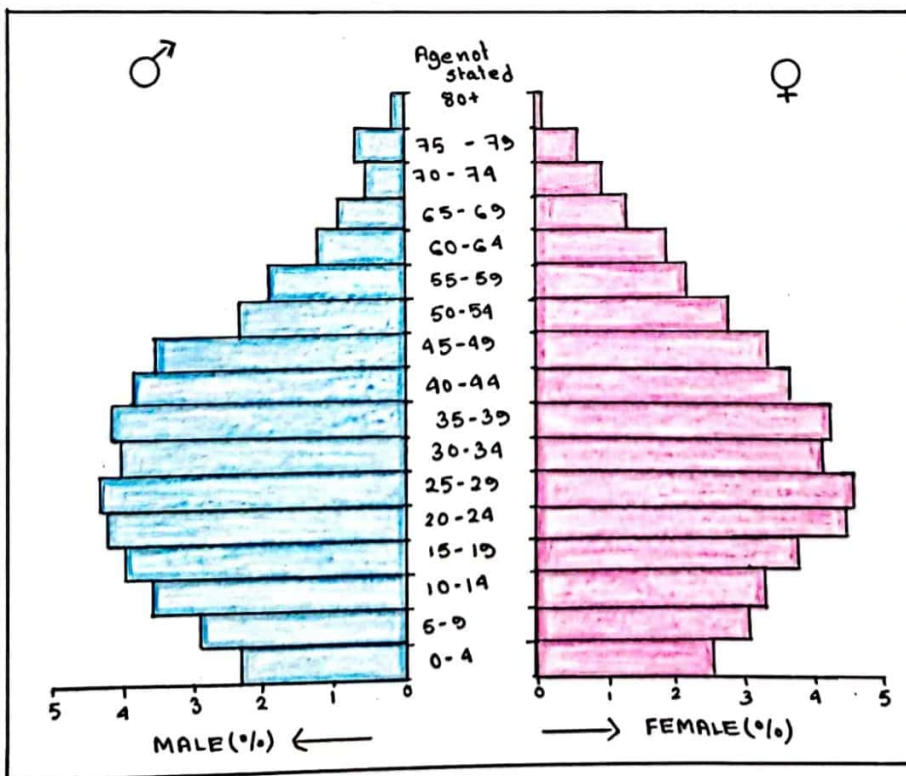
are mainly obtained through soil exploration data generated for construction activity in KMC area by various soil engineering firms. Data are also obtained through ground water resource studies by GSI & CGWB. A soil profile generated of the study area shows in soil profile. It was chosen in E-W direction. From the soil profile it is seen that according to depth from subsurface, the soil layers are clay, grey silty clay, bluish grey silty clay, dense brown silty fine sand. There are more than hundred vegetation species are found in Kolkata mostly mixed vegetation type.

CHAPTER - 3

DISTRIBUTION OF HOUSEHOLDS IN SELECTED WARDS OF BOROUGH-VIII KOLKATA (2011)



DEMOGRAPHIC STRUCTURE IN KOLKATA (2011)



CULTURAL SETTING

3.1 DEMOGRAPHIC ASPECTS :

An analysis of the population structure of the Kolkata district has been made. Observing the age-sex structure of sample population it can be said that Kolkata is a very developed city. Hence the population pyramid that is narrowed at the bottom. The population is generally older on average, as the city has long life expectancy, as the city has long life expectancy, a low death rate but also low birth rate. This may high dependency ratio due to reducing numbers at working ages (20-60). This is a typical pattern from a developed city with good level of education easy access to and incentive to use birth control, good care and few negative environmental factors.

Hence we have select some wards of Kolkata as study area (ward no. 84, 85, 86, 87 and 90). Observing the household structure of these areas it can be clear that in ward no. 85 has the highest ward no. 86 and 90 second highest ward no. 84 3rd highest and ward number 87 has lowest number of households.

3.2 POPULATION STRUCTURE:

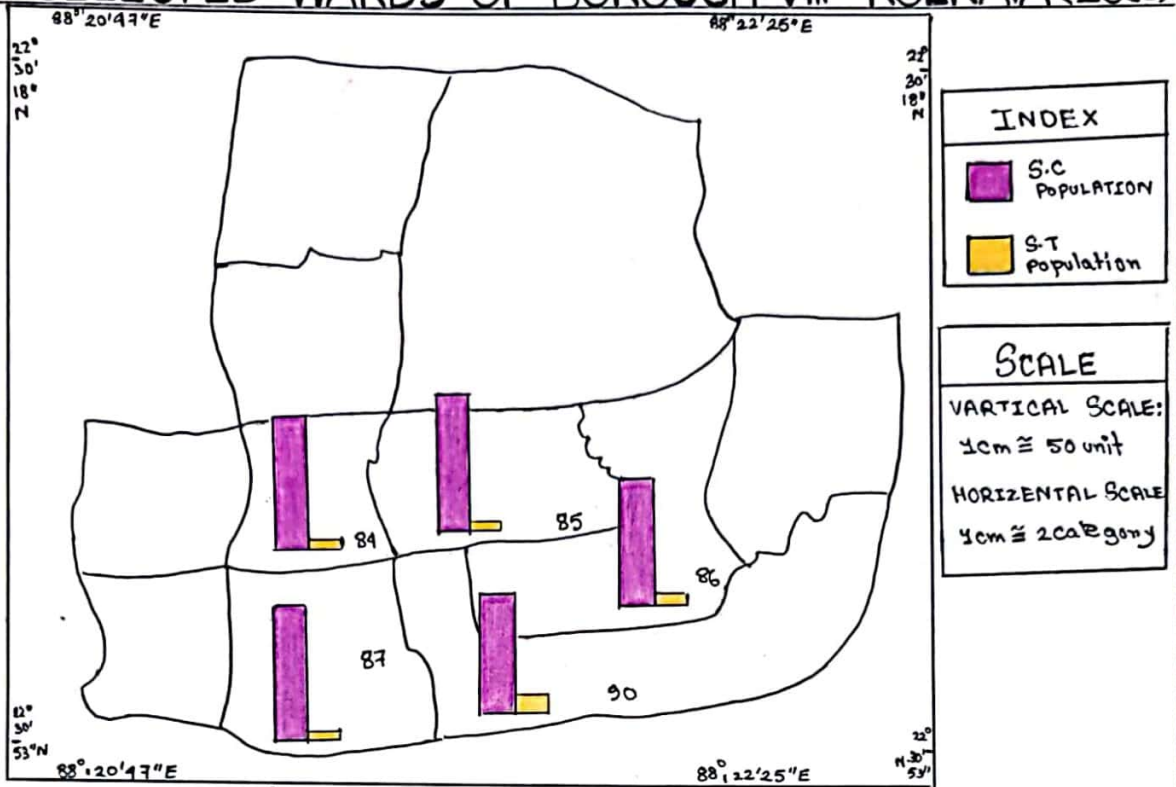
After observing the population structure based on the gender of the study area it was found that the male

WARD WISE DISTRIBUTION OF POPULATION BY SEX
IN
SELECTED WARD OF BOROUGH - VIII KOLKATA (2011)



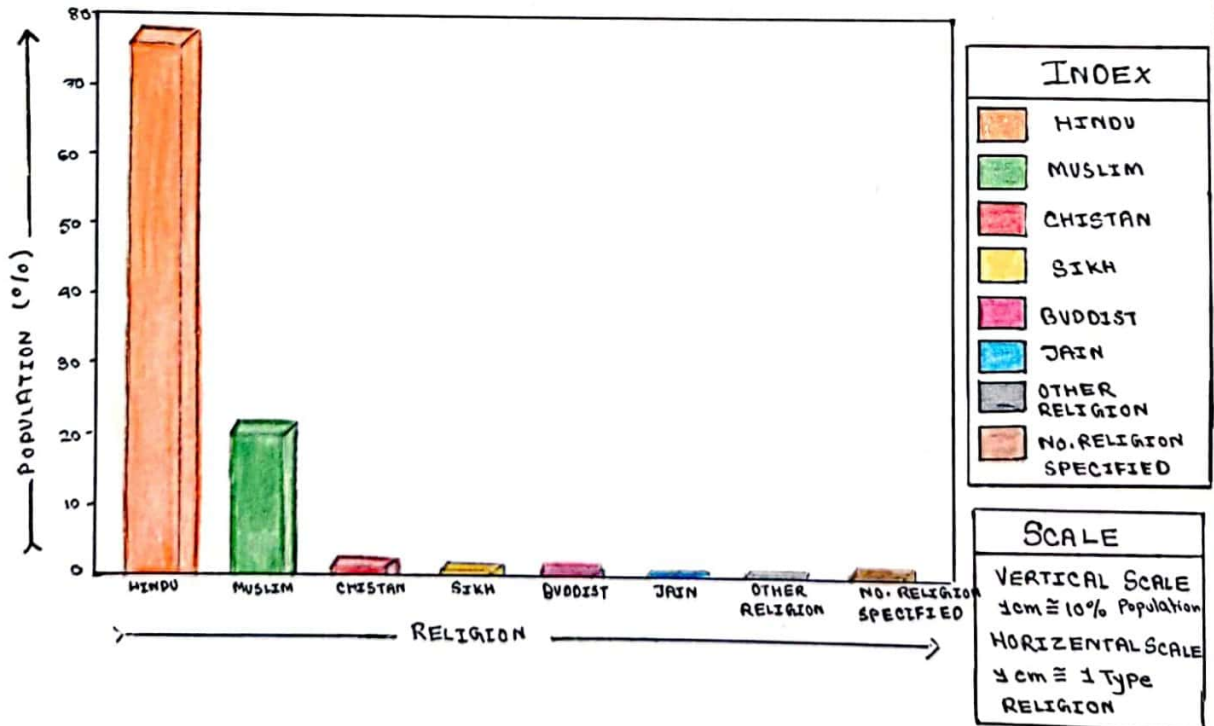
SOURCE: KMC. Website

WARD WISE DISTRIBUTION OF SC & ST POPULATION IN SELECTED WARDS OF BOROUGH-VIII KOLKATA (2011)



SOURCE: KMC Website

RELIGION WISE DISTRIBUTION OF TOTAL POPULATION (%) IN KOLKATA (2011)



population is more in all the wards except ward no. 87. So it can be said that age sex ratio is not in favor of the female population in these wards.

Observing the SC. ST population of these wards no. 84, 85, 86, 87 and 90 it can be seen that the number of SC population is almost same in these wards. On the other hand ST population is relatively very low, starting at 1.39% in ward no. 87 to 5.72 in ward no. 86 and highest being at 11.20% which is in ward no. 90.

An analysis of the religion based population in Kolkata shows that, people of different religions live in Kolkata, like Hindu, Muslim, Jain, Buddhist, Christian etc. But Hindu and Muslim make up the majority of the population of all these religions, and the rest of the other religions have a comparative minority.

3.3 OCCUPATIONAL STRUCTURE:

Studying the cultural landscape it becomes essential to analyze the occupational structure as it shows the lifestyle of the people

The occupational structure of the selected ward no. 84, 85, 86, 87 and 90 has been represented

WARD WISE DISTRIBUTION OF WORKING AND NON-

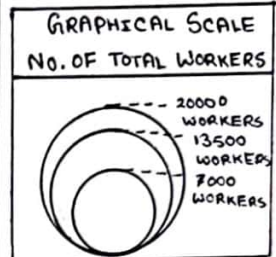
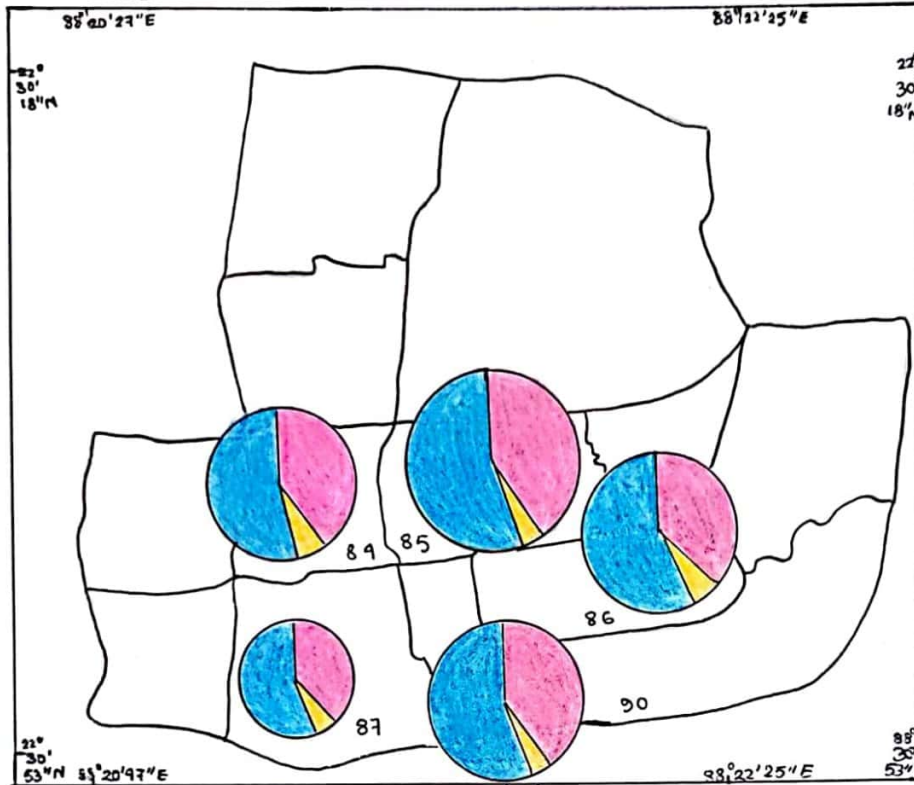
WORKING POPULATION IN

SELECTED WARDS OF BOROUGH-VIII KOLKATA (2011)



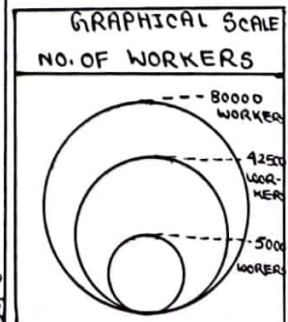
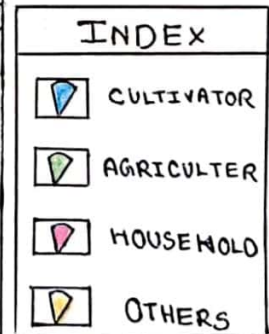
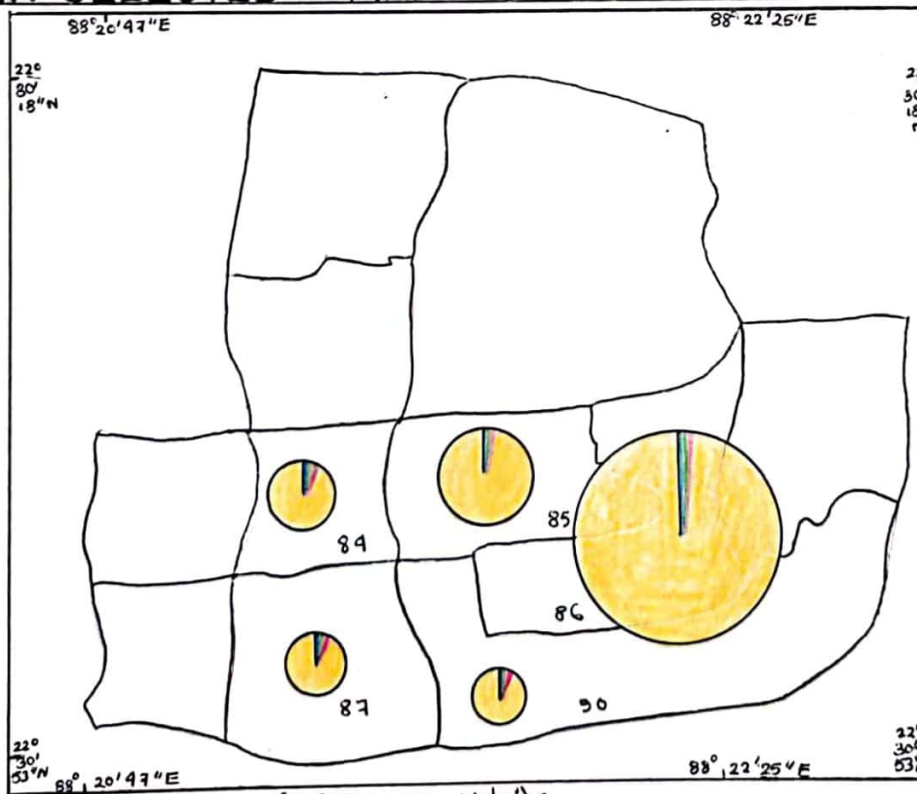
SOURCE: KMC. Website

WARD WISE DISTRIBUTION OF MAIN, MARGINAL AND NON WORKERS SELECTED WARDS OF BOROUGH - VIII KOLKATA (2011)



SOURCE: KMC. website

WARD WISE OCCUPATIONAL STRUCTURE IN SELECTED WARDS OF BOROUGH - VIII KOLKATA (2011)



SOURCE: KMC, website

by two pie diagram and bar graph it can be said that in each of the selected wards the number of non-workers is more than the working population.

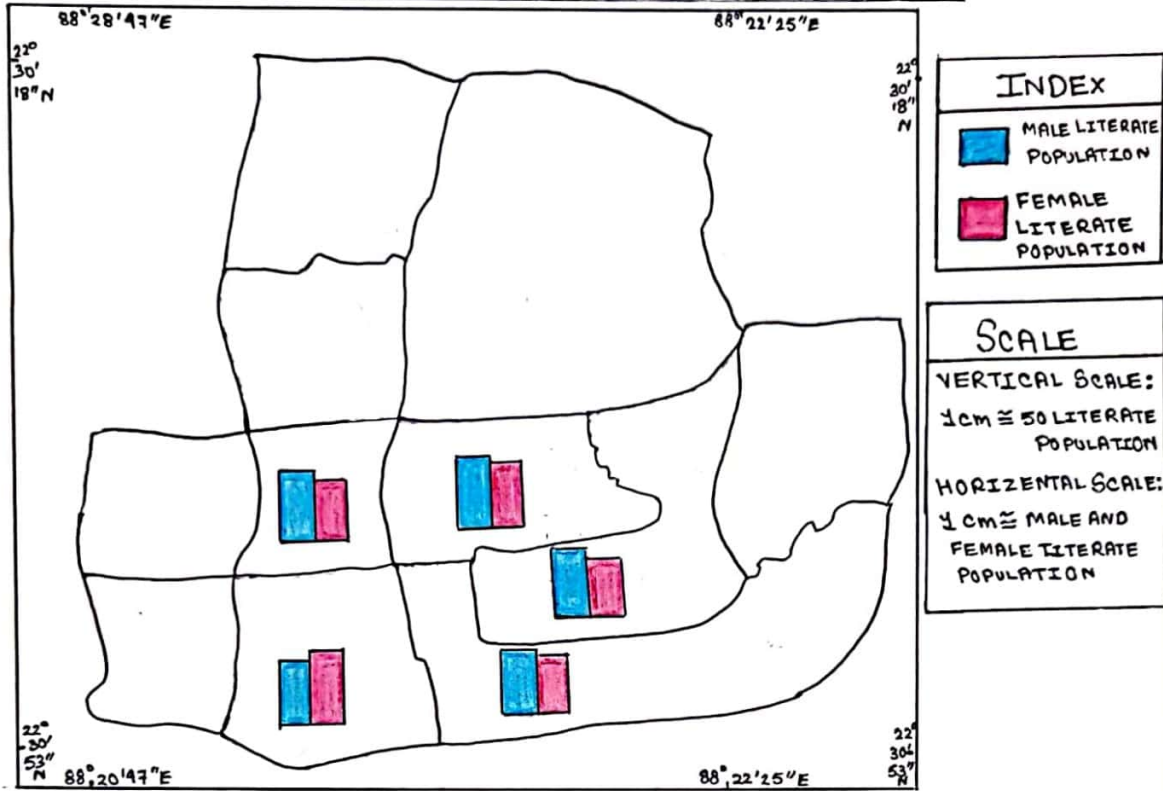
Observing the pie diagrams, the 1st pie diagram gives information about the number of non-workers, main workers and marginal workers. It can be seen that the number of non-workers is more than the main and marginal worker.

And the 2nd diagram gives information about the types of occupations of the selected wards. Here we can see four types of occupations, such as cultivators, agriculture, households and other. Since these places belong to an urban area. So here the number of other workers is highest in each of these selected wards and the number of remaining workers is very negligible.

3.4 LITERACY:

Observing the literacy rate of these selected wards, it was found that in all ward except ward no. 87 male literacy rate is higher than that of females so there is gender inequality in literacy in these wards. These wards are increasingly sorted on the basis of total literate population starting at ward no. 87, 90, 89, 85, 86. 85 is highest ward no.

WARD WISE DISTRIBUTION OF POPULATION BY SEX IN SELECTED WARDS OF BOROUGH-VIII KOLKATA (2011)



SOURCE : KMC, website

WARD WISE DISTRIBUTION OF LITERACY RATE IN SELECTED WARDS OF BOROUGH-VIII KOLKATA (2011)



SOURCE : KMC, website

CHAPTER - 4

FINDING & CONCLUSION

From the above information we can conclude that there are more non-workers in the wards than workers. There fore extreme unemployment in these wards. So this region is economically backward.

Again in the case of literacy there is a difference between male and female. Male literacy rate is higher than female's in all wards except ward no. 87 meanwhile those areas are socially backward.

• PROBLEMS

1. High unemployment is seen here.
2. There is gender inequality between men and women.

APPENDICES

Calculation table for Monthly Rainfall in Kolkata (2011)

MONTH	RAINFALL IN (MM)	SCALE 1cm \equiv 80mm
January	-	-
February	16	0.2
March	16	0.2
April	48	0.6
May	97	1.21
June	368	4.6
July	237	2.9
August	444	5.55
September	334	4.1
October	23	0.28
November	-	-
December	-	-

Calculation table for Monthly Temperature in ($^{\circ}$ C)

MONTH	MAXIMUM TEMPERATURE ($^{\circ}$ C)	SCALE 1cm \equiv 10 $^{\circ}$ C	MINIMUM TEMPERATURE ($^{\circ}$ C)	SCALE 1cm \equiv 10 $^{\circ}$ C
January	29	2.9	10	1.0
February	35	3.5	14	1.4
March	37	3.7	16	1.6
April	37	3.7	21	2.1
May	38	3.8	22	2.2
June	39	3.9	25	2.5
July	36	3.6	24	2.4
August	36	3.6	25	2.5
September	35	3.5	25	2.5
November	35	3.5	19	1.9
November	34	3.4	17	1.7
December	31	3.1	11	1.1

WARD WISE POPULATION By
HOUSEHOLD

WARD NO.	NO. OF HOUSEHOLD	SIDE OF SQUARE (\sqrt{x})	SELECTION OF SCALE	SIDE OF A SQUARE
84	4420	66.483	↑	0.66
85	6402	80.012	↑	0.80
86	4921	70.149	3cm \cong 100	0.70
87	3227	56.806	↓	0.56
90	4761	69	↓	0.69

GRAPHICAL SCALE

TOTAL HOUSEHOLD	SIDE OF SQUARES	SELECTION OF SCALE	SIDE OF SQUARES
6500	80.62	↑ 3cm \cong 100	0.82
4000	63.24	unit ↓	0.63

AGE-SEX PYRAMID

AGE GROUP	MALE	MALE IN (%)	According to scale $\pm 1cm \equiv 2\%$	Female	Female in (%)	According to scale $\pm 1cm \equiv 2\%$
0-4	119562	5.07	2.54	111746	5.22	2.61
5-9	144965	6.15	3.07	35107	6.31	3.15
10-14	176065	7.47	3.73	160785	6.93	3.46
15-19	193986	8.23	4.11	176528	7.6	3.8
20-24	206756	8.77	4.38	195339	9.04	4.52
25-29	207402	8.80	4.4	198484	9.27	4.63
30-34	196471	8.33	4.16	183604	8.57	4.28
35-39	197996	8.40	4.2	187739	8.77	4.38
40-44	187074	7.93	3.96	160169	7.48	3.74
45-49	171269	7.26	3.63	148992	6.96	3.48
50-54	148476	6.29	3.14	122147	5.70	2.85
55-59	117306	4.97	2.48	97686	4.56	2.28
60-64	97420	4.13	2.06	84738	3.95	1.97
65-69	65346	2.77	1.38	59463	2.77	1.38
70-74	50819	2.15	1.07	46184	2.15	1.07
75-79	29080	1.23	0.61	27280	1.27	0.63
80+	33331	1.41	0.70	35493	1.65	0.82
Age not stated	13442	0.57	0.28	9780	0.22	0.11
Total	22356766	100		2139918	100	

CALCULATION FOR WARDWISE POPULATION BY SEX IN KOLKATA

TABLE 1:

Ward No.	Male	Male in (%)	Female	Female in (%)	Total Population	Total Population in (%)
84	9783	50.87	9447	49.12	19230	100
85	15059	50.93	14507	49.06	29566	100
86	9724	50.65	9471	49.34	19195	100
87	6285	49.58	6390	50.41	12675	100
90	9255	49.07	9602	50.92	18857	100

CALCULATION FOR WARDWISE POPULATION BY SEX ACCORDING TO SCALE:

TABLE 2:

Ward No.	Male in (%)	According to Scale 1cm = 50unit	Female in (%)	According to Scale 1cm = 50unit
84	50.87	1.01	49.12	0.98
85	50.93	1.01	49.06	0.98
86	50.65	1.01	49.34	0.98
87	49.58	0.99	50.41	1.00
90	49.07	0.98	50.92	1.01

CALCULATION FOR RELIGION IN KOLKATA (2011)

RELIGION	TOTAL POPULATION	TOTAL POPULATION IN (%)
Hindu	3,440,290	76.51%
Muslim	926,414	20.6%
Christian	397,58	0.88%
Sikh	13,849	0.31%
Buddhist	4,771	0.11%
Jain	21,178	0.47%
Other Religion	1,952	0.03%
No. Religion Specified	48,982	1.09%

CALCULATION FOR S.C, S.T POPULATION IN KOLKATA (2011)

Table - 1

Ward No.	S.C Population	S.C Population in (%)	ST Population	S.T Population in (%)	Total (%)
84	699	98.59	10	1.41	100
85	488	98.01	15	2.98	100
86	1284	94.27	78	5.72	100
87	71	98.61	1	1.39	100
90	1467	88.80	185	11.20	100

Calculation according to scale

Ward No.	Sc in (%)	Scale $\frac{1cm}{50unit}$	ST in (%)	Scale $\frac{1cm}{50unit}$
84	98.59	1.97	1.41	0.02
85	97.01	1.94	2.98	0.05
86	94.27	1.88	5.72	0.11
87	98.61	1.97	1.39	0.02
90	88.80	1.77	11.20	0.22

Working And Non Working Population

Calculation for Total worker and Non workers

Table. 1:

Ward No.	Main workers	Marginal workers	Total workers	Non Workers	Total Population
84	7480	1149	8629	10601	19230
85	11966	1191	13157	16409	29566
86	7089	1130	8219	10976	19195
87	4875	516	5436	7284	12675
90	7617	782	8399	10458	18857

Calculation Percentage of Workers and Non workers

Table. 2:

Ward No.	Workers in (%)	Scale 1cm \cong 50m	Non (%) Workers	Scale 1cm \cong 50unit	Total Population	Total (%) Population
84	44.87%	0.89	55.12%	1.10	19230	100%
85	44.50%	0.89	55.49%	1.10	29566	100%
86	42.81%	0.85	57.18%	1.14	19195	100%
87	42.88%	0.85	57.47%	1.14	12675	100%
90	44.59%	0.89	55.46%	1.10	18857	100%

Main, Marginal And Non Working Population

Calculation for Radius:

Table. 1:

Ward No.	Main Workers	Marginal Workers	Non Workers	Total Workers	$\sqrt{\frac{\text{Total}}{\pi}}$	Radius according to scale 1cm \approx 70
84	7480 (38.90%)	1149 (5.98%)	10601 (55.13%)	19230	78.23	1.11
85	11966 (40.47%)	1191 (4.03%)	16409 (55.50%)	29566	97.01	1.38
86	7089 (36.93%)	1130 (5.89%)	10976 (57.18%)	19195	78.16	1.11
87	4875 (38.46%)	516 (4.07%)	7284 (57.47%)	12675	63.51	0.90
90	7617 (40.39%)	782 (4.15%)	10958 (55.46%)	18557	77.47	1.18

Calculation for degree value

Table. 2:

Ward No.	Main Workers	Marginal Workers	Non Workers	Total
84	140° 1' 52"	21° 30' 36"	148° 27' 31"	360°
85	145° 41' 59"	14° 30' 6"	199° 47' 54"	360°
86	132° 57' 12"	21° 11' 34"	205° 51' 12"	360°
87	138° 27' 41"	14° 39' 20"	206° 52' 58"	360°
90	145° 24' 59"	14° 55' 45"	199° 39' 15"	360°

Calculation for Graphical Scale

Table. 3:

Category	Total Workers	$\sqrt{\frac{\text{Total}}{\pi}}$	Radius according to Scale 1cm \approx 70 unit
High	20000	79.78	1.13
Medium	13500	65.55	0.93
Low	7000	47.20	0.67

OCCUPATIONAL STRUCTURE

Calculation for Radius

Table.1

Ward No.	Cultivators	Agriculter	Household	Other	Total Workers	$\sqrt{\frac{\text{Total Workers}}{\pi}}$	Radius (According to Scale)
84	52 (0.60%)	54 (0.63%)	333 (3.86%)	8190 (94.91%)	8629	52.40	0.52
85	63 (0.48%)	48 (0.36%)	157 (1.19%)	12889 (97.91%)	13157	64.71	0.64
86	38 (0.46%)	45 (0.55%)	143 (1.74%)	73973 (97.25%)	74219	153.70	1.53
87	15 (0.28%)	8 (0.13%)	156 (2.89%)	5212 (96.88%)	5391	41.42	0.41
90	148 (1.76%)	21 (0.25%)	296 (3.52%)	7934 (94.46%)	8399	51.70	0.51

Calculation for degree value

Table.2

Ward No.	Cultivator	Agriculter	Household	Other	Total
84	2° 10' 9"	2° 14' 10"	13° 53' 33"	341° 41' 6"	360°
85	1° 43' 25"	1° 18' 48"	4° 17' 44"	352° 40' 1"	360°
86	0° 11' 3"	0° 13' 5"	0° 41' 37"	358° 54' 13"	360°
87	1° 0' 6"	0° 32' 3"	10° 25' 2"	348° 2' 48"	360°
90	6° 20' 37"	0° 54' 0"	12° 41' 14"	340° 4' 8"	360°

Calculation for Graphical Scale

Table.3

Category	Total	$\sqrt{\frac{\text{Total}}{\pi}}$	Radius According to scale ± 100 unit
High	80000	159.57	1.59
Middel	42500	116.31	1.16
Low	5000	39.89	0.39

LITERATE PERSON BY SEX

Table 1:

Ward No.	Literate Population					
	Male	Male(%)	Female	Female(%)	Total	Total(%)
84	8211	53.09	7253	46.90	15464	100%
85	13049	53.09	11527	46.90	24576	100%
86	8452	51.98	7807	48.01	16259	100%
87	5474	49.99	5476	50.00	10950	100%
90	7715	51.91	7232	48.38	14947	100%

Calculation for Scale:

Table 2:

Ward No	Male in (%)	Scale 1cm \equiv 50 unit	Female in (%)	Scale 1cm \equiv 50 unit
84	53.09	1.06	46.90	0.93
85	53.09	1.06	46.90	0.93
86	51.98	1.03	48.01	0.96
87	49.99	0.99	50.00	1
90	51.91	1.03	48.38	0.96

LITERACY

Ward No	Literate Person	Scale 1cm \equiv 10000 Person
84	15464	1.5
85	24576	2.4
86	16259	1.6
87	10950	1.0
90	14947	1.4

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