

CHAPTER - I

Location and Physical background of the Nadia District

Location :

The district took its present shape after the partition of Bengal in August 1947. It lies within the heart of the Presidency division of the State of West Bengal. Extending over an area of 3921 sq. km. the district lies between the latitude of $22^{\circ} 53'$ and $24^{\circ} 11'$ N and the longitude of $88^{\circ} 08' 10''$ E & $88^{\circ} 48' 15''$ E.

The district is bounded on the north and north west by the district of Murshidabad. The district of Kusthia in Bangladesh forms the boundary in the north east. In the west the river Bhagirathi forms the boundary of the district with Bardhaman and Hugli excepting for a small strip of country around Nabadwip town. In the south and south east the district is bordered by 24-Parganas. In shape the district is irregular lying north to south. Fig. 1 shows the situation of the Nadia district in West Bengal.¹

In terms of population, Nadia ranks 7th. amongst the districts of West Bengal, including Calcutta, while in order of size it holds the 10th. place.² The district is inhabited by 2230270 persons (2977013 in 1981), of which 1144977 are males (1528626 in 1981) and 1085293 are females (1448387 in 1981).³ According to the computation made in the Census Office from the latest jurisdiction list the total rural area is 3808.4 sq. km.

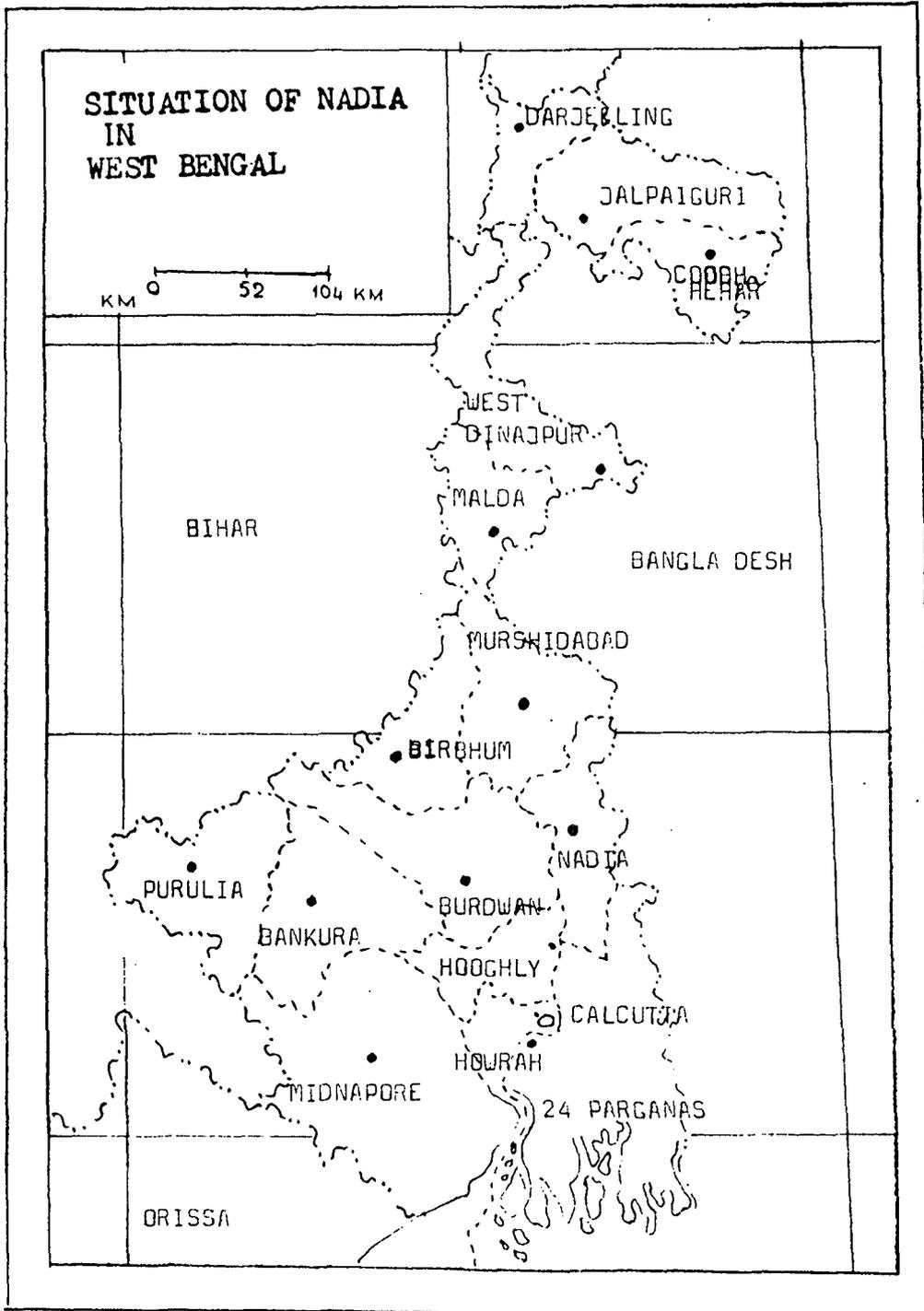


Fig - 1

and the total urban area of the district is 117.6 sq.km. Fig. 2 shows area-wise comparison between West Bengal and Nadia .

The district comprises of two sub-divisions, but virtually three, namely Sadar North, Sadar South, and Ranaghat. Krishnanagar is the head-quarter of both the Sadar North and South sub-divisions as well as the district. Ranaghat town is the head-quarter of the Ranaghat sub-division. The Sadar North sub-division consists of the four police stations of Karimpur, Tehatta, Kaliganj and Nakasipara. Sadar South sub-division consists of four police stations of Nabadwip, Krishnanagar, Chapra, and Krishnaganj. The Ranaghat sub-division comprises of Ranaghat, Chakdah, Haringhata, Hanskhali, Santipur and Kalyani.

The district has 14 towns of which six are administered by the board of Municipal Commissioners, the other eight are non-municipal urban areas, declared as such, for the first time in the Census of 1961. The Municipal towns are Krishnanagar, Nabadwip, Ranaghat, Birnagar, Chakdah, and Santipur. All these towns are in the police stations of the same name excepting the town Birnagar which is in the Ranaghat police station. The sadar sub-division has only two towns, Krishnanagar and Nabadwip; the rest eleven being in the Ranaghat sub-division. Two town groups have grown up in the district:

i) the Ranaghat town group comprising of Ranaghat (M), Birnagar (M) and Taherpur (NM).

ii) the Kalyani, Kataganj and Gokulpur Govt. Colony town group formed by Kalyani (NM), Gayeshpur Govt. Colony (NM) and

NADIA SHARE OF TOTAL AREA, RURAL AREA AND URBAN AREA TO THE TOTAL AREA, RURAL AREA AND URBAN AREA OF WEST BENGAL

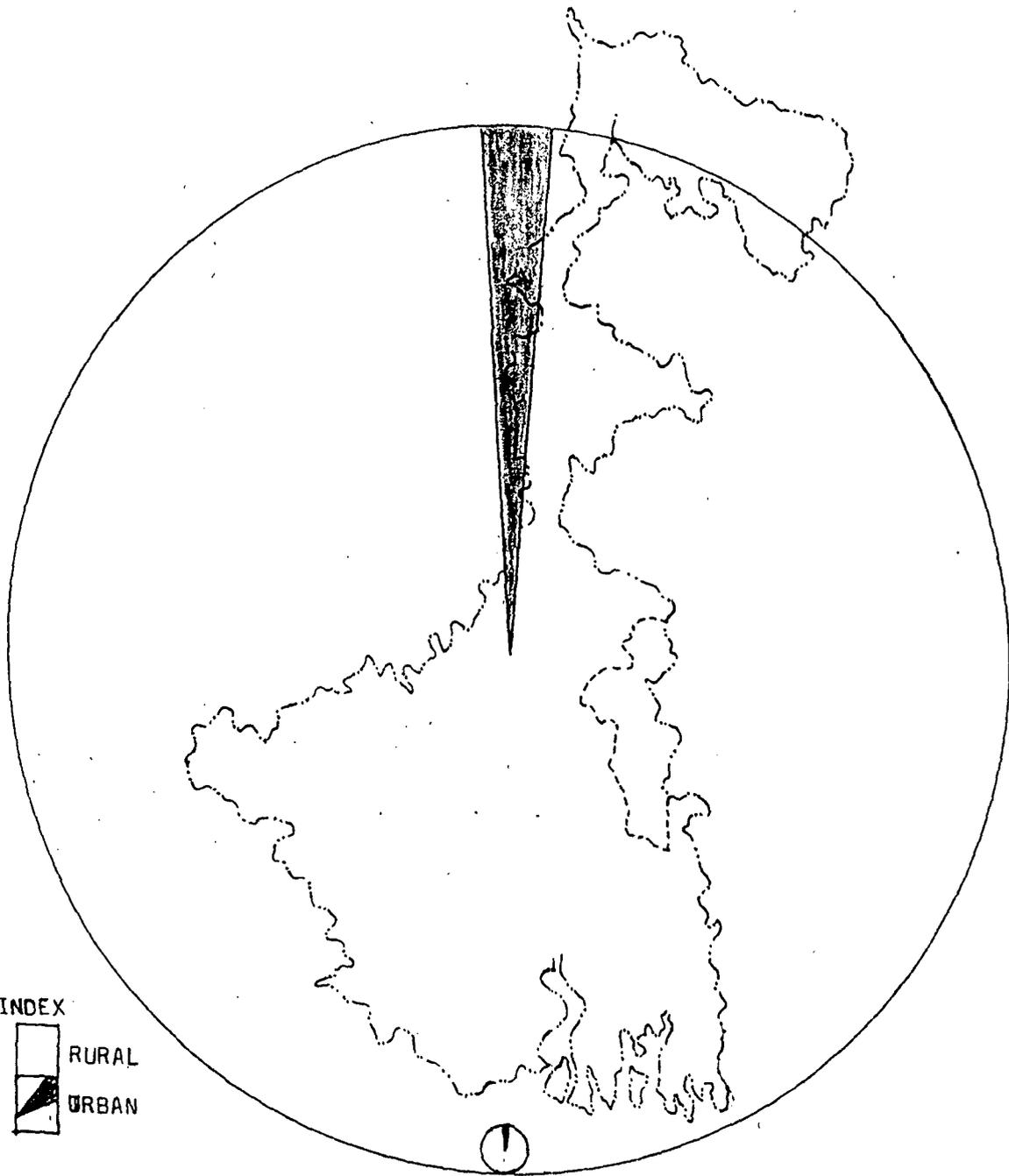


Fig - 2

Kataganj and Gokulpur Govt. Colony (NM).

The other two non-municipal towns of the district are Bagula, in Hanskhali p.s. and Phulia in Santipur p.s. The different classes of towns are shown in Fig. 3. The Census of 1981 has recognised three urban agglomerations. They are Nabadwip, Ranaghat and Birnagar. These urban agglomerations again consists of municipal towns, non-municipal towns and out growths. Ranaghat agglomeration consists of Aistola (NM), Ranaghat(M), Satigachha (out growth), Ranaghat (out growth) and Nasra (out growth). Nabadwip urban agglomeration consists of Nabadwip (M), Charmajdia (out growth) and Charbrahmanagar (out growth). Birnagar urban agglomeration consists of Phulia (NM), Taherpur (NM) and Birnagar(M). The urban agglomerations of Nadia are shown in Fig. 4.

In the district the total number of mauzas borne in the jurisdiction list is 1418 of which 107 are uninhabited. The entire urban tract of the district covers a number of 35 mauzas in full and 28 mauzas in part. There are 16 development blocks covering the 13 police stations of the district.

Natural Configuration

The Nadia district is a large alluvial plain stretching southwards from near the head of the delta formed by the successive rivers into which the Ganges has from time to time distributed itself. The country is flat and the general aspect is that of a vast level alluvial plain dotted with villages and clusters of trees, and intersected by numerous rivers, back waters, minor

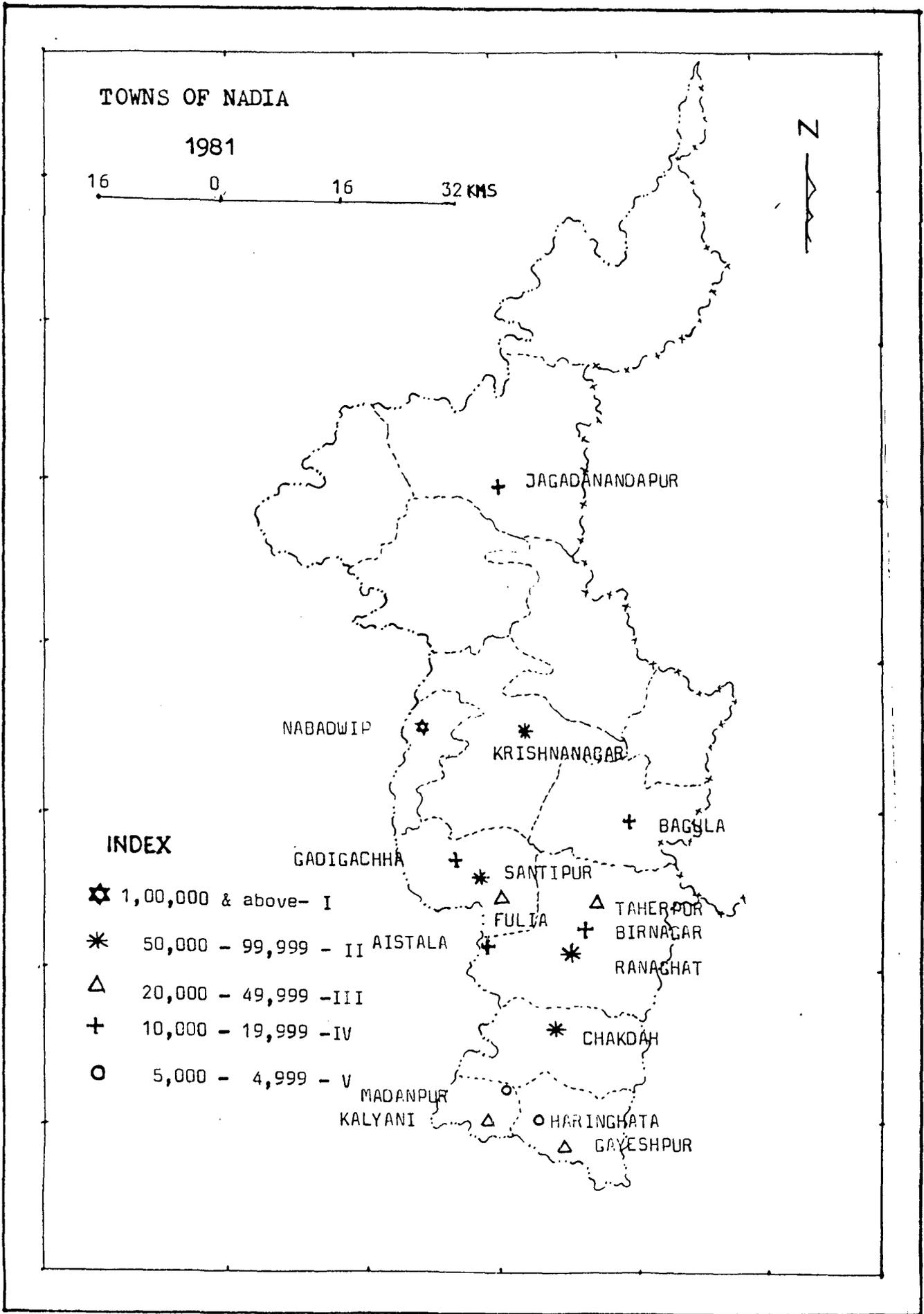


Fig - 3

POLICE STATIONS OF NADIA WITH URBAN AGGLOMERATIONS

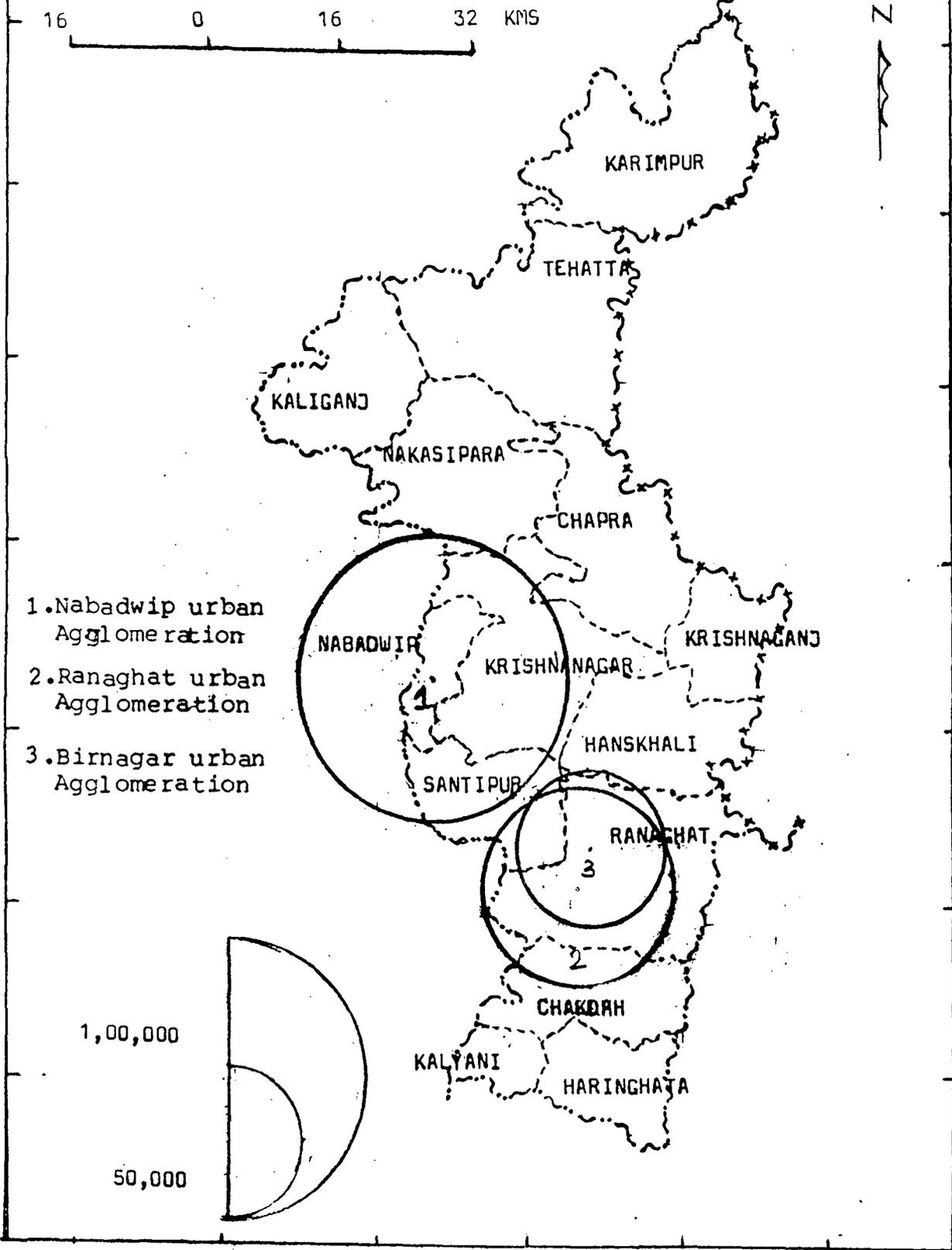


Fig 4

streams, khals, bils and swamps.

River System of Nadia

The whole of the district is a network of moribund rivers and streams, but the Bhagirathi, the Jalangi and the Mathabhanga are the three which have for more than a century and still are distinctively known as the Nadia rivers.

The Nadia rivers are all off-shoots of the Padma which is the main channel of the Ganges. Prior to this, Ganges flowed along the course of Bhagirathi and Bhairab carrying the drainage to the Bay of Bengal. Now all the drainage of Northern Bengal is intercepted by the Padma before it reaches Nadia. The Bhagirathi, also called the Hugli from the confluence of the Jalangi, the Bhairab-Jalangi and the Mathabhanga-Churni are the main rivers of the district. Shortly after passing Rajmahal, the Ganga enters its deltaic career and gives off its first effluent, the Bhagirathi, at Geria about 54 kms above Rampur-Boalia and it receives its last tributary, the Mahananda, a few miles further down. About 29 kms below the Bhagirathi off-take, the Bhairab spills southwards over the right bank 17 kms above Akrganj and joins the Jalangi. A short distance below the Bhairab off-take, the Sialmari takes off from the Ganges flowing only during the rains and also joins the Jalangi. The original off-take of the Jalangi which was below the Bhairab off-take is now ordinarily closed and flows only in exceptionally high floods. About 30 kms above Sarah and from a point very near the original Jalangi off-take, the Mathabhanga takes off from the right bank of the Ganga (Padma) and flowings south westerly enters the Bhagirathi near

Chakdah assuming the name Churni.

The Rivers of Nadia

The Jalangi leaves Padma at the extreme north of the district and flows for a good distance in north western direction forming the boundary till it almost reaches Tehatta at Rajapur. Then it pursues a tortuous course bending south until it forms the boundaries, between Nakasipara and Chapra, and between Chapra and Krishnanagar. It proceeds south and joins the Bhagirathi.

The Bhagirathi enters the district near Palashi and for some distance forms its western boundary. It takes the name of Hugli from where it meets the Jalangi opposite Nabadwip town. In its upper reaches it is now an insignificant river, but the surrounding country gives evidence of the vast size it once attained forming the main bed of the Ganga.

The Bhairab flowing in tortuous bends is a dead river now traverses Karimpur p.s. in a south and south easterly direction and passes into Meherpur, in Bangladesh. It does not reenter the district.

The Mathabhanga leaves the Padma and enters the district at Andharkota in the Karimpur p.s. It flows in a south easterly direction as far as Hat-Boalia and bifurcates. One distributary assuming the name Pangasi which moves in the same direction past Alamdanga to the boundary of the district, the other branch flows through a very meandering course, its general trend being to the south. It passes Chuadanga and reaches Kissengunge east of Krishnanagar where a second bifurcation takes place.

The two streams are the Churni and Ichhamati and the name of the parent river is henceforth lost.

The Churni traverses the district flowing from a north east to a south east direction, through the police stations of Hanskhali and Ranaghat and then merges into the Hugli between Santipur and Chakdah.

The Ichhamati flows in a south easterly direction, forming the district boundary in the Hanskhali and northern parts of Ranaghat p.s. and then enters the Bongaon sub-division of 24 paraganas district. Nadia rivers are shown in Fig. 5.

Lakes and Marshes of the District.

Nadia is dotted with numerous khals, bils and marshy tracts, the district being a land of dead and moribund rivers. Rivers like the Bhagirathi, the Bhairab and the younger Mathabhanga and the Jalangi had entered the deltaic phase thus there had been quite a vigorous oscillations of these rivers, that have resulted in the large number of bils, khals and dead river beds lying scattered all over the district. The principal khals and bils amongst these are given below.

Karimpur bils are Padma, Gauria, Pati, Tiarpara, Nalgari, Chakla, Chandra, Tangramari, Dighri, Dhopagari, Kaura, Lakshmi Jay and Ahighat bils; Maheshgari and Ichhamati khals are the khals of Karimpur. These bils and khals join up during the rains and give the appearance of a vast sheet of shallow water dotted with occasional hamlets on slightly elevated portions of the tract.

Tehatta thana has a number of bils, they are : Nalgari, Pank, Fatehpur, Dubrajay, Gabri, Mahismari, Chaul, Maheskhola, Banar, Chunchakhala, Nagar, Harma, Kanthuli, Kulchandi, Khalder,

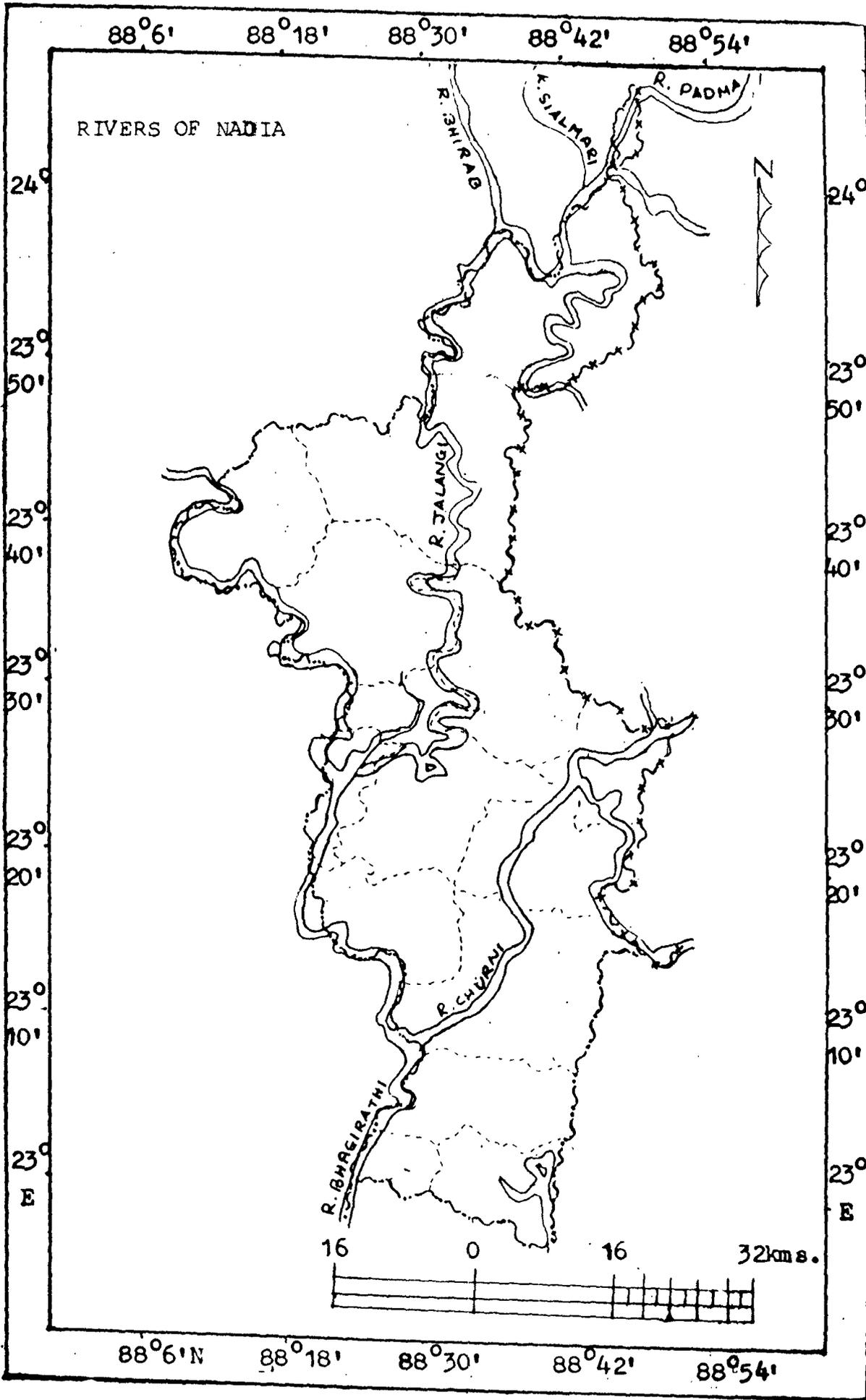


Fig - 5

Amul, Phulir, Pon, Boalia, Chhaturi and Maragangni bils. The khals of Tehatta are Maragangni, Paikpara, Heru-bhanga-hanipur khals, Nayer, Saraswati and Bela khal. During the rainy season rain water accumulates in the eastern and southern parts of the Jalangi forming one continuous sheet of water when the bils and the khals are connected.

There are many depressions in this area of Kaliganj p.s. caused by the meandering of the Bhagirathi. These depressions are long and narrow. The bils here are Kutiar bil, Amir bil, Chapra bil, Boalia bil, Mirkuli bil, Chanduria bil, Chitua bil, Bagher bil, Boduli bil, Jialar bil, Khalder bil and Panighata bil.

The Nakashipara p.s. area contains a large number of dead rivers running from north to south which are relics of the oscillations of the Bhagirathi as well as of the Jalangi. Most of them are dry in summer but a few are deeper and water remains through out the season. The khals and bils here are, Arpara khal, Khana khal and the Gurguria khal; and the bils are Bara bil, Ganradobar bil, Jialar bil, Pon bil, Khalder bil, Soiti bil, Kuoguri bil, Kalsi bil, Kaogachi bil, Beledaha bil, and the Gotpara bil. During monsoon every year this area is subject to flood due to the spills from both the rivers of Bhagirathi on the west and Jalangi on the east. Silt deposition is still in progress in these areas.

A large number of dead river courses is found here in Chapra p.s. that once belonged to the old Bhairab system, before the Jalangi cuts across its course. Most of the depressions lie

in between the Ichhamati and the Jalangi. The Mathabhanga oscillations were noticeable in this area even as late as 1940. The bils and khals here are : Dahakolta bil, Patra bil, Paiti bil, Pipragacha bil, Bagdia bil, Elangi bil, Chapra bil, De bil, Gokhropota bil, Baniakhar bil, Dharmadaha bil and Palda khal, Daribadi khal, Paldanadi khal, Kalannanadi khal and Jhornadi khal respectively.

Jalangi divides the Krishnanagar p.s. into two halves - the northern half bears the relics of the Bhagirathi oscillations and the southern half bears the relics of the Jalangi oscillations which have given rise to a number of bils and khals. The principal amongst them are : Sujanpur bil, Noapara bil, Hansdanga bil, Shyam-nagar bil, Amghata bil, Bhaluka bil, Nalan bil, Kopae bil, Nadari bil, and Sattulia bil and the khals are Kalannanadi khal, Gurguria khal and Jhornadi khal.

Lying in between the Bhagirathi and the Jalangi, the Nabadwip p.s. shows evidences of oscillations of both these rivers. The resultant bils and khals are : Sujanpur bil, Bamanpukur bil, Mayapur bil, Amghata bil, Nutan bil and Gurguria khal.

Like the Chapra p.s. parts of Krishnaganj also lies in course of old Bhairab. At present Ichhamati flows and Churni takes off just from the south. Till very recently this area was under the oscillations of the Mathabhanga, hence quite a number of depressions forming the bils are seen, these are : Damodar bil, Dharmadaha bil, Majdia bil, Banpur bil, and the Balsakuti bil.

The old beds of the Bhagirathi channel here have formed wide stretches of low lands in Santipur p.s. but now these are

gradually filled up. The principal bils and khals are : Nutan bil, and the Pasa bil; and the khals are the Manasdaha khal, Maragangni khal and Harinadi khal.

This area forms the lower course of the Mathabhanga and has been frequented with the changes of the Ichhamati, the Churni and the Jhoar. The numerous distributaries of these rivers form a network in this area. There are many bils and khals here in Hanskhali p.s. These are Padma, Dhabuni, Balaskuti, Abhangi, Singa, Adhiari, Ramnagar, Chatra bil. The khals are Goragangani khal, Gauria khal, and the Jhornadi khal.

The Ranaghat p.s. is drained by the Churni and the Ichhamati along its eastern boundary. The Hangar khal and the Gauria khal drain the eastern half of this p.s. and join the Ichhamati in its right bank. There are comparatively lesser number of khals and bils here. The bils are : Chakha bil, Baramashi bil, Anda bil, Paltar bil, Sanghate bil, Tatal bil, Hussainpur bil, Changta bil, Bhabankabali bil and Bahir bil; the khals are : Mangar khal and Gauria khal.

There are a good number of khals and bils in Chakdah p.s. which are mostly the abandoned old courses of the Bhagirathi and its distributaries. The bils are, Jayati, Godar, Jhakhir, Solakir, Chamrakumar, Chandmari, Ghatugachi, Pectar, Peror, Kulia, Dhokradaha, Matikata, Datta and Mathura bil. The khals are Murali and Tangra khal.

The river Jamuria is an extension of the Mathura bil which divides the p.s. of Haringhata into two halves. Bils in the northern part are Parmajhdia Magura bil, Balli bil, Bhomra bil,

Pecharkhalsi and Peror bil. The bils in the southern part are Chandal bil, Baruni bil, Narayan bil and the Media bil.

Natural Vegetation

The district is a flat alluvial plain and there are no marked botanical divisions in the district. The vegetation of Nadia is therefore classified by the type of soil and its water content and other biotic factors. The broad classification therefore may be : Vegetation on roadside and waste places, Vegetation on agricultural fields and Vegetation in pools, ponds and rivers. The sides of embankments and villagesides which are not occupied by human habitations are densely covered with large growths of semi-spontaneous vegetation of Areca, Moringa, Mangifera, and Anona. Waysides and waste places are filled with grasses and weeds. Thus stretches of low lying land under rice cultivation afford a foothold for many species while the numerous ponds and ditches are filled with submerged and floating water plants as Drosera and the water-hyacinth. The edges of sluggish creeks are lying with large sedges and bulrushes.

There are no large forest areas in Nadia. Chakhatisala, Mahatpur and Bethuadahari forest in Krishnanagar range are the major forest areas. The other forest regions are Debagram, Khisma Radhakantapur, and Sankarpur in Ranaghat range and Mayokol in Krishnanagar range. Important trees found here are : Teak, Simul, Arjun, Neem, Babul, Toon, Sissoo and Debdaru.

Geology of Nadia

The district of Nadia is an alluvial formation of the

rivers belonging to the Ganga-Bhagirathi system. On the top surface it appears to be formed of recent alluvium, but underneath lies older alluvium formed of different materials which does not belong to the Ganges deposition. It appears that this delta was laid down by rivers issuing from north or north east. The old delta was depressed and the Ganges appears to have then entered upon the scene and begin forming the new delta on top of the old from the neighbourhood of Rajmahal.⁴⁴

Soil of Nadia

Mainly three types of soil regions are found in this district. The parent material is Ganges (gaṅgā) alluvium which under different conditions form three dissimilar soil associations : Ganges riverine lands, Ganges flat lands and Ganges low lands. The distribution of these soil types are as such :

Ganges riverine lands : these are formed of soils on recent alluvium fans, flat plains or other secondary deposits having undeveloped profiles below which lie unconsolidated materials. No accumulation of clay or lime is found in the sub-soil. Soil of this kind occur in Karimpur - near Narayanpur; in Tehatta - near Betai and Palashi-para. And in the area between the Bhairab and its tributary on the left bank; in Palashi - between Bhaga and Kaligang; in Nakasipara - between Khajuria and Murgachha and between Goypara and Bhaga. This type is also found near Pathiabari; in Krishnanagar - almost covering the whole area of the police station; in Chapra - in the south eastern parts; in Hanskhali - near Churni; in Santipur, covering the entire police station; in Ranaghat - near Nilnagar, Paschim Noapara and

north of Churni. This type of soil is also found near Roynagar and Hijuli; in Chakdah on the west and north western parts, and in Haringhata - on the west of Chakdah - Haringhata Road.

Ganges flat lands : These soils are formed on young alluvial fans, old flat plains or other secondary deposit having somewhat developed profiles underlain by unconsolidated material. Soils of this kind are located near Mathabhanga river at Raghunathpur, in Kaliganj near Bhaga, in Khajuria and Gotpara, between Simulia and Uttar Bahirgachhi and Patkiabari in Nakasipara, between Basandulia and Padmanala in Chapra, in the south west and southern part in Hanskhali, in the northern and south eastern part in Ranaghat.

Ganges low land : This soil shows a good accumulation of clay on the surface which is underlain by unconsolidated material. The sub soil shows in places considerable accumulation of calcareous and calco-ferrous material which do not disintegrate in water.

This soil is generally distributed along the course of the old Bhairab near, southern Karimpur, entire north and north eastern part of Tehatta, in the north western portion of Chapra and between Basandulia and Padmanala, in the south east and north west corner of Hanskhali, in the east and north east portion of Ranaghat, in the south eastern fringe of Chakdah, and in the eastern half of Haringhata.

Climate of Nadia District

Nadia has the typical lower Bengal climate. The Tropic of Cancer passes over Krishnanagar. The climate here is characterised by an oppressive hot summer, high humidities, all the year round and well distributed rainfall during the south west monsoon season.

The cold season is from about the middle of November to the end of February, the period from March to May is the summer season. The south west monsoon season commences about the beginning of June and lasts till the end of September. October and the first half of November constitute the post monsoon season.

Rain Fall :

The average annual rainfall in the district is 1310.4mm. The rainfall is not uniform throughout the district. Haringhata in the southern part gets only 1110.4mm rainfall on average in a year while Krishnanagar, further north, in the middle portion of the district has an annual rainfall of 1473.6mm of rainfall. From the general trend, it appears that in the northern parts of the district rainfall is significantly higher than the south. August is the rainiest month, the variation of rainfall from year to year is not large. The heaviest rainfall in 24 hours recorded at any station in the district was 293.9mm at Krishnanagar on September 20 1900.

Temperature :

There is only one meteorological observatory in the district and it is located at Krishnanagar. The cold season commences by about the middle of November when temperatures begin to decrease. January is the coldest month with the mean daily maximum temperature at 25.9°C and the mean daily minimum temperature at 11.0°C. In association with passing western disturbances in the cold season, the district is sometimes affected by cold waves. On such occasions the minimum temperature may go down to 3 or 4°C. By end of February the temperatures begin to rise. The heat in summer is often oppressive.

on account of the high moisture content in the atmosphere. There is welcome relief from heat although only temporarily when thunder showers occur. With the onset of south west monsoon by the first week of June, the temperature drops appreciably during the day but the night temperatures continue to rise. The monsoon withdraws early in October and temperatures begin to drop particularly the drop is rapid from mid of November.

Humidity :

Humidity is high throughout the year. But in summer months March and April, the relative humidity is comparatively less particularly in the afternoon, being about 40 to 45%.

Special Weather Phenomena :

Storms and depressions from the Bay of Bengal, in May, and the post monsoon season often reach the district or its neighbourhood causing high winds and wide spread heavy rains. Depressions in the south west monsoon season also affect the district. Thunderstorms are common in hot season which are accompanied by heavy rain occasional hail and squalls. These are locally known as nor-westers as they usually come from the north west. Occasional fog occurs in the cold season.

Rainfall and temperature of the district is recorded in the meteorological sub - stations of Ranaghat, Krishnanagar, and Haringhata, and is shown in table 1.1

TABLE 1.1
Normals and Extremes of Rainfall in Nadia District

Station	No. of years of data		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*		
																		Amount (mm.)	Date	
Ranaghat	50	a	12.7	27.2	30.0	70.4	140.5	224.8	253.2	276.1	208.3	87.1	13.7	3.6	1347.6	177 (1942)	61 (1942)	254.0	1930	Sep. 20
		b	0.8	1.9	2.0	4.0	7.0	11.7	15.3	15.2	10.8	5.0	0.9	0.3	74.9					
Krishnanagar	50	a	12.5	27.4	39.9	67.3	159.0	161.4	285.4	271.0	195.6	122.7	25.9	3.6	1473.6	156 (1905)	68 (1904)	293.9	1900	Sep. 20
		b	1.0	1.8	2.2	4.2	8.0	13.0	16.6	15.8	11.2	5.5	1.2	0.3	80.8					
Haringhata	43	a	9.1	18.0	26.7	48.5	99.3	196.6	207.8	242.3	153.2	89.1	17.5	2.3	1110.4	179 (1939)	52 (1935)	279	1956	Sep. 26
		b	0.8	1.4	1.7	3.5	6.1	10.9	13.7	14.4	9.3	5.0	0.8	0.2	67.8					
Nadia (District)		a	11.4	24.2	32.2	62.1	132.9	227.6	249.1	263.1	186.0	99.6	19.0	3.2	1310.4	149 (1913)	65 (1935)			
		b	0.9	1.7	2.0	3.9	7.0	11.9	15.2	15.1	10.4	5.2	1.0	0.3	74.6					

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm. or more).

*Based on all available data up to 1956.

**Years given in brackets.

Normals of Temperature and Relative Humidity: Krishnanagar

Month	Mean daily maximum temperature °C	Mean daily minimum temperature °C	Highest maximum ever recorded		Lowest minimum ever recorded		Relative humidity	
			°C	Date	°C	Date	0830	1730*
	°C	°C	°C	Date	°C	Date	%	%
January	25.9	11.0	34.4	1912 Jan. 24	3.9	1934 Jan. 19	76	56
February	28.4	13.2	37.8	1896 Feb. 28	3.9	1886 Feb. 5	72	48
March	34.0	18.8	42.2	1941 Mar. 30	7.8	1898 Mar. 5	66	39
April	37.1	23.3	45.0	1954 Apr. 25	13.9	1886 Apr. 6	70	46
May	36.1	24.1	45.9	1960 May 6	16.7	1893 May 8	71	64
June	33.9	25.8	42.8	1957 Jun. 1	20.0	1907 Jun. 1	81	79
July	38.2	25.9	37.2	1949 Jul. 1	22.2	1955 Jul. 2	84	85
August	32.1	25.8	36.7	1957 Aug. 21	21.1	1949 Aug. 6	85	84
September	32.4	25.6	37.2	1955 Sep. 20	21.1	1887 Sep. 25	83	83
October	32.0	22.8	36.7	1960 Oct. 13	14.4	1935 Oct. 31	76	77
November	29.2	16.8	36.1	1952 Nov. 3	8.3	1934 Nov. 30	72	66
December	26.2	11.8	32.2	1954 Dec. 7	5.0	1937 Dec. 28	76	61
Annual	31.6	20.5					76	66

*Hours I.S.T.

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