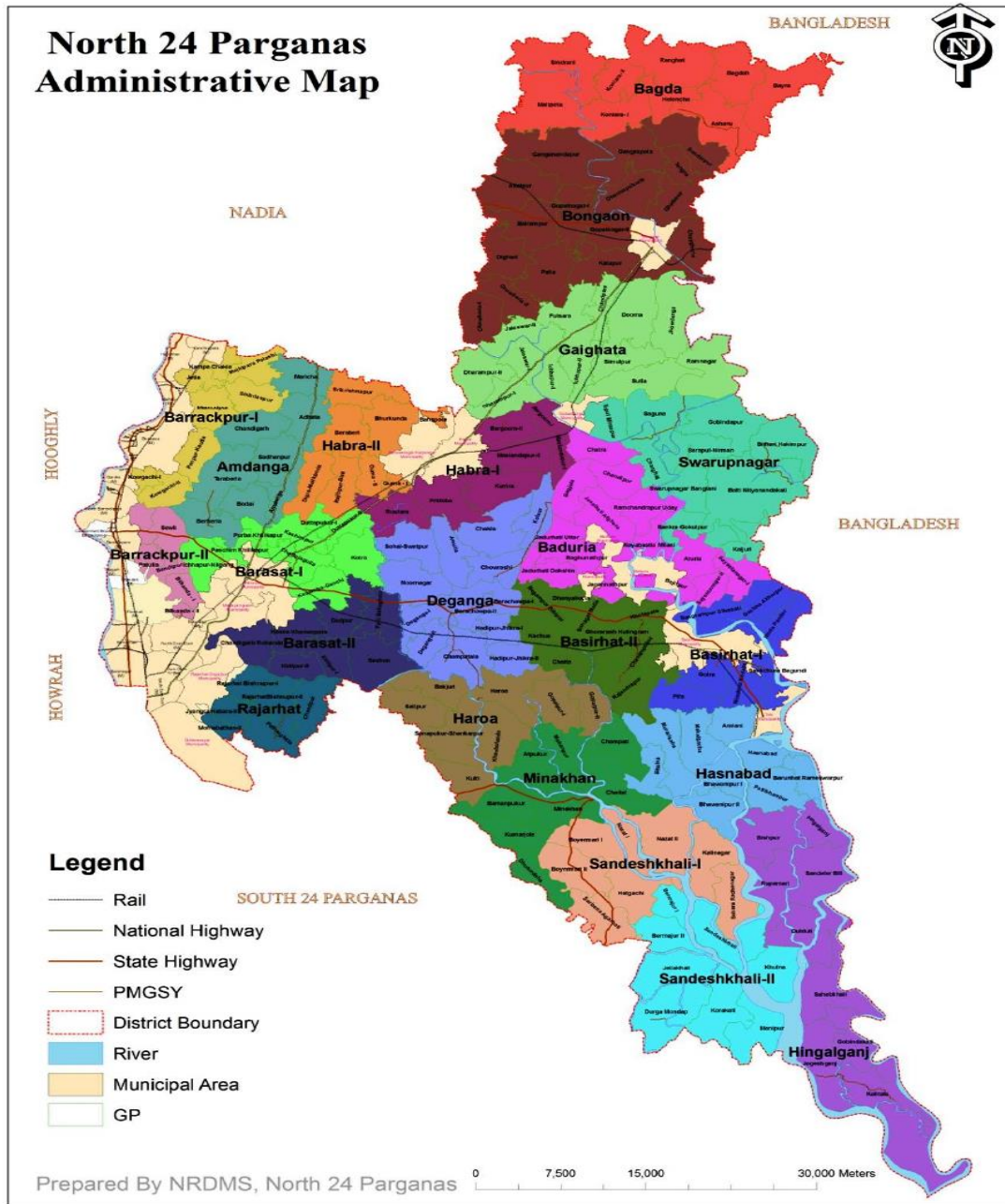


District Environment Plan for North 24 Parganas

West Bengal



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1.0 District Profile

- North 24 Parganas district is a district in southern West Bengal, India. North 24 Parganas extends in the [tropical zone] from latitude 22°11'6" north to 23°15'2" north and from longitude 88°20' east to 89° east. It is bordered to Nadia by north, to Bangladesh (Khulna Division) by north and east, to South 24 Parganas and Kolkata by south and to Kolkata, Howrah and Hoogly by west. Barasat is the district headquarters of North 24 Parganas. North 24 Parganas is West Bengal's most populous district. It is also the tenth largest district in the State by area and second most densely populated district (3,781/km² as of 2007 census).
- North 24-Parganas is the largest District in West Bengal (second largest in the country) and having pan-Indian characteristics with an area of 4094 Sq. Km (4.61% of the State). It is situated between 23-15'-2" and 22-11'-6" North latitude and 89-5' and 88-20' East longitude.
- The district lies within the Ganga–Brahmaputra delta. The major distributory of river Ganga that is river Hooghly flows along the western border of the district. There are many other distributory branches, sub-branches of Ganga river and other local rivers, which include the Ichhamati, Jamuna, and Bidyadhari
- North 24 Parganas as a district holds a special place in the state in respect of population, language, culture, geography and livelihood. This district is almost a miniature of India in terms of the variation it contains. There are 25 Municipalities, 1 Municipal Corporation and 1 Cantonment Board and one Development Authority with 57.27% population of the district living therein. As per Census 2011, it is most densely populated district in the state, the density 2,445 per sq. km. People residing in rural area in 22 Blocks are mainly dependent on primary sectors of livelihood while the urban population mainly depends on secondary sector and to some extent tertiary sectors. International Border with Bangladesh is also along the eastern boundary of the district. There is traditional industrial belt at Barrackpore area, while there are saline areas of Sundarban and rich alluvial tracts of the Ichhamati basin. Apart from religious minorities, there is a considerable population of linguistic minorities. This district is very rich in cultural heritage has a good collection of heritage sites. Brief descriptions of some important sectors are given below:

- 1. AGRICULTURE:** Agriculture in North 24 Parganas has witnessed a gradual transformation from subsistence farming of early fifties to the present intensive agriculture especially in better endowed regions, where basic infrastructure essential for realizing potential of improved technologies in farms fields was created along with favorable government policies. This has led to widespread adoption of intensive cropping system particularly rice in irrigated areas, which has resulted in remarkable increase in food grain production of the district. The current food grain production, in this district is 7.38 lakh tones.

The district of North 24 Parganas consists of 22 nos. of Blocks spread over 5 nos. of Administrative Sub-Divisions having a total geographical area of 4,094 sq. km. Due to the advantage of its proximity, Kolkata, 10% of the total population of the State are running their livelihood through only 4.3% of the total geographical area of West Bengal situated in the District. It is counted as 2nd most populous district of the country only after Thane of Maharashtra. The population feature is also having some specialty as 54% of the total population living in urban / semi-urban areas and remaining 46% living in rural areas.

There are two district agro-ecological situations prevailing in the district –Gangetic Alluvial Zone and Coastal Alluvial Zone. Gangetic Alluvial Zone comprises of 16 blocks spread over entire Barasat and Barrackpore sub-Divisions, Bongaon Sub-Divisions and only 4 blocks of Basirhat Sub-Divisions i.e., Basirhat-I & II Baduria and Swarupnagar. For applications of more location specific technologies, the Gangetic Alluvial regions have further been sub-divided in two regions. One is Ichhamati basin comprising of all blocks of Barasat-Barrackpore Sub-Divisions and Basirhat I & II, Baduria block of Basirhat Sub-Division.

On the one hand, the District enjoys the benefit of good infrastructural facilities and bounty of natural resources on the other. The Netaji Subhas Chandra Bose International Airport is only 12 KM away from District Head Quarter. Most of the villages are connected by roads and easily accessible by rail. Even the remote Sundarban blocks are only a few hours drive from the capital city of the state. Among natural resources, vast stretches of fertile land contributes a considerable share to the State Food basket.

- 2. HORTICULTURE:** A sizeable tract ranging from Rajarhat to Bongaon in North 24 Parganas District contribute significantly towards the bulk of State's horticulture produces. The rich Gangetic Alluvium, Alluvium, abundance of irrigation water and congenial climate of the area favour commercial production of vegetables like tomato, cabbage, cauliflower, pea, brinjal, ladies finger, beans, potato and others.

Predominantly, vegetable growing belt lies in Amdanga, Deganga, Barasat-I, Habra-I, Habra-II, Basirhat-II, Swarupnagar, Gaighata and Bagdah area. Multipurpose cold storages mainly for fruits and vegetables are established at Gaigahta, Amdanga and Nilganj. The area extending from Rajarhat to Bongaon in North 24 Parganas District may be termed as a 'Horticulture Hub' of West Bengal.

- 3. Industry: North 24 Parganas** occupies a prominent position in the industrial map of West Bengal. The industrial development dates back to the pre-independence era. The Bengal Chemical set up by Acharya Prafulla Chandra Roy at Panihati was the precursor to industrialization not only in Bengal but also in the entire country. Subsequently setting up of other industrial units like Bengal Waterproof, Basanti Cotton Mills, etc favored the nucleus of industrial units in small, medium and large scale. Major industrial clusters are:-

- **Food Processing** – Panihati, Shyamnagar, Baranagar and Kanchrapara.
- **IT / ITES State's entire electronics and IT / ITES concentration is in Salt Lake & New Town** – Rajarhat area.
- **Plastics & allied products** - Dum Dum, Panihati, Baranagar and Naihati.
- **Engineering based industries** –Dakshindari, Bonhoogly and Baranagar.
- **Handloom Units** – Basirhat, Gaighata, Hasnabad, Bongaon and Swarupnagar.
- **Ophthalmic Units** – South Dum Dum, Naihati and Barrackpore-II.
- **Electric fan manufacturing units** – In and around Rajarhat Block.
- **Silk Screen printing units** –Sajirhat and Panihati areas.

Jute industry is a trading industry in West Bengal. Out of 59 Jute Mills in the State, 23 Mills are situated in Agarpara, Kamarhati, Titagarh, Jagatdal, Naihati, Kankinara areas of the district.

Out of 12 wagon manufacturing units in the country, 9 are located in West Bengal

accounting for maximum of the all India capacity. Among these, 3 units viz. Jessop & Co. Ltd, Texmaco and Titagarh Wagons are situated in the district.

The Gun & Shell Factories at Dum Dum, Cossipore and Ichapur and the Railway Workshop at Kanchrapara are also large operating engineering units in the public sector in the district. Metro Railway has a workshop cum Car shed at Noapara in the district.

The IT hub at Salt Lake, Sector-V is India's first fully integrated electronics complex spread over 150 acres of land.

4. EDUCATION : Apart from the schools, madrasahs, colleges situated through the district, may engineering, management and other reputed educational institutions have been set up in the district, which include:

- Indian Statistical Institute, Baranagar.
- National Institute of Juridical Science, Salt Lake
- National Institute of Fashion Technology, Salt Lake
- Premier Management Training Unit (Indian ARMY), New Town, Rajarhat
- Institute of Computer Engineers (Engineering & Medical College-cum-Hospital), New Town, Rajarhat.
- Indian Institute of Engineering & Management, Salt Lake etc to name a few.

5. TRANSPORT & CONNECTIVITY : Two national Highway – NH 34, NH 35 travers through the district connecting ports, airports and other important commercial centers in the district. The major land port of the State is situated at Petrapole near Bongaon Town of North 24 Parganas district connecting Bangladesh with Kolkata thereby rest of the country through NH 35 (Jessore Road) and promoting International trade with Bangladesh.

The railway line connects Hasnabad in Basirhat and Bongaon from and to Sealdah in Kolkata. Bongaon is connected to Ranaghat in neighboring Nadia district. A railway line has been opened for transport of goods to Bangladesh via Petrapole border.

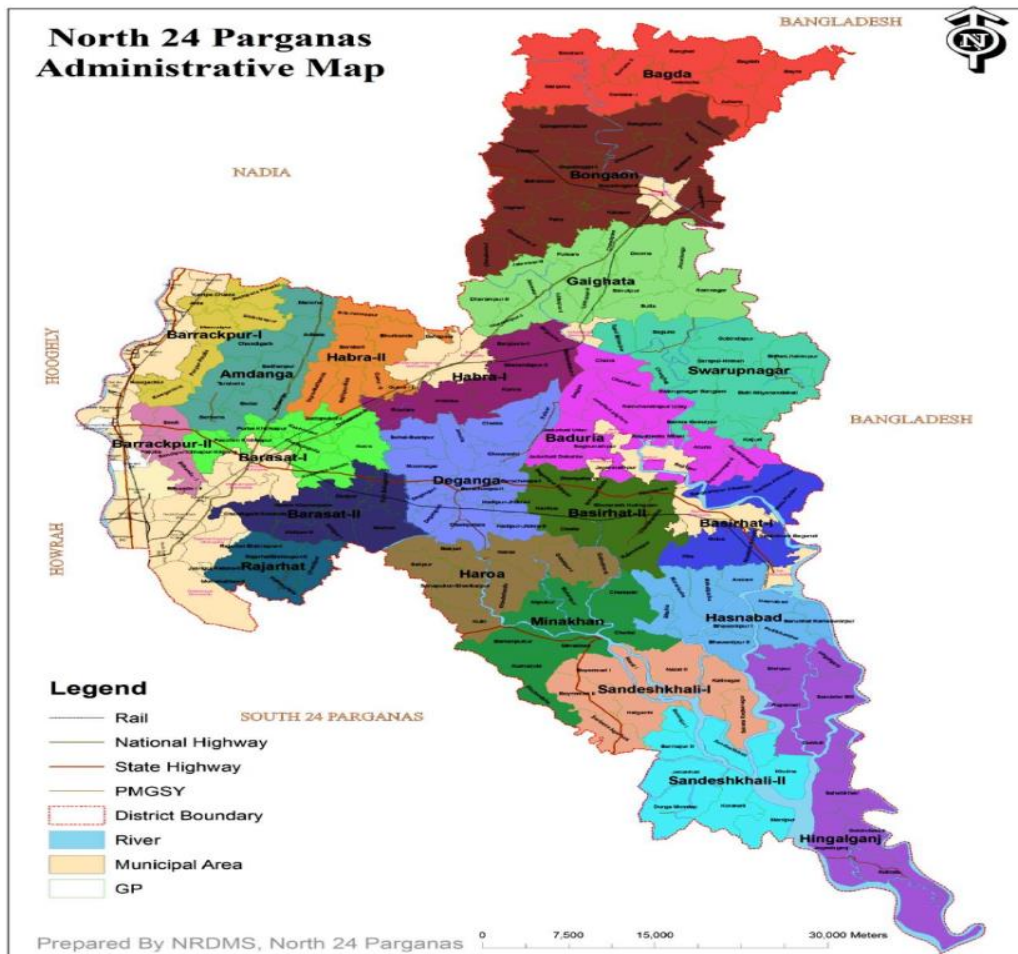
Netaji Subhas International Airport, the only international airport of the State is at Dum Dum, North 24 Parganas which provides national and international connection to all major cities and towns in India as well as to major International destinations. This district is also proximate to the Kolkata and Haldia Port.

6. ARCHAEOLOGICAL, HISTORICAL AND OTHER PLACES OF INTEREST: The District of North 24 Parganas has vast heritage resources and abundance of natural beauty, particularly the southern part of the district that is part of Sundarbans, now a UNESCO accredited World (Ecological) Heritage Site.

The district also boasts of hundreds of sites of historical and archeological importance, the most famous perhaps being Chandraketugarh at Berachampa under Deganga Block. Excavation at the site and had connections with other contemporary international ports of the world.

a. District Administrative Set-up:

1. Name of District : North 24 Parganas
2. No. of Police District : 03 (Barasat Police District, Basirhat Police District, Bongaon Police District)
3. No. of Police Commissionerate : 02 (Bidhannagar Police Commissionerate, Barrackpore Police Commissionerate)
4. No. of Health District : 02 (Barasat Health District, Basirhat Health District)
5. No. of Sub-Divisional Office : 05 (Barasat SDO, Bongaon SDO, Basirhat SDO, Bidhannagar SDO, Barrackpore SDO)
6. No. of Municipal Corporation : 01 (Bidhannagar Municipal Corporation)
7. No. of Blocks : 22
8. No. of Municipalities : 26
9. No. of Wards : 687
10. No. of Gram Panchayats : 199



District Environment Plan North 24 Parganas

b. Local institutions:

Sub-Division	Blocks	No. of Samities	No. of Gram Panchayats	Municipalities
Bongaon Sub – Division	Bagdah	1	9	-
	Bongaon	1	16	-
	Bongaon (M)	-	-	1
	Gaighata	1	13	-
Barasat Sub - Division	Habra-I	1	7	-
	Habra-II	1	8	-
	Habra (M)	-	-	1
	Gobardanga (M)	-	-	1
	Ashoknagar - Kalyangarh (M)	-	-	1
	Barasat-I	1	9	-
	Barasat-II	1	7	-
	Barasat (M)	-	-	1
	Madhyamgram (M)	-	-	1
	Amdanga	1	8	-
	Deganga	1	13	-
	Rajarhat	1	5	-
	Rajarhat Gopalpur	-	-	1
	Barrackpore Sub - Division	Kanchrapara (M)	-	-
Halisahar (M)		-	-	1
Barrackpore-I		1	8	-
Naihati (M)		-	-	1
Bhatpara (M)		-	-	1
Garulia (M)		-	-	1
North Barrackpore (M)		-	-	1
Barrackpore (M)		-	-	1
Titagarh (M)		-	-	1
Kardah (M)		-	-	1
Barrackpore-II		1	6	-
Panihati (M)		-	-	1
New Barrackpore (M)		-	-	1
Kamarhati (M)		-	-	1
Baranagar (M)		-	-	1
Dum Dum (M)		-	-	1
South Dum Dum (M)		-	-	1
North Dum Dum (M)		-	-	1
Bidhannagar Sub - Division		Bidhannagar Municipal Corporation	-	-
Basirhat Sub – Division	Baduria	1	14	-
	Baduria (M)	-	-	1
	Haroa	1	8	-
	Minakhan	1	8	-
	Swarupnagar	1	10	-
	Hasnabad	1	9	-
	Taki (M)	-	-	1
	Hingalgunj	1	9	-
	Sandeshkhali-I	1	8	-
	Sandeshkhali-II	1	8	-
	Basirhat-I	1	7	-
	Basirhat-II	1	9	-
	Basirhat (M)	-	-	1
	Total		22	199

c. Natural Resources

- **Water bodies:** The main rivers of the district of North 24 Parganas are Ichhamati, Kalindi, Raimangal, Dansa, Borokalagachi, Benti, Haribhanga, Gaourchar, Bidyadhari, Hooghly, etc. Ichhamati is the longest among these rivers. It enters the district through Bagdah block in the north of the district from Nadia and flows south through Bangaon, Swarupnagar, Baduria, Bashirhat-I, Hasnabad and Hingalganj. This river flows into river Kalindi and Kalindi in turn flows into Raimangal. It indicates the borderline between India and Bangladesh during its course of flow from Bashirhat to Hingalganj. River Hooghly lies between Hooghly and North 24 Parganas district.
- **Availability of water resources:** The water mainly neutral to mildly alkaline in nature and pH value ranges between 7.5 and 8.2. Total hardness as CaCO₃ ranges from 140-670 mg/l. Generally iron content is above permissible limit in all the blocks ranges from 1.23-18.10 mg/l. but in few places it is found even of the order of 0.09-0.56 mg/l. Shallow aquifers within the depth of 100 mbgl show arsenic concentration > 0.05 mg/l occurring in 253 mouzas in 17 blocks of the district. Deeper aquifers down to the depth of 350 mbgl are arsenic free.
- **Forest coverage:** The district has no forest area as such except the Sunderbans Reserve Forests. The total area under reserve forest is 91.98 hectares covering 1.05% of the total geographical area of the district. Out of these 91.98 hectares, 63.00 hectares have been earmarked as Bhibhuti Bhushan Wildlife Sanctuary. However, these forests being positioned in the largest delta of the world, has a major role to play in maintaining the ecological balance of southern part of the State.

d. Geography & Demography

The district of North 24 Parganas falls within the new alluvium sub-region of the lower Gangetic Plain (Zone-III) and considered being most fertile for crop production. The soil type varies from sandy to clay sandy loam being the predominant ratio of high: medium: low land is 17:33:39. The soil of northern part of district is sandy, in the central middle part it is sandy with clay loam and in southern side it is clay loam. The physiographic structure of the district is mostly plain.

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e. Land-use pattern

Increase in land surface temperature (LST) of growing urban areas in the current global warming scenario is a cause of concern for city planners. This study discusses the impact of land-use/land-cover (LULC) change on LST of the area in and around Rajarhat block, North 24-Parganas District, West Bengal, covering an area of 165 km². Multi-spectral and multi-temporal satellite data from Landsat 5 TM (1990), Landsat 8 OLI (2016) and Sentinel 2A (2016) are used for the LULC mapping, and thermal infrared data from Landsat 5 TM and Landsat 8 TIRS (2016) are used for estimating the LST of 1990 and 2016. Results show that land-use pattern in November has changed in Rajarhat from 1990 to 2016: 13 km² of vegetation cover lost due to urbanization; 9.3 km² of open land converted to agricultural land and open fields/parks; 1.4 km² of aquaculture ponds converted to tree cover/scrublands and 1.45 km² of lakes/ponds filled up. Loss of vegetation (scrubland and tree) cover resulted in LST rise by about 1.5 °C. Aquaculture ponds have the ability to resist the rise in LST since the increase in temperature of this class is only 0.24 °C due to increase in its area. This change in land-use pattern over 26 years has increased the LST by 0.94 °C. The urban-heat-island (UHI) phenomenon has also increased. The area of the 'strongest' heat-island phenomenon, as per UTVFI classification scheme, has increased by 20.1 km². Positive correlation is observed between NDBI and LST's of urban areas ($r = 0.002$ for 1990 and $r = 0.047$ for 2016) which suggests that urbanization is responsible for the rise in LST. The NCEP NOAA surface temperature model suggests that the long-term trends in the rise in maximum LST over Rajarhat is about 1 °C from January 1990 to November 2016 with 90% confidence level validating the extracted LST data from satellites. Sustainable urban planning is required to arrest the rise in LST which includes urban forestry, construction of water bodies and fountains,

preserving existing aquaculture ponds and reducing construction activities. © 2019, Indian Society of Remote Sensing.

f. Climate

The climate is tropical, like the rest of the Gangetic West Bengal. It is also characterised by the Monsoon, which lasts from early June to mid September sometimes in October. The weather remains dry during the winter (late November to mid February) and too humid during summer.

Temperature ranges from 41 °C in May and 10 °C in January while relative humidity ranges between 50% in March & 90% in July. The average annual rainfall is 1,579mm.