

Draft

Coastal Zone Management Plan of West Bengal

Department of Environment, Govt. of West Bengal

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Abbreviations

BRGFP	:	Backward Regions Grant Fund Programme
CCVA	:	Critically Vulnerable Coastal Areas
CD	:	Community Development
CRZ	:	Coastal Regulation Zone
CZMP	:	Coastal Zone Management Plan
DSDA	:	Digha Sankarpur Development Authority
DSPA	:	Digha Sankarpur Planning Area
E	:	East
ESA	:	Ecologically Sensitive Areas
GBDA	:	Gangasagar Bakkhali Development Authority
GDDP	:	Gross District Domestic Product
HAD	:	Haldia Development Authority
HTL	:	High Tide Line
LTL	:	Low Tide Line
MoEF&CC	:	Ministry of Environment, Forest & Climate Change
N	:	North
NDZ	:	No Development Zone
S	:	South
SEZ	:	Special Economic Zone
UT	:	Union Territories
W	:	West
WBSCZMA	:	West Bengal State Coastal Zone Management Authority

Foreword

The West Bengal Coastal Zone Management Plan (CZMP) was prepared and notified in 1996. In 2011 Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India, brought in changes in classifications and management of coastal areas and requested all coastal State Government & Union Territories to revise their existing CZMPs.

It was also felt that more accurate and geo referenced maps are required for the CZMP to be effective.

The Government of West Bengal decided to take up revision of the Coastal Zone Management Plan for West Bengal. In order to perform the work, Department of Environment, Government of West Bengal constituted -

- a) Steering Committee involving all the stake holder departments for framing policy decisions, identifying areas to be classified into different CRZ categories, and to identify proposed developmental activities to be taken up in each zone, and
- b) Working Group involving experts in field, personnel of the Department and the Institute of Environmental Studies and Wetland Management (IESWM) for preparation of the CRZ maps, demarcating of HTL, LTL, ESA, as well as 500m, 200m and 100m lines & below and also the Land use maps for the Coastal regulation areas.

The Department of Environment, Government of West Bengal entrusted the Institute of Environmental Studies and Wetland Management, (an authorised Institute) for preparing the CRZ maps based on the HTL and ESA provided by NCSCM.

As was decided by MoEF&CC, National Centre for Sustainable Coastal Management (NCSCM) Chennai, was assigned the task of demarcation of HTL and LTL and Eco Sensitive Areas (ESA) of all the coastal states, so as to maintain procedural uniformity.

NCSCM provided the HTL and ESA maps to West Bengal. LTL was not provided by NCSCM and IESWM prepared the LTL for the coast line.

The Working Group guided the preparation of the CRZ maps and the land use (LULC) maps for the coastal areas. Meetings with stakeholder departments were held and suggestions were invited on the draft maps.

A high level consultative meeting was held with the stake holder departments under the Chairmanship of the Chief Secretary of the State to examine the draft plan and make suggestions.

Finally public hearings were held in the three coastal districts.

The CZMP was prepared after considering all views and suggestions.

The CZMP of West Bengal has been prepared in two parts:-

The first part is the written document, describing the Areas falling within different CRZ, activities permissible and proposed in such areas;

The second part is the CRZ & LULC maps in 1:25000 scale printed in A1 size stationery. Maps in A2 size stationery had also been printed for ease of use. The maps have been arranged in

separate booklets for the three coastal districts namely Purba Medinipur, South 24 Parganas and North 24 Parganas.

The CZMP will guide activities in the coastal districts of the state in the coming years.

1 Introduction

1.1 About India's Coastline

The Indian peninsular has a coastline that stretches for 7516.6 km with 9 States and 2 Union Territories (UTs) bordering it from west to east and 2 island territories. These are:

- ❖ **Maritime States:** Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal
- ❖ **Maritime UTs:** Daman & Diu, Puducherry
- ❖ **Island Territories:** Andaman & Nicobar Is., Lakshadweep Is.

Coastal India spans from along the Arabian Sea from the coastline of the Gulf of Kutch in its westernmost corner and stretches across the Gulf of Khambat, through Konkan and southwards across the Raigad region further down Mangalore along the Malabar coast through Cape Comorin in the southernmost region of South India with coastline along the Indian Ocean and through the Coromandel Coast. The coastline on the South Eastern part of the Indian Subcontinent along the Bay of Bengal through the Utkal Kalinga region extends until the easternmost corner of shoreline near the Sundarbans in Coastal Eastern India.

1.2 Coastline of West Bengal

West Bengal is the eastern most state of the Indian coastline along the Bay of Bengal and commands a significant geographical location harbouring the River Ganga estuary (Hooghly-Matla estuarine complex), shared with the neighbouring country Bangladesh. It has a coastline stretching for about 220 km across its three coastal districts namely North 24 Parganas, South 24 Parganas and Purba Medinipur. These three districts constitute the Coastal Zone Management Plan, henceforth known as CZMP area with specific focus on their coastal stretches.

The Coastal Zone Management Plan area stretches from the northern limit bounded by the confluence of River Hooghly and River Roopnarayan, the mouth of the river Subarnarekha on the west (bordering the state of Odisha) to the mouth of River Harinbhanga on the east (bordering Bangladesh) and Southern limit of Diamond harbour Municipality on the eastern bank of Hooghly and then extending eastward along the Dampier Hodges line upto



Figure 1 Map of West Bengal and CZMP Area Districts

part of Hasnabad in North 24 Parganas district. The coastal zone covers important beaches like Digha, Sankarpur, Mandarmani, Tajpur, Sagar, Bakkhali, Frezargaunge, and places of important pilgrimage like Ganga Sagar Island, besides Mangrove forests of the Sundarbans, Nijkasba and the wildlife sanctuaries (Sajnekhali, Halliday and Lothian), one national park (Sundarbans National Park), the Sundarbans Tiger Reserve besides areas like Sankarpur Fishing Harbour etc.

1.2.1 Geomorphological Characteristics of the Bengal Coastline¹

The Bengal basin in its southern extremity is characterized by the presence of an extensive marine-coastal tract, bordered by the Bay of Bengal. This coastal stretch covers the southern part of West Bengal, India in the west and Bangladesh to the east. Physiographically, the coastal belt of West Bengal comprises of the Hooghly estuary in the east and the Medinipur Coastal plain (part of the Balasore Contai Coastal Plain) in the west with the Hooghly River in between.

The macrotidal Hooghly estuary (tidal range >4m) forms the western part of the Ganga-Brahmaputra delta. The bell or funnel shaped Hooghly river mouth is characterized by a group of islands set in a labyrinth of tidal creeks marking their outlines. This microtidal domain with bi-directional tidal currents is marked by the presence of 'sickle-shape' near offshore configuration with partially or totally emerged linear tidal shoals (aligned perpendicular to the shoreline) separated by intervening swales e.g. Jambudwip and Chuksardwip.

The mesotidal (tidal range 2 to 4m) Medinipur coastal plain is characterised by the presence of successive rows of dunes with interveining clayey interdunal flats with tidal influence. It extends from Digha (Udaypur/Talsari) in the west to Junput in the east with a linear stretch of 46 km and is segmented into four sectors viz. Digha, Shankarpur / Chandpur, Dadan Patrabar and Junput sectors by major tidal creeks viz. Ramnagar Khal, Jaldha creek and Pichaboni Khal respectively.

The entire West Bengal coastal line may be subdivided into three (3) zones in the context of the CZMP:

1. Harinbhanga River mouth to Hooghly river mouth with suburban core forest area and the reclaimed area with human settlement covering some blocks of North & South 24 Parganas.
2. Along Hooghly river upto the southern limit of Diamond Harbour Municipality beyond the Kulpi point in the east and upto confluence of River Rupnarayan with Hooghly beyond Haldia port in the west.
3. Digha Junput coastal plain in Purba Medinipur district.

Each of the zones are exhibiting very specific 'geo-bio-cultural' characteristics of delineation of CRZ with present day and futuristic consideration as the West Bengal coastal zone scenario is very different from the other parts of the country due to the human settlement after the partition in 1947, when huge influx of refugees from the erstwhile East Pakistan assembled in West Bengal.

Geomorphology of the Medinipur Coastal Plain, Purba Mednipur District:

The different terrain units present in this district are beach face, beach front dune complex, remobilised sand, present day intertidal flat.

The 'Ancient Dune Complex' though not present in the eastern part of the Hooghly estuary, is represented by a 'morpho-structural lineament' which marks the ancient strand line around 6000 yrs.B.P. in the region.

The beach face of Digha-Junput coastal Plain, in general, is characterized by about 6m thick cover of sand underlain by intertidal clay deposits in the Digha sector which dwindles down to

¹ Chakrabarti, Parthasarathi, Nag, Sanjoy (2015) Rivers of West Bengal, Changing Scenario, *Geoinformatics and Remote Sensing Cell, West Bengal State Council of Science & Technology*

about 1.50m in the Junput sector. This indicates that the thickness of sand cover in the beach face is thinning out towards Hooghly estuary i.e. from west to east.

In comparison to the Hooghly estuary (i.e. Bakkhali and Gangasagar beaches) the 'clay windows' of the beach face of the Digha-Junput coastal plain are almost devoid of mangrove roots and stumps. However, in the Subanarekha river mouth, Odisha, 'clay windows' with mangrove roots are common.

It may be mentioned here that the mangrove colonization in general, depends on

- i) duration of tidal submergence
- ii) amount of fresh water discharge and
- iii) The substrate condition.

The vegetation difference between the Hooghly estuary and Digha-Junput Coastal Plain is probably due to:

- a. Hooghly estuary is a macrotidal delta and Medinipur Coastal belt is mesotidal in nature. Period of tidal submergence is more in the Hooghly estuary than in the Digha-Junput Coastal Plain
- b. A close network of tidal creek system prevails in the Hooghly estuary with more freshwater discharge; whereas widely spaced tidal creeks are present in the Digha-Junput Coastal Plain and is devoid of any major river with fresh water discharge
- c. In the Hooghly estuary, clayey terrain units with clay substrate is in abundance whereas the Digha-Junput Coastal Plain has extensive sandy terrain units with sandy substrate

Geomorphology of the Hooghly Estuary:

The Hooghly estuary is characterized by the presence of:

- i) islands separated from the main landmass either by distributory channels or tidal creeks (viz. Namkhana- Fraserganj, Mahisani, sagar islands etc. upto the sundarban core forest islands, and,
- ii) tidal shoals present in the offshore (viz. Jambudwip, Chuksardwip) and Hooghly river channel mouth bars (viz. Nayachar islands, Ghoramara, etc.) the different terrain units present in the first group of islands are – beachface, beach front dune complex, remobilised sand, present day intertidal flat.

In tidal shoals etc. the different terrain units are intertidal sand/ mud flats, mangrove swamp zone, supratidal core zone, etc.

From a system analysis point of view, the estuarine part is the most dynamic dispersal region of river-dominated sedimentation which contributes to delta formations/progradations. River mouth processes, therefore, determine the patterns by which effluents from river mouths spread, decelerate and deposit their sediment load. The depositional morphologies (and sedimentary sequences) of river mouth systems consequently depend upon them. In a macrotidal (tidal range > 4m) environment this depositional pattern is strongly influenced by tidal processes which often dominate over the riverine process. Despite the complexities, the depositional morphology of such macrotidal river mouth exhibit many common attributes.

In the lower deltaic plain/estuarine area, the surficial deposits and morphological arrangement of land features or the geomorphological 'lay of land', '*sensu stricto*' fail to provide a chronological / chronostratigraphical account of the development of thick pile of sediments. But morphogenetic study based on terrain mapping unit (TMU) concept with 'zooming-in ' approach i.e. starting from use of satellite imagery/aerial photographs supported by ground truth and laboratory studies (e.g. sedimentological, mineralogical, palaeontological analysis and C₁₄ dating) reasonably establish the form-process-material relationship of the deltaic progradation in immediate past. Furthermore, subsurface data from bore holes provide additional information (regarding materials) for building up a geo-history model at least of the Late Quaternary.

In detail, the near surface succession consists of a base of tidal sands overlain by thick black organic clay deposits (Interdistributory Mangrove Marsh deposit of the area). This clay bed grades into distributory levee of sand and silt intercalations or to beach front dunes and beach face deposits only locally. The beach front dune complex along the sea front is, at present, in

dynamic geomorphic equilibrium. The complete sequence of dune (due to aeolian action) and beach face (due to swash-backwash action) form only a surface skin over the eroded off-lapped clay deposits with mangrove vegetation.

In a macrotidal delta/estuary the tidal currents have a major effect on mixing of river water and sea water as well as sediment redistribution. Such tide dominance at the river mouth has created bell or funnel shaped channel with regimes of intense meandering near the upper limit of tidal influence. The rate of seaward widening is generally exponential. At the mouth of the distributaries the terrigenous sediment (mainly the river borne sediments) are rapidly reworked by the tidal currents into a series of linear subaqueous ridges within the distributary mouth and further seaward. These ridges generally form by the lateral convergence of ebb and flood dominated sediment transport and is separated by deep channels which give a sickle shaped appearance in the outer estuary. As the delta builds gradually seawards, former sand ridges are exposed above sea level and become colonized by vegetation to form linear islands (cf. 'tidal shoals').

Vegetation (in response to a warm-humid climate) plays a significant role as a dominant geomorphic agent in the evolution of the tidal shoals (cf. Davies, 1980) and their eventual accretion to the main landmass resulting in delta progradation. Once the tidal shoals emerge out of the high tide level, mangrove colonies step in and act as sediment trappers. The biological wastes from these vegetation colonies are rather high and it also contributes to the sediment accumulation by way of organic debris. The result is the building up of the tidal shoals as permanent islands. Gradually, the tidal shoals become coated with a sequence of intertidal and supratidal fine grained sediments and draped with mangroves. (e.g. Jambudwip and Chukswardwip in Hooghly estuary). The areas between the tidal current ridges (i.e. tidal shoals) eventually become tidal channels and ultimately fluvial channels (e.g. Muri Ganga, Pitt's creek between the present day islands) as progradation continue. A close look at the published map of 1917 of the southern part of Bengal reveals that a number of small islands are present in the areas which are Fraserganj Island, Fredrick's island and Henry's islands separated from each other by tidal creeks. But the present day survey reveals that all the islands are welded into a single mass and the tidal creeks are either represented as Intertidal Mud Flat or Neo-interdistributary Mangrove Marsh zone. Similarly, the present day configuration of Sagar Island reveals that a number of small isolated islands earlier separated by tidal creeks are now welded, almost, into a single landmass due to gradual reduction of the width of the tidal creeks.

It may be mentioned here that the actual (original) geomorphological 'lay of land' of these islands is partially obliterated within a span of human life due to the man-made clearing of the mangrove forests for human settlement providing embankments and reclamation of land for cultivation, fisheries etc. (i.e. impact of man as a geomorphological process - cf. Verstappen, 1985).

The entire process-response system in the area under reference has been active during the Holocene time of Quaternary period (cf. Hails, 1977), which could be supported by the following evidences:

- I. In the western part of the Hooghly estuary i.e. in the adjoining Medinipur (Digha-Junput) Coastal Plain, the Ancient Dune Complex is present as a continuous ridge extending from west of Subarnarekha river (in the west) to the Hooghly river in the east, at a distance of about 10 to 15km north of the present day shore line. The C14 dating of the sediments (clay) from Ancient Fluvio-tidal Flat (Brajaballavpur village at 2.5m b.g.l.) bordering the Ancient Dune Complex in the south, gives an age of 5760 ± 140 Yrs. B.P. (Chakrabarti, 1991a; 1995). This confirms that the higher strand line in the post-glacial (Holocene) period (around 6000 Yrs. B.P.) is, at present, represented by this Ancient Dune Complex. This dune ridge is very clearly observed in the satellite imagery both in B&W and FCC (TM). The continuity of this dune ridge is absent in the eastern part of Hooghly river but presence of a morpho-structural lineament in the same alignment of the said dune ridge can be mapped which passes just north of Sagar island, through Kakdwip, in a northeasterly direction and separates the lower deltaic plain of Ganga-Brahmaputra in two sectors (Chakrabarti, 1995):

- a. The areas to the south of this line are characterized by the presence of islands (draped with mangroves) separated by an 'embroidery' of active tidal creeks.
 - b. The areas to the north of this line are almost free from such 'embroidery' of tidal creeks and islands.
- II. The Intertributary Mangrove Marsh deposit (clay) of the Hooghly estuary is present to the south of this lineament. This clay sequence is characterized by the presence of brackish water mangrove bio-assemblage (e.g. *Ceriops*, *Rhizophora*, *Chenopdiceae*, *Heriteria*, Graminae, Palmae, *Circulisporites* etc. - cf. Banerjee & Sen, 1988). The C₁₄ dating of this clay sample from Ganga sagar at 0.90m b.g.l. gives an age of 2900 ± 20 Yrs. B.P. (Chakrabarti, 1991a) and 3170 ± 70 Yrs. B.P. from Namkhana (Gupta, 1981). This clay sequence could easily be correlated with the clay deposits of Ancient Intertidal Flat terrain unit (just south of the Ancient Dune Complex - the 'ancient strand line') of Medinipur Coastal Plain, as this clay from Madhavpur village, at depth of 2.40 - 2.70m b.g.l. gives an age of 2920 ± 160 Yrs. B.P. (Chakrabarti, 1995).

From the above discussion, it can be inferred that the lineament in the eastern part of the Hooghly estuary is the imprint of 'ancient strand line' of the area under reference. The absence of dune ridge could be explained by its obliteration by the tidal network ('rejoining' type of drainage pattern) of the Ganga-Brahmaputra delta system (cf. Hails, 1977).

The progressive southward shifting of the coast line towards the present shoreline could also be explained by the difference in age of the surficial intertributary mangrove marsh clay at Namkhana (3170 ± 70 Yrs. B.P.) in the north and that at Gangasagar (2900 ± 20 Yrs. B.P.) in the south.

It may be mentioned here that the HWL shifting in the Hooghly estuary through years is parallel to the earlier shorelines. In addition, the numerical average of HWL shifting through years in the 20th century as discussed above cannot be attributed primarily to the relative sea level rise phenomenon as postulated by some researchers (cf. Hazra, 2002); especially when the area under reference is affected by 'structural lowering' or Geosynclinal down warping' (Sengupta, 1966; Roy Barman, 1983) along with 'auto-compaction' of Holocene sediments (cf. Nandy & Bandopadhyay 2011) as well as geographical position in lower latitudinal belt where transmission of the effect of melting of Polar Ice sheets is delayed in comparison to the cooler higher latitude, for example, in N. Atlantic (cf. Banerjee, 1994).

1.2.2 Climatic Profile of the Bengal Coastline

The Bengal coastline falls within the meteorological subdivision of the Gangetic West Bengal with the three districts of the coastline falling in three sub zones: Purba Medinipur constitutes the Coastal Plains, North 24 Parganas falls in the Gangetic Plains along with the northern portion of the South 24 Parganas, and the Sundarbans Area constitutes the remaining side of the South 24 Parganas.

The map alongside of the average annual rainfall of the state shows the coastal areas receiving an average of 161 – 200 cm of rainfall.

In North 24 Parganas, the climate is tropical, like the rest of the Gangetic West Bengal. It is also characterized by the Monsoon, which lasts from early June to mid-September. The

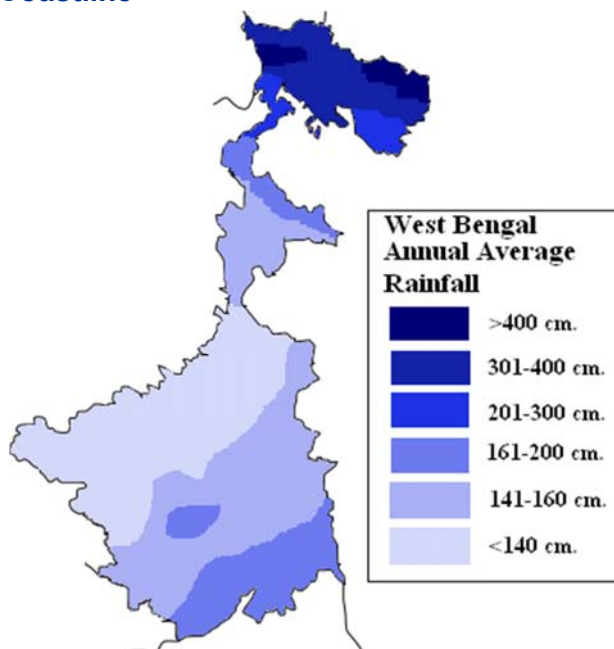


Figure 2 Annual Average Rainfall Map of West Bengal

weather remains dry during the winter (mid-November to mid-February) and humid during summer. Annual Rainfall is 1,579 mm (average), Temperature is 41°C in May (Max) and 10°C in January (Min) and Relative Humidity is between 50% in March & 90% in July.

South 24 Parganas is characterized by hot and humid climate. It receives adequate rainfall from North-East and South-West monsoons which set in the latter half of June and withdraw by the middle of October. Pre-monsoon rains are received during March-April. May is the hottest month with temperature as high as 40°C and January is the coldest month with temperature as low as 10°C.

Purba Medinipur has tropical climate. Average temperature varies from 25.5°C to 38.6°C. Rainfall occurs regularly and unevenly during the monsoon season. The normal rainfall is 1752.6 mm. The five coastal blocks of the district are affected by cyclones and tornadoes occasionally. Tidal floods are quite regular in these five Blocks. Normally floods hamper the normal lifestyle in 21 Blocks.

1.3 Demographic Profile of the Study Area

1.3.1 North 24 Parganas

With its headquarters at Barasat, the North 24 Parganas district extends in the tropical zone from latitude 22°11'6" N to 23°15'2" N and from longitude 88°20' E to 89°5' E. It is bordered to Nadia district by north, to Bangladesh (Khulna Division) by north and east, to South 24 Parganas, Kolkata, Howrah and Hooghly districts by west, and South 24 Parganas in the south.

According to the 2011 census, the district had a population of 10,009,781², giving it the distinction of being the 2nd most populous district of India (after Thane in Maharashtra). However, the 2014 split of the Thane district re-designated North 24 Parganas as the most populous district of India. The district has a population density of 2,445 inhabitants per km² with a decadal population growth rate of 12.0% (2001-11). The district has a sex ratio of 955 males per 1000 females. The mean age of the district population is 31.38 years³ with an age split provided alongside. The block wise population of the district is as follows (coastal blocks are highlighted in blue):

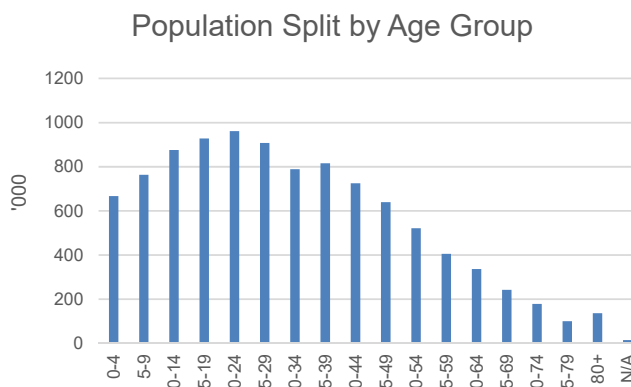


Figure 3 Population 2011 of North 24 Parganas

Table 1 Blockwise Population 2011 of CZMP Areas of North 24 Parganas with CZMP Blocks

Block Name	Population (2011)
South Dum Dum (M)	4,03,316
Rajarhat Gopalpur (M)	4,02,844
Bhatpara (M + OG)	3,86,019
Bongaon	3,80,903
Panihati (M)	3,77,347

² Census of India District Profile 2011

http://www.censusindia.gov.in/2011census/dchb/DCHB_A/19/1911_PART_A_DCHB_NORTH%20TENTY%20FOUR%20PARGANAS.pdf

³ Census 2011 Age Group Data <http://www.censusindia.gov.in/2011census/C-series/c-14/DDW-1900C-14.xls>

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<i>Block Name</i>	<i>Population (2011)</i>
Gaighata	3,30,287
Kamarhati (M)	3,30,211
Deganga	3,19,213
Barasat - I	2,94,628
Baduria	2,85,319
Barasat (M)	2,78,435
Swarupnagar	2,56,075
North Dum Dum (M)	2,49,142
Baranagar (M)	2,45,213
Bagda	2,42,974
Basirhat - II	2,26,130
Habra - I	2,25,200
Naihati (M)	2,17,900
Barrackpur - II	2,17,171
Bidhannagar (M)	2,15,514
Haroa	2,14,401
Hasnabad	2,03,262
Barasat - II	2,00,918
Minakhan	1,99,084
Madhyamgram (M)	1,96,127
Amdanga	1,91,673
Rajarhat	1,89,893
Barrackpur - I	1,82,845
Habra - II	1,76,490
Hingalganj	1,74,545
Basirhat - I	1,71,613
Sandeshkhali - I	1,64,465
Sandeshkhali - II	1,60,976
Barrackpore (M)	1,52,783
Habra (M)	1,47,221
North Barrackpore (M)	1,32,806
Kanchrapara (M + OG)	1,29,576
Basirhat (M)	1,25,254
Halisahar (M)	1,24,939
Ashokenagar Kalyangarh (M)	1,21,592
Titagarh (M)	1,16,541
Dum Dum (M)	1,14,786
Bongaon (M)	1,08,864
Khardah (M)	1,08,496
Garulia (M)	85,336
New Barrackpore (M)	76,846
Baduria (M)	52,493
Gobardanga (M)	45,377
Taki (M)	38,263
Barrackpur Cantonment (CB)	17,380
Nabadiganta Industrial Township (ITS)	1,095

1.3.2 South 24 Parganas

With its headquarters at Alipore, the South 24 Parganas district is bordered by North 24 Parganas, Kolkata & Howrah districts to the north, North 24 Parganas and Bangladesh to the east, Howrah District and Hooghly River adjoining Purba Medinipur district to the west, and Bay of Bengal towards the south.

According to the 2011 census, the district had a population of 8,161,961⁴, giving it the distinction of being the 6th most populous district of India. The district has a population density of 819 inhabitants per km² with a decadal population growth rate of 18.2% (2001-11). The district has a sex ratio of 956 males per 1000 females. The mean age of the district population is 28.17 years⁵ with an age split provided alongside. The block wise population of the district is as follows (coastal blocks are highlighted in blue):

Population Split by Age Group

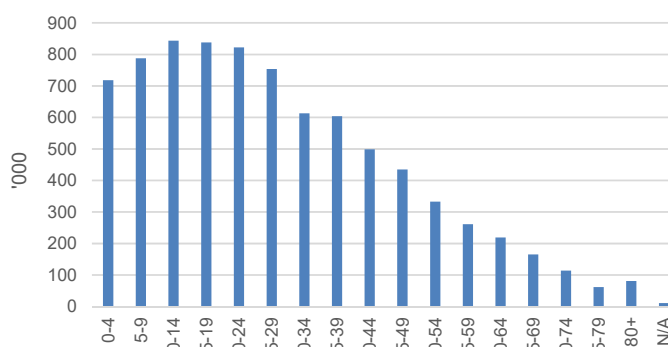


Figure 4 Population 2011 of South 24 Parganas

Table 2 Blockwise Population 2011 of CZMP Areas of South 24 Parganas with CZMP Blocks

Block Name	Population (2011)
Maheshtala (M)	4,48,317
Baruipur	4,33,119
Rajpur Sonarpur (M)	4,24,368
Basanti	3,36,717
Patharpratima	3,31,823
Magrahat - II	3,04,744
Canning - I	3,04,724
Kulpi	2,83,197
Kakdwip	2,81,963
Magrahat - I	2,69,494
Jaynagar - I	2,63,151
Canning - II	2,52,523
Jaynagar - II	2,52,164
Falta	2,49,561
Bhangar - I	2,49,170
Bhangar - II	2,46,708
Gosaba	2,46,598
Bishnupur - I	2,32,365
Kultali	2,29,053
Mathurapur - II	2,20,839
Sonarpur	2,19,863
Bishnupur - II	2,14,531
Mandirbazar	2,14,050
Sagar	2,12,037
Mathurapur - I	1,95,104

⁴ Census of India District Profile 2011

http://www.censusindia.gov.in/2011census/dchb/DCHB_A/19/1917_PART_A_DCHB_SOUTH%20TENTY%20FOUR%20PARGANAS.pdf

⁵ Census 2011 Age Group Data <http://www.censusindia.gov.in/2011census/C-series/c-14/DDW-1900C-14.xls>

Block Name	Population (2011)
Budge Budge - II	1,92,134
Diamond Harbour - II	1,90,801
Namkhana	1,82,830
Thakurpukur Mahestola	1,76,203
Diamond Harbour - I	1,56,166
Budge Budge - I	1,12,908
Budge Budge (M)	76,837
Baruipur (M)	53,128
Diamond Harbour (M)	41,802
Pujali (M)	37,047
Jaynagar Mazilpur (M)	25,922

1.3.3 Purba Medinipur

With its headquarters at Tamluk, the Purba Medinipur district is bordered by Paschim Medinipur towards the north & west, and Howrah district adjoining Roopnarayan River and south 24 parganas district adjoining river Hooghly to the north and east. It shares its borders with Odisha to its west and the Bay of Bengal to its east and south.

According to the 2011 census, the district had a population of 5,095,875⁶, giving it the distinction of being the 20th most populous district of India.

The district has a population density of 1,076 inhabitants per km² with a decadal population growth rate of 15.4% (2001-11). The district has a sex ratio of 938 males per 1000 females. The mean age of the district population is 29.20 years⁷ with an age split provided alongside.

The block wise population of the district is as follows (coastal blocks are highlighted in blue):

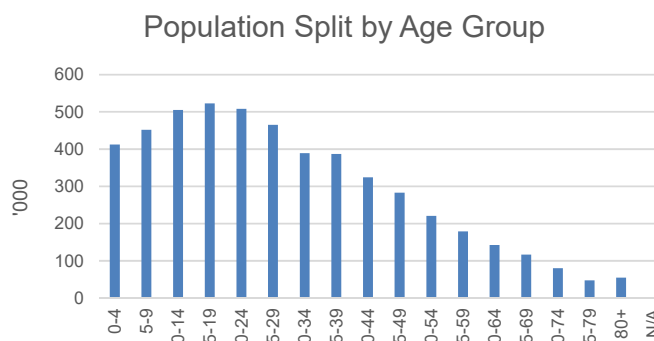


Figure 5 Population 2011 of Purba Medinipur

Table 3 Blockwise Population 2011 of CZMP Areas of Purba Medinipur with CZMP Blocks

Block Name	Population (2011)
Kolaghat	2,90,124
Panskura	2,83,303
Nanda Kumar	2,62,998
Bhagawanpur - I	2,34,432
Moyna	2,26,927
Tamluk	2,17,776
Nandigram - I	2,07,835
Mahisadal	2,06,277
Haldia (M)	2,00,827
Sahid Matangini	1,99,210
Bhagawanpur - II	1,92,162
Chandipur	1,88,119
Egra - II	1,78,763

⁶ Census of India District Profile 2011

http://www.censusindia.gov.in/2011census/dchb/DCHB_A/19/1919_PART_A_DCHB_PURBA%20MEDINI_PUR.pdf

⁷ Census 2011 Age Group Data <http://www.censusindia.gov.in/2011census/C-series/c-14/DDW-1900C-14.xls>

<i>Block Name</i>	<i>Population (2011)</i>
Deshopran	1,76,393
Potashpur - II	1,75,056
Potashpur - I	1,73,377
Contai - I	1,70,894
Ramnagar - I	1,67,330
Egra - I	1,67,163
Contai - III	157,793
Ramnagar - II	1,56,054
Khejuri - II	1,39,463
Khejuri - I	1,32,992
Sutahata	1,23,784
Nandigram - II	1,23,219
Haldia	97,992
Contai (M)	92,226
Tamluk (M)	65306
Panskura (M)	57,932
Egra (M)	30,148

1.4 Development Profile of the Study Area⁸

There are three development authority areas and one Municipality in the CZMP area of West Bengal – Digha Sankarpur Development Authority (DSDA), Gangasagar Bakkhali Development Authority (GBDA), Haldia Development Authority (HDA) and Haldia Municipality.

All the Development Authority areas and one Municipal Area have been designated as CRZ II since they are already developed and have urban development plans for future. Remaining blocks outside the development authority areas which are already builtup are included in CRZ II. However, these existing builtup areas comprising of public utilities, dwelling houses and other structures requiring waterfront will remain as it is.

1.4.1 North 24 Parganas

The district is divided into five subdivisions. These are Bongaon, Barasat, Barrackpore, Bidhannagar, and Basirhat. These are further broken into 27 Municipalities, 22 Blocks and 200 Gram Panchayats in the district.

The percentage of urban population has increased from 42.9% in 1951 Census to 57.3% in 2011 Census in this district. Literacy rate of the district has also increased from 27.8% to 84.1% within the same time.

1.4.2 South 24 Parganas.

The district is divided into five subdivisions. These are Alipore Sadar, Baruipur, Canning, Diamond Harbour, and Kakdwip. There are 7 Municipalities, 29 Block, 315 Gram Panchayats in the district.

The percentage of urban population has increased from 4.6% in 1951 Census to 25.6% in 2011 Census in this district. Literacy rate of the district has also increased from 27.8% to 77.5% in the same time.

1.4.2.1 Development Authorities in the district:

⁸ District Handbook Census 2011 <http://www.censusindia.gov.in/2011census/dchb/DCHB.html>

Gangasagar Bakkhali Development Authority (GBDA) was constituted vide Notification No. 1079-T&cP/C-2/2C-7/2-12 dated 19th June 2013 for the Planning Area described in the Schedule as per the West Bengal Town and Country Planning & Development Act, 1979. It comprised of 9 (nine) Mouzas of Sagar and Namkhana Development Blocks at first and added Purushottampur of Sagar Development Block as 10th Mouza in November, 2015.

1.4.3 Purba Medinipur

The district is divided into four subdivisions. These are Tamluk, Haldia, Egra and Contai. There are 5 Municipalities, 25 Blocks, 25, 223 Gram Panchayats in the district.

The percentage of urban population has increased at a relatively slower pace from 7.5% in 1951 Census to 11.6% in 2011 Census. On the other hand, literacy rate of the district has increased significantly from 21.3% to 87.0% within the same time.

1.4.3.1 Development Authorities in the district:

There are two major Development Authority areas and one Municipality in the District.

Digha Shankarpur Development Authority (DSDA) Area is situated in the Purba Medinipur district of West Bengal and is bounded by Bay of Bengal on the southern side and land locked on other three sides. The total Planning Area is 8752.62 acres. The Planning area includes Digha Shankarpur planning area (42 mouzas) comprising of Digha area (13 mouzas) and Shankarpur area (29 mouzas) with Total Population of 47,999 persons in 2011. DSDA has already prepared an LUDCP for the area.

Digha's economy is primarily dependent on the tourism sector. Digha is West Bengal's one of the most popular sea resort and tourist destination located south west of Kolkata. The area has a low gradient with a shallow sand beach.

The other development authority in the district is the Haldia Development Authority (HDA), in 1980, Haldia Development Authority was notified with Planning Area jurisdiction of about 329.92 sq km, comprising of 260 mouzas under the P.S. (old) Sutahata and Mahisadal in the District of undivided Medinipur. Haldia Planning Area (HPA) was extended in 2004 and 2013. Present HPA is about 1982.07 Sqkm, covering whole of Haldia & Tamluk Subdivision in Purba Medinipur District, comprising 12 blocks, 3 municipalities and 15 Census Towns.

Haldia Municipality is a major municipal area of the district as it houses the Haldia Dock Complex and the urban area surrounding that. It is an industrial area and forms the hinterland of one of the important ports of the state. Spread over an area of 104.62 sq km, the municipal area and the dock complex supports, encourages and facilitates growth of port-based and port-oriented industries. The municipality is one of the major industrial town areas of the state with townships and urban infrastructure facilities developed throughout.

1.5 Economic Profile of the CZM Plan Area

1.5.1 North 24 Parganas

The Gross District Domestic Product (GDDP) of North 24 Parganas was INR 8,511,682 Lakh (current prices) in 2013-14⁹. Agriculture is the primary livelihood option with the foremost crops being rice, jute, coconuts, potatoes, wheat and rapeseed. Additionally, the IT Hub of West Bengal is also located in this district.

⁹ District Handbook https://www.datanetindia-ebooks.com/pdf_Samples/district_factbook/West_Bengal/North-Twenty-Four-Parganas.pdf

1.5.2 South 24 Parganas

The Gross District Domestic Product (GDDP) of South 24 Parganas was INR 5,502,467 Lakh (current prices) in 2013-14¹⁰. Agriculture, Industry and Pisciculture are the backbone of the economy of the district. The prime agricultural crops of the district are rice, sugarcane, timber and betel nuts. The confluence of river Ganga with the sea here forms a congenial physical condition for Pisciculture.

1.5.3 Purba Medinipur.

The Gross District Domestic Product (GDDP) of Purba Medinipur was INR 5,119,879 Lakh (current prices) in 2013-14¹¹. Main contributors to the agrarian economy are rice, wheat, barley, maize, pulses, oilseed, rapeseed, mustard, jute, potato and ginger. Engineering, chemicals and handloom weaving are the foremost industries of the district.

¹⁰ District Handbook https://www.datanetindia-ebooks.com/pdf_Samples/district_factbook/West_Bengal/South-Twenty-Four-Parganas.pdf

¹¹ District Handbook https://www.datanetindia-ebooks.com/pdf_Samples/district_factbook/West_Bengal/Purba-Medinipur.pdf

2 Coastal Zone Management Plan

2.1 About the Coastal Regulation Zone Notification 2011

The Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India has taken several policy initiatives and enacted environmental and pollution control legislations towards sustainable management of natural resources. One such initiative is the Coastal Regulation Zone (CRZ) Notification.

Under the Environment (Protection) Act of 1986 of India, a notification was issued in February 1991 for the first time for regulation of activities in the coastal area by the then Ministry of Environment and Forests (MoEF), Government of India with a view to ensure livelihood security to the fisher communities living in the coastal areas and to conserve and protect coastal stretches, its unique environment and its marine area and to promote development through sustainable manner. The CRZ Notification of 1991 has undergone many modifications and amendments since then, and has been finally superceded by the Ministry of Environment, Forests and Climate Change notification no.S.O. 19 (E) of 6th. January, 2011.

The major objectives of this notification are to ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment and its marine area and to promote development through sustainable manner based on scientific principles taking into account the dangers of natural hazards in the coastal areas, sea level rise due to global warming, and declares the coastal stretches of the country and the water area up to its territorial water limit, excluding the islands of Andaman and Nicobar and Lakshadweep and the marine areas surrounding these islands up to its territorial limit, as Coastal Regulation Zone (hereinafter referred to as the CRZ) and restricts certain activities within the CRZ such as setting up and expansion of any industry, operations or processes and manufacture or handling or storage or disposal of hazardous substances as specified in the Hazardous Substances (Handling, Management and Transboundary Movement) Rules, 2009 in the aforesaid CRZ" etc.

As per the notification, the coastal land up to 500m from the High Tide Line (HTL) on the landward side along the sea front and a stretch of 100m or width of the creek, which ever is less along banks of creeks, rivers and other tidal influenced water bodies, form the Coastal Regulation Zone (CRZ).

For the purpose of conserving and protecting the coastal areas and marine waters, CRZ has been classified into four categories as follows:

1. CRZ- I:

— These are ecologically sensitive areas and geomorphological features of which play a role in maintaining the integrity of the coast. Such areas include mangroves, sand dunes, mudflats which are biologically active, sanctuaries reserve forests and other protected areas which fall under the provision of Forest Conservation Act, 1980 turtle nesting grounds etc, and area between low tide line and high tide line (intertidal areas).

2. **CRZ-II:** These are built up areas and areas within the limits of Development Authorities, Port and Municipalities etc.

3. **CRZ-III:** Rural and Semi-urban localities which fall outside the CRZ I and II.

4. **CRZ- IV:** This lies in the aquatic area up to territorial limits of 12 nautical miles in the Sea and area between the LTL on either bank of the river or creek.

5. Areas requiring special consideration

2.2 Permissible & Prohibited Activities in CRZ

2.2.1 Prohibited Activities in Coastal Regulation Zones

The following are declared as prohibited activities within the CRZ:

- i. Setting up of new industries and expansion of existing industries except,
 - a. Those directly related to waterfront or directly needing foreshore facilities¹²;
 - b. Projects of Department of Atomic Energy;
 - c. Facilities for generating power by non-conventional energy sources and setting up of desalination plants in the areas not classified as CRZ-I(i) based on an impact assessment study including social impacts;
 - d. Development of green field Airport already permitted only at Navi Mumbai;
 - e. Reconstruction, repair works of dwelling units of local communities especially fisherfolk in accordance with local town and country planning regulations.
- ii. Manufacture or handling oil storage or disposal of hazardous substance as specified in the notification of Ministry of Environment and Forests, No. S.O.594 (E), dated the 28th July 1989, S.O.No.966(E), dated the 27th November, 1989 and GSR 1037 (E), dated the 5th December, 1989 except,
 - a. transfer of hazardous substances from ships to ports, terminals and refineries and vice versa;
 - b. facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure A.1 appended to this notification and facilities for regasification of Liquefied Natural Gas (hereinafter referred to as the LNG) in the areas not classified as CRZ- I(A) subject to implementation of safety regulations including guidelines issued by the Oil Industry Safety Directorate in the Ministry of Petroleum and Natural Gas and guidelines issued by MoEF&CC and subject to further terms and conditions for implementation of ameliorative and restorative measures in relation to environment as may be stipulated by MoEF&CC.

Provided that facilities for receipt and storage of fertilizers and raw materials required for manufacture of fertilizers like ammonia, phosphoric acid, sulphur, sulphuric acid, nitric acid and the like, shall be permitted within the said zone in the areas not classified as CRZ-I (A).

- iii. Setting up and expansion of fish processing units including warehousing except hatchery and natural fish drying in permitted areas
- iv. Land reclamation, bunding or disturbing the natural course of seawater except those,
 - a. required for setting up, construction or modernization or expansion of foreshore facilities like ports, harbours, jetties, wharves, quays, slipways, bridges, sea link, road on stilts, and such as meant for defence and security purpose and for other facilities that are essential for activities permissible under the notification;
 - b. measures for control of erosion, based on scientific including Environmental Impact Assessment (hereinafter referred to as the EIA) studies
 - c. maintenance or clearing of waterways, channels and ports, based on EIA studies;

¹² those activities permissible under this notification and they require waterfront for their operations such as ports and harbours, jetties, quays, wharves, erosion control measures, breakwaters, pipelines, lighthouses, navigational safety facilities, coastal police stations and the like

- d. Measures to prevent sand bars, installation of tidal regulators, laying of storm water drains or for structures for prevention of salinity ingress and freshwater recharge based on carried out by any agency to be specified by MoEF&CC.
- v. Setting up and expansion of units or mechanism for disposal of wastes and effluents except facilities required for,
 - a. discharging treated effluents into the water course with approval under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);
 - b. storm water drains and ancillary structures for pumping;
 - c. treatment of waste and effluents arising from hotels, beach resorts and human settlements located in CRZ areas other than CRZ-I and disposal of treated wastes and effluents;
- vi. Discharge of untreated waste and effluents from industries, cities or towns and other human settlements. The concerned authorities shall implement schemes for phasing out existing discharge of this nature, if any, within a time period not exceeding two years from the date of issue of this notification.
- vii. Dumping of city or town wastes including construction debris, industrial solid wastes, fly ash for the purpose of land filling and the like and the concerned authority shall implement schemes for phasing out any existing practice, within a period of one year from date of commencement of this notification.¹³
- viii. Port and harbour projects in high eroding stretches of the coast, except those projects classified as strategic and defence related in terms of EIA notification, 2006 identified by MoEF&CC based on scientific studies and in consultation with the State Government or the Union territory Administration.
- ix. Reclamation for commercial purposes such as shopping and housing complexes, hotels and entertainment activities except for construction of memorials/monuments and allied facilities, only in CRZ-IV (A) areas in exceptional cases, by the concerned State Government, on case to case basis
- x. Mining of sand, rocks and other sub-strata materials except,
 - a. Those minerals not available outside the CRZ area and collection of dead shells by the traditional communities of poultry and animal feed supplements,
 - b. Exploration and exploitation of Oil and Natural Gas.
- xi. Extraction of groundwater and construction related thereto, within 200mts of HTL; except the following:
 - a. In the areas which are inhabited by the local communities and only for their use.
 - b. In the area between 200mts-500 mts zone the extraction of groundwater shall be permitted only when done manually through ordinary wells for drinking, horticulture, agriculture and fisheries and where no other source of water is available.¹⁴
- xii. Construction activities in CRZ-I except those specified in Section 3.4.4 of the CZMP.
- xiii. Dressing or altering the sand dunes, hills, natural features including landscape changes for beautification, recreation and other such purpose except utilizing the

¹³The MoEF&CC will issue a separate instruction to the State Governments and Union territory Administration in respect of preparation of Action Plans and their implementation as also monitoring including the time schedule thereof, in respect of paras (v), (vi) and (vii).

¹⁴Restrictions for such drawl may be imposed by the Authority designated by the State Government and Union territory Administration in the areas affected by sea water intrusion.

rocks / hills/ natural features, only in CRZ-IV (A) areas, for development of memorials /monuments and allied facilities, by the concerned State Government

- xiv. Except facilities required for patrolling and vigilance activities of marine/coastal police stations.

2.2.2 Permissible Activities in Coastal Regulation Zones

The following activities shall be regulated except those prohibited in Section 3.4.1 above:

- i. Permissible activities include the following:
 - a. Clearance shall be given for any activity within the CRZ only if it requires waterfront and foreshore facilities;
 - b. For those projects which are listed under this notification and also attract EIA notification, 2006 (S.O.1533 E), dated the 14th September, 2006, for such projects clearance under EIA notification only shall be required subject to being recommended by the concerned State or Union territory Coastal Zone Management Authority (hereinafter referred to as the CZMA).
 - c. Housing schemes in CRZ as specified in paragraph 8 of this notification;
 - d. Construction involving more than 20,000 m² built-up area in CRZ-II shall be considered for approval in accordance with EIA notification, 2006 however, for projects less than 20,000 m² built-up area shall be approved by the concerned State or Union territory Planning authorities in accordance with this notification after obtaining recommendations from the concerned CZMA and prior recommendations of the concerned CZMA shall be essential for considering the grant of environmental clearance under EIA notification, 2006 or grant of approval by the relevant planning authority.
 - e. MoEF&CC may under a specific or general order specify projects which require prior public hearing of project affected people.
 - f. Construction and operation for ports and harbours, jetties, wharves, quays, slipways, ship construction yards, breakwaters, groynes, erosion control measures and salt works.
- ii. The following activities shall require clearance from MoEF&CC, after being recommended by the concerned CZMA namely
 - a. Those activities listed under category 'A' in the EIA notification, 2006 and permissible under the notification
 - b. Construction activities relating to projects of Department of Atomic Energy or Defence requirements for which foreshore facilities are essential such as, slipways, jetties, wharves, quays; except for classified operational component of defence projects. Residential buildings, office buildings, hospital complexes, workshops of strategic and defence projects in terms of EIA notification, 2006.
 - c. Construction, operation of lighthouses;
 - d. Laying of pipelines, conveying systems, transmission line;
 - e. Exploration and extraction of oil and natural gas and all associated activities and facilities thereto;
 - f. Foreshore requiring facilities for transport of raw materials, facilities for intake of cooling water and outfall for discharge of treated wastewater or cooling water from thermal power plants. MoEF&CC may specify for category of projects such as at (f), (g) and (h) of para 4;
 - g. Mining of rare minerals as listed by the Department of Atomic Energy;
 - h. Facilities for generating power by non-conventional energy resources, desalination plants and weather radars;
 - i. Demolition and reconstruction of (a) buildings of archaeological and historical importance, (b) heritage buildings; and buildings under public use which means

- buildings such as for the purposes of worship, education, medical care and cultural activities;
- j. construction of memorials/ monuments and allied facilities by the concerned State Government in CRZ-IV (A) areas in exceptional cases, with adequate environmental safeguards, subject to the following, namely:-
- A. The concerned State Government shall submit justification for locating the project in CRZ area along with details of alternate sites considered and weightage matrix on various parameters including environmental parameters to State CZMA who will examine the project and make recommendation to the Central Government (MoEF) for grant of Terms of Reference (ToRs) for preparation of an environmental impact assessment report by the State Government;
- B. On grant of ToRs by the Central Government, the concerned State Government shall submit the draft Environmental Impact Assessment report (EIA) with Environmental Management Plan (EMP), draft Risk Assessment Report with Disaster Management Plan (DMP) including on-site and off-site emergency plan and evacuation plan during emergency, to the State Pollution Board for conduct of public hearing for the proposed project in accordance with the procedure laid down under the Environment Impact Assessment notification;
- C. The concerned State Government shall submit final EIA, EMP, Risk Assessment and DMP after addressing the relevant issues raised by the public during the public hearing, to State CZMA for their examination and recommendation to MoEF.

Note: Construction of memorials / monuments would generally discouraged in CRZ-IV areas and the same would be allowed only in exceptional cases with adequate environmental safeguards.

2.2.3 Norms for regulation of activities permissible under the CRZ 2011 Notification

- i. The development or construction activities in different categories of CRZ shall be regulated by the concerned CZMA in accordance with the following norms, namely¹⁵

2.2.3.1 CRZ I

- i. no new construction shall be permitted in CRZ-I except:
- a. Projects relating to Department of Atomic Energy
 - b. Pipelines, conveying systems including transmission lines
 - c. Facilities that are essential for activities permissible under CRZ-I
 - d. Installation of weather radar for monitoring of cyclones movement and prediction by Indian Meteorological Department
 - e. Construction of Trans harbour sea link and without affecting the tidal flow of water, between LTL and HTL
 - f. Development of green field airport already approved at only Navi Mumbai
- ii. Areas between LTL and HTL which are not ecologically sensitive, necessary safety measures will be incorporated while permitting the following, namely

¹⁵ The word existing use hereinafter in relation to existence of various features or existence of regularization or norms shall mean existence of these features or regularization or norms as on 19.2.1991 wherein CRZ notification, was notified.

- a. Exploration and extraction of natural gas;
- b. Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants living within the biosphere reserves after obtaining approval from concerned CZMA.
- c. Necessary safety measure shall be incorporated while permitting such developmental activities in the area falling in the hazard zone;
- d. Salt harvesting by solar evaporation of seawater;
- e. Desalination plants;
- f. Storage of non-hazardous cargo such as edible oil, fertilizers and food grain within notified ports;
- g. Construction of Tran Harbour Sea links, roads on stilts or pillars without affecting the tidal flow of water.

2.2.3.2 CRZ II

- i. Buildings shall be permitted only on the landward side of the existing road, or on the landward side of existing or proposed authorized structures.
- ii. Buildings permitted on the landward side of the existing and proposed roads or existing authorized structures shall be subject to the existing local town and country planning regulations as modified from time to time, except the floor space index or floor area ratio, which shall be as per 1991 level:

Provided that no permission for construction of buildings shall be given on landward side of any new roads which are constructed on the seaward side of an existing road:

- iii. Reconstruction of authorized building to be permitted subject with the existing floor space index or floor area ratio norms and without change in present use;
- iv. Facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure A.1 List of petroleum and chemical products permitted for storage in [CRZ except CRZ-I(A)] of the CZMP and facilities for regasification of liquefied natural gas subject to the conditions as mentioned in subparagraph (ii) of Paragraph 3;
- v. Desalination plants and associated facilities;
- vi. Storage of non-hazardous cargo, such as edible oil, fertilizers and food grain in notified ports;
- vii. Facilities for generating power by non-conventional power sources and associated facilities;

2.2.3.3 CRZ III

- A. Area up to 200mts from HTL on the landward side in case of seafront and 100mts along tidal influenced water bodies or width of the creek whichever is less is to be earmarked as "No Development Zone (NDZ)"
 - i. The NDZ shall not be applicable in such area falling within any notified port limits;
 - ii. No construction shall be permitted within NDZ except for repairs or reconstruction of existing authorized structure not exceeding existing Floor Space Index, existing plinth area and existing density and for permissible activities under the

- notification especially facilities essential for activities; Construction/reconstruction of dwelling units of traditional coastal communities including fisher folk may be permitted between 100 and 200 metres from the HTL along the seafront in accordance with a comprehensive plan prepared by the State Government or the Union territory in consultation with the traditional coastal communities especially fisherfolk and incorporating the necessary disaster management provision, sanitation and recommended by the concerned State or the Union territory CZMA to NCZMA for approval by MoEF&CC
- iii. However, the following activities may be permitted in NDZ:
- a. agriculture, horticulture, gardens, pasture, parks, play field, and forestry;
 - b. projects relating to Department of Atomic Energy;
 - c. mining of rare minerals;
 - d. salt manufacture from seawater;
 - e. facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure II;
 - f. facilities for regasification of liquefied natural gas subject to conditions as mentioned in subparagraph (ii) of Paragraph 3;
 - g. facilities for generating power by non-conventional energy sources;
 - h. Foreshore facilities for desalination plants and associated facilities;
 - i. weather radars;
 - j. construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, provision of facilities for water supply, drainage, sewerage, crematoria, cemeteries and electric sub-station which are required for the local inhabitants may be permitted on a case to case basis by CZMA;
 - k. construction of units or auxiliary thereto for domestic sewage, treatment and disposal with the prior approval of the concerned Pollution Control Board or Committee;
 - l. facilities required for local fishing communities such as fish drying yards, auction halls, net mending yards, traditional boat building yards, ice plant, ice crushing units, fish curing facilities and the like.

B. Area between 200mts to 500mts:

The following activities shall be permissible in the above areas;

- i. Development of vacant plot in designated areas for construction of hotels or beach resorts for tourists or visitors subject to the conditions as specified in the guidelines at Annexure III;
- ii. Facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure II;
- iii. Facilities for regasification of liquefied natural gas subject to conditions as mentioned in sub-paragraph (ii) of paragraph III
- iv. Storage of non-hazardous cargo such as, edible oil, fertilizers, food grain in notified ports;
- v. Foreshore facilities for desalination plants and associated facilities;
- vi. Facilities for generating power by non-conventional energy sources;
- vii. Construction or reconstruction of dwelling units so long it is within the ambit of traditional rights and customary uses such as existing fishing villages and goathans. Building permission for such construction or reconstruction will be subject to local town and country planning rules with overall height of construction not exceeding 9 mts with two floors (ground + one floor);

- viii. Construction of public rain shelters, community toilets, water supply drainage, sewerage, roads and bridges by CZMA who may also permit construction of schools and dispensaries for local inhabitants of the area for those panchayats, the major part of which falls within CRZ if no other area is available for construction of such facilities;
- ix. Reconstruction or alteration of existing authorized building subject to sub-paragraph (vii), (viii);

2.2.3.4 CRZ IV

The activities impinging on the sea and tidal influenced water bodies will be regulated except for traditional fishing and related activities undertaken by local communities as follows:

- a. No untreated sewage, effluents, ballast water, ship washes, fly ash or solid waste from all activities including from aquaculture operations shall be let off or dumped. A comprehensive plan for treatment of sewage generating from the coastal towns and cities shall be formulated within a period of one year in consultation with stakeholders including traditional coastal communities, traditional fisher folk and implemented;
- b. Pollution from oil and gas exploration and drilling, mining, boat house and shipping;
- c. There shall be no restriction on the traditional fishing and allied activities undertaken by local communities.

2.2.4 Process of demarcation of CRZ Lines

As per Annexure I of CRZ Notification 2011, the following guidelines were given:

A. Demarcation of High Tide Line

- 1. Demarcation of High Tide Line (HTL) and Low Tide Line (LTL) shall be carried out by one of the agencies authorised by MoEF based on the recommendations of the National Centre for Sustainable Coastal Management (NCSCM).
- 2. Demarcation of the High Tide Line or LTL shall be made on the Coastal Zone Management (CZM) Maps of scale 1:25,000 prepared by the agencies identified by the MoEF.
- 3. Local level CZM Maps shall be prepared for use of officials of local bodies for determination of the CRZ.
- 4. The local level CZM Maps shall be prepared on a Cadastral scale in accordance with the CZM Maps approved by the Central Government.

B. Preparation of CZM Maps

- 1. Base Maps of 1:25,000 scale shall be acquired from the Survey of India (SOI) and wherever 1:25,000 maps are not available, 1:50,000 maps shall be enlarged to 1:25,000 for the purpose of base map preparation and these maps will be of the standard specification given below:

Unit	: 7.5 minutes X 7.5minutes
Numbering	: Survey of India Sheet Numbering System
Horizontal Datum	: Everest or WGS 84
Vertical Datum	: Mean Sea Level (MSL)
Topography	: Topography in the SOI maps will be updated using latest satellite imageries or aerial photographs

- 2. The High Water Level (HWL) and Low Water Level (LWL) marked on the Base maps will be transferred to the CZM maps.

3. Coastal geomorphological signatures in the field or satellite imageries or aerial photographs will be used for appropriate adjustment, in the HWL or LWL for demarcating HTL or LTL in accordance with the CRZ notification.
4. The following geomorphological features shall be considered while demarcating HTL or LTL: Landward (monsoonal) berm crest in the case of sandy beaches; Rocks, Headlands, Cliffs; Seawalls or revetments or embankments.
5. 500 meter and 200 metre lines will be demarcated with respect of HTL.
6. HTL (as defined in the CRZ notification) and LTL shall also be demarcated in the CZM maps along the banks of tidal influenced inland water bodies with the help of the geomorphological signatures or features.
7. Classification of different coastal zones shall be done as per the CRZ notification
8. Standard national or international colour codes shall be used to highlight sub-classification of data.

For the implementation of CRZ Notification 2011, the HTL & LTL demarcation was a requirement in the CZMP. These lines were also required for the following purposes:

- Mapping of Ecologically Sensitive Areas (ESAs) including preparation of Integrated Management Plans (IMPs)
- Delineation of CRZ-I, CRZ-II, CRZ-III and CRZ-IV for the CZMP

Final demarcations of CRZ Lines by the state include the following essential points:

- ❖ The HTL & LTL Lines are mapped on the Coastal Zone Management (CZM) maps on 1:25,000. HTL was provided by NCSCM and validated with the State Government. LTL was mapped at the state level by the Institute of Environmental Studies and Wetland Management (IESWM), West Bengal.
- ❖ Ecologically Sensitive Areas have been designated as CRZ IA as they are part of CRZ I as per the CRZ Notification, 2011.
- ❖ Width of the creek definition has been applied for the CZMP as per the CRZ 2011 Notification.
- ❖ In absence of receipt of Hazard Lines for preparation of this CZMP, this plan has been prepared without considering the same.

3 CZMP of West Bengal

The first Coastal Zone Management Plan of West Bengal was prepared and notified in 1996. In 2011 the Ministry of Environment, Forest and Climate Change (MoEF&CC) Government of India came up with the CRZ notification of 2011 in supersession of the CRZ Notification of 1991 wherein the coastal states and union territories were directed to revise their existing CZMPs as per the changes provided in classification and management of coastal areas.

The Government of West Bengal in view of the notification took up the revision of the CZMP for West Bengal with more accurate and georeferenced maps. The HTL and ESA provided by NCSCM was used for the demarcation of the CRZ on the Coastal Zone Management Plans by the Institute of Environmental Studies and Wetland Management. All the stakeholder departments of the State Government were also involved in the process of CZMP Preparation. With this in view and to streamline the preparation of CZMP the Department of Environment, Government of West Bengal constituted a steering committee involving all the stakeholder departments for framing policy decision, identifying areas to be classified into different CRZ categories and to identify proposed development activities to be taken up in each zone.

For performing the work, a working group was also constituted involving experts in the field, personnel of the department and the authorized institute namely Institute of Environmental Studies and Wetland Management (IESWM) for preparation of the CRZ maps and Land Use and Land Cover (LULC) maps of the coastal areas based on five types of data sources:

- i. Worldview image, 2010
- ii. Survey of India Toposheet
- iii. Police Station Maps and Bengal Survey Maps
- iv. ESA Database of NCSCM
- v. HTL Database of NCSCM

The LTL could not be provided by NCSCM so the state went ahead with the LTL prepared by IESWM.

After preparation of the draft CRZ Maps as well as LULC Maps for the coastal areas guided by the working group, stakeholders meetings with different departments were taken up and suggestions were consulted. Thereafter a high level consultative meeting was held under the chairmanship of the Chief Secretary of the State to examine the Draft Plan.

Finally public hearings were carried in the three coastal districts and the CZMP was prepared after considering all views and suggestions and finally placed before the WBSCZMA for their suggestions and approval.

3.1 Coastal Regulation Zones of West Bengal

Based on the prescribed methodology, following blocks of the three coastal districts are included as CRZ in this Coastal Zone Management Plan (CZMP):

- ❖ **Purba Medinipur** : Contai I, Contai II (Deshapran), Haldia, Khajuri I, Khajuri II, Nandigram I, Nandigram II, Ramnagar I, Ramnagar II, Sutahata
- ❖ **North 24 Parganas**: Haroa, Hasnabad, Hingaljanj, Sandeshkhali I, Sandeshkhali II, Minakhan
- ❖ **South 24 Parganas**: Basanti, Canning I, Canning II, Gosaba, Jaynagar I, Jaynagar II, Kakdwip, Kulpi, Kultali, Mathurapur I, Mathurapur II, Namkhana, Patharpratima, Sagar

The various CRZ types and mouzas in each CRZ are listed below:

3.1.1 Mouzas in CRZ I Zones in West Bengal

CRZ I includes areas which are ecologically sensitive and the geomorphological features which play a role in the maintaining the integrity of the coast and the area between Low Tide Line and High Tide Line. Following this rationale, the mouzas or parts there of, are identified under this category are as follows:

Table 4 List of Mouzas in CRZ I Zone of West Bengal

District	Block	Mouza
North 24 Parganas	Haroa	Baltia, Baroj, Dakshin Ranigachhi, Gobaria Abad, Haldaha, Haroa, Indali, Kamarganti, Khasbalanda, Kulti, Latarbagan, Makhala, Munsigheri, Nazarnagar, Ramchakirgheri, Ranigachhi, Raykhan, Samla
	Hasnabad	Bedemari, Bhabanipur, Bhurkunda, Chak Khanpukur, Chak Patli, Chak Tengramari, Chimta, Ghoshalati, Ichhapur, Kharampur Abad, Kuliadanga Abad, Mohanpur Abad, Par Bhabanipur, Shulkuni Abad
	Hingalganj	Ambaria, Bainara, Bankra Dobar, Banstala, Bhandarkhali, Bispur, Charalkhali, Chhota Sahebkhali, Dhanikhali, Dharambaria, Dulduli, Durgapur Baylani, Hemnagar, Jogesganj, Kakaria, Kalitala, Kanaikati, Ketarchak, Khosbas, Kothabari, Kumirmari, Lebukhali, Madhabkati, Malekanghumti, Mamudpur, Parghumti, Patghara, Pukuria chak, Purba Khejurbaria, Putia Mathbari, Ramapur, Rupmari, Sahebkhali, Samsernagar, Sandelerbil, Sarapkat, Shridharkati, Singherkati
	Minakhan	Amadpur, Atpukur, Bachhra, Balihati, Bamanpukuria, Behari (P), Chaital, Chak Ahammadpur, Kachurhula, Kushangra, Madari, Malancha Abad, Mallick Gheri, Minakhan, Mohanpur, Muchikhola, Niruli, Ramjaygheri, Sarabaria, Uchildaha, Uttar Akralata
	Sandeshkhali-I	Bara Sehara, Baunia Abad, Bayarmari Abad, Bholakhali, Chhota Sehara, Dakshin Akhratala, Fakirtakia, Gajalia, Ghatihara, Ghoshpur, Hatgachhi, Kalinagar, Kanmari, Khariat Abad, Matbari Abad, Nityabaria, Nyajat, Putimari, Radhanagar, Raypur
	Sandeshkhali-II	Atapur, Bauthakurani, Bermajhur, Bhangatushkhali, Daudpur, Dhamakhali, Dholkhali, Durgamandap, Dwarirjangal, Gabbaria, Hatgachha, Jeliakhali Pashchimbkhanda, Jeliakhali Purbakhanda, Jhupkhali, Joygopalpur, Khulna, Korakati, Manipur, Rampur, Sitalia, Sukhdoani, Tongtala, Tushkhali
South 24 Parganas	Basanti	A (Birinchi Bari), Amjhara, Amratata, Ananda Abad, Basanti, Bhangankhali, Bharatgar, Bugulakhali, Chandrakona, Char Bidyarabad, Chharanikhali, Chunakhali, Dakshin Mokamberia, Dakshin Narayantala, Gadkhali, Goran Bose, Harbhangi, Hare Krishnapur, Hiranmaypur, Hogal Duri, Jyotispur, Kala Hazra, Kathal Beria, Kumarkhali, Kumirmari, Laskarpur, Lot No 126, Manasakhali, Mazidbari, Naliakhali, Napharganj, Narayantala, Parbattipur, Purandar, Radha Ranipur, Radhaballabhpur, Ramchandrakhali, Ramkrishnapur, Sachekhali, Sajinatala, Sonakhali, Tetultala, Uttar Battala
	Canning - I	Banibada Belekhal, Bayarsing, Budhkhali, Dabu, Dighirpar, Garkhali, Golabari, Herobhanga, Hinchakhali, Khas Kumarkhali, Kripakhali, Matia, Modhukhali, Nikarighata, Taldi
	Canning – II	Baintala, Bibir Abad, Chelikati, Chunpuri, Daharani, Ganga Cher, Hediari Abad, Jogendranagar, Kalikatala, Kaorakhali,

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	Kaparpuri, Khagra, Khunkhali, Matherdighi, Maukhali Kumarkhali, Patikhali, Sabek Mahisahara, Tambuldaha
Diamond Harbour - I	Sultanpur
Gosaba	Amlamethi, Amtali, Arampur, Bagbagan, Bali, Baramollakhali, Bhupendrapur, Bijaynagar, Bipradaspur, Birajnagar, Chandipur, Chhota Mollakhali, Chimta, Dayapur, Dulki, Gopalkata, Gosaba, Hamilton Abad, Haripur, Hetalbari, Jelepara, Jhaukhali, Kachukhali, Kalidaspur, Kamakhyapur, Kamarpara, Kumirmari, Manmathanagar, Mathurakhanda, Mitrapur, Pakhiralay, Palpur, Pathankhali, Pujjali, Radhanagar Dakshin, Radhanagar Paschim, Radhanagar Purba, Ramnagar, Rangabalia, Sambhunagar, Satjalia, Sonagan, Taranagar, Uttardanga
Jaynagar - II	Bhubankhali, Chuprijhara, Manirtat, Nalgora, Radhaballabhpur, Rupnagar, Sapla, Sonatikri
Kakdwip	Akshaynagar, Bamanagar, Bhubannagar, Chandipur, Dakshin Kasiabad, Ganespur, Gangadharpur, Gobindarampur, Gopalnagar, Harendranagar, Hesamabad, Kakdwip, Kalinagar, Kasiabad, Kasinagar, Koabera, Lakshmpur, Madhusudanpur, Manmathapur, Mrinalnagar, Nabutala, Ramchandranagar, Ramgopalpur, Ramratanpur, Ramtanunagar, Sankiberia, Sibkalinagar, Sibnagar, Srikrishnanagar, Surjyanagar, Taktipur Abad, Thangara, Uttar Chandranagar, Uttar Durgapur, Uttar Kasiabad
Kulpi	Arunnagar, Belpukuria, Bishnurampur, Chak Ruplaskar, Dari Ratneshwarpur, Durganagar, Garankati, Hanra, Hari Narayanpur, Inchhinbaria, Jadabnagar, Krishnachandrapur, Lakshmpur, Masamari, Rangatala, Raytala, Shyamnagar, Tyangra Char, Uttar Mukundapur
Kultali	Alitakhali, Ambikanagar, Andharia, Baikuntapur, Balaharania, Benimadharpur, Bhubaneshwari, Binodpur, Dakshin Durgapur, Dakshin Garankati, Debipur Gurguria, Deulbari Debipur, Dongajora, Godabar, Gopalganj, Jalabaria, Japtala, Kaikhali, Kailashnagar, Kaksaha, Katamari, Kisorimohanpur, Kundakhali, Lot-120, Lot-121, Madhabpur, Madhusudanpur, Madhya Gurguria, Maipit, Mandaler Lat, Meraganj, Purba Gabtala, Purba Gurguria, Purba Syamnagar, Sankizahan, Syamnagar
Mathurapur – I	Abad Bhagabanpur, Amirpur, Banstala Baraghari, Brahmapur, Ghat Bakultala, Jogendranagar, Rajarampur
Mathurapur – II	Baradanagar, Baribhanga Abad, Chaplarkhop, Dakshin Jaykrishnapur, Damkal, Dighirpar Bakultala, Jagannath Chak, Kailaspur, Kankandighi, Kumrapara, Madhusudan Chak, Mahabatnagar, Nagendrapur, Nandakumarapur, Naranpur, Narendrapur, Pashchim Jatar Deul, Purba Jatar Deul, Purba Shridharpur, Radhakantapur Abad, Raydighi Abad
Namkhana	Amrabati, Bagdanga, Baliara, Bijaybati, Bisalakshmpur, Budhakhali, Dakshin Chandanpiri, Dakshin Chandranagar, Dakshin Durgapur, Debnagar, Durganagar, Dwariknagar, Fedrick Island, Ganesnagar, Haripur, Henry's Island, Iswaripur, Kusumtala, Lothian Island, Madanganj, Maharajaganj, Mousani, Nadabhanga, Namkhana, Narayanganj, Narayanpur, Patibania, Phatikpur, Radhanagar, Rajnagar, Rajnagar Srinathgram, Sibnagar Abad, Sibpur, Sibrampur, Susni Island, Uttar Chandanpiri
Patharpratima	Abad Gangadharpur, Achintyanagar, Banashyamnagar,

		Baradapur, Bhagabatpur, Bishnupur, Brojaballabhpur, Buraburir Tat, Burge Island, Chhota Banashyamnagar, Chintamanipur, Dakshin Durgapur, Dakshin Gangadharpur, Dakshin Gobindapur, Dakshin Kasinagar, Dakshin Lakshminarayanpur, Dakshin Mahendrapur, Dakshin Raypur, Dakshin Sibganj, Dakshin Sibpur, Dakshin Surendraganj, Debi Chak, Digambarpur, Durbachati, Durgagobindopur, Gangapur, Gayadham, Gobardhanpur, Gobindapur Abad, Gopalnagar Dakshin, Gopalnagar Uttar, Harikrishnapur, Heramba Gopalpur, Indranarayanpur, Indraprastha, Indrapur, Jagindrapur, Jameson Island, Kamdebnagar, Kamdebpur, Kaorakhali, Kedarpur, Kisori Nagar, Krishnadaspur..Plot G 1st Portion (A), Krishnapur, Kshetramohanpur, Kuemuri, Kumarpur, Lakshmi Janardanpur, Lakshmipur, Mabendranagar, Madhabnagar, Maheshpur, Meherpur, Parbatipur, Paschim Dwarakapur, Paschim Sridharpur, Paschim Sripatinagar, Paschim Surendranagar, Piprakhali, Plat G 6Th Portion, Plot E 6Th Portion (Khas), Plot G 1st Portion (B), Purba Chintamonipur, Purba Dwarokapur, Purba Sripatinagar, Purba Surendranagar, Purnachandrapur, Radhakrishnanagar, Raj Rarajeshwaripur, Rakhapur, Rakshaskhali, Ramganga, Sagar Madhabpur, Sibnagar, Sitarampur, Southern Portion Plot L, Sridharnagar, Srinarayanpur, Taranagar, Upendranagar, Uttar Mahendrapur, Uttar Surendraganj
	Sagar	Bamankhali, Bankimnagar, Beguakhali, Bishnupur, Chandipur, Chemagari, Companir Chhar, Debi Mathurapur, Dhablat, Gangasagar, Ghoramara, Gobindapur, Haradhanpur, Harinbari, Kachubaria, Kamalpur, Kastala, Kaylapara, Khan Saheber Abad, Krishnanagar, Mahishamari, Manasadwip 2nd Portion, Mandirtala, Mrityunjaynagar, Muriganga, Naraharipur, Phuldubi, Radhakrishnapur, Ramkrishnapur, Rudranagar, Sagar, Sapkhali, Sibpur, Sikarpur, Sumatinagar
Purba Medinipur	Contai I	Baguran Jalpai, Dakshin Serpur, Damodarpur Jalpai, Jharkosbar, Machhlandapur Jalpai, Maharampur, Purushottampur, Raghusarddarbar Jalpai, Samudrapur, Samudrapur Jalpai, Serpur Jalpai
	Deshopran	Amtalia, Bahar Chhanberya, Bankipur, Bar Chandibheti, Basudebberya, Beni Chak, Bhogpur, Chandibhetibar, Chhanberya, Daha Sonamui, Dakshin Amtalia, Dakshin Aria, Daulatpur, Deulpote, Dihi Mukundapur, Durgapur, Ghoraghata, Gopalpur, Haripur, Harrahaldina, Kalagachhia, Kalurayber, Kanai Chatta, Kasafalia, Kulanjara, Phulbari, Pratappur, Purbba Amtalia, Rasulpur, Sikdar Chak, Sunia, Tiakola, Umapatibar, Uttar Amtalia
	Haldia	Banskhana Jalpai, Iswardaha Jalpai
	Haldia Municipality	Haldia Municipality
	Khajuri-I	Ajaya, Ali Chak, Amjadnagar Golokpatra, Baharganja, Bajbajia, Bali Chak, Bikramnagar, Chhatnabari, Dakshin Kalamdan, Debi Chak, Golabari, Herya Atmaram Chak, Jahanabad, Jararnagar, Kanthibari, Kulta, Kultha Jagannath Chak, Lakhi, Mohati, Mukutshila, Patna, Uttar Kalamdan
	Khajuri-II	Ali Chak, Alipur, Arakbari, Baman Chak, Banbasrya, Baratala Barkasaria, Boga, Chauddachuli, Dekhali, Dhobaghata Baman Chak, Gorahar, Gorahar Jalpai, Haludbari, Joshua,

		Kadirabad Chak, Kalagachhia, Kartikkhali, Kaseria, Kastala, Katka Debi Chak, Kayal Chak, Keshab Chak, Khajuri, Madakhali, Meidinagar, Mundamari, Nankar Gobindapur, Nij Kashba, Nonapata, Oashil Chak, Oshmanpur, Pacharya, Padarbheri, Pakuria, Panikhya, Pankhai, Radhanagar, Safarchata, Saheb nagar, Satsimali, Serkhan Chak, Shyampur Jalpai, Sundarpur, Thanaberya
	Mahishadal	Badur, Bhangagara, Kesabpur Jalpai, Suklalpur, Tentulberya
	Nandigram - I	Basuli Chak, Brindaban Chak, Dinabandhupur, Gangra, Gangra Char, Gokulnagar, Jalpai part V, Jalpai Part VII, Jelyamara, Kalicharanpur, Kanango Chak, Kendamari Jalpai Manuchak Jalpai, Nakchira Char, Saudkhali Char, Saudkhali Jalpai, Simulkunda, Sonachura, Sonachura Jalpai
	Nandigram - II	Amdabad, Jalpai part II, Jalpai part III, Kamalpur, Mangal Chak, Naya Chak Bayal, Rani chak, Subdi
	Ramnagar - I	Alampur, Atili, Balarampur, Begundiha, Berakhana, Birampur, Chandpur, Chhota Balarampur, Deulbatta, Digha, Dublabari, Gadadharpur, Gangadharpur, Ghersai, Gobindabasan, Jagaibasan, Jaldha, Jamra Syampur, Jhaugerya, Jhawa, Junbani, Katandiha, Khadal Gobra, Kiagoria, Kuliyata, Maitrapur, Mukundapur, Nilpur, Ramnagar, Raypur, Sankarpur, Somaibasan, Tajpur, Talaria
	Ramnagar - II	Baichibania, Dadanpatra, Deuli, Kalikapur, Kalindi, Kandarpapur, Mandarmani, Mania, Narandia, Patharmuha, Phulbari, Purushottampur, Rania, Satilapur, Silampur, Sonamui
	Sutahata	Anarnagar, Begunbere, Erekhali, Hariballavpur, Latpatia, Maniruddin Char, Matiram Chak, Matirampur, Parbbatipur, Sadaram Chak, Urddhabmal

The list of Prohibited and Permissible activities is detailed in Section 2.2.1 & Section 2.2.2 of the CZMP Report. Maps are provided in Volume 2.

3.1.2 Mouzas in CRZ IA Zones of West Bengal

Ecologically Sensitive Areas (ESA) have been included as part of CRZ I and designated as CRZ IA. These include areas such as Sundarbans region of West Bengal and other ecologically sensitive areas comprising of Mangroves, Reserve Forests, Marine Protected Areas, Sand Dunes, Mudflats, Seagrass, etc. identified as under Environment (Protection) Act, 1986 and managed with the involvement of coastal communities including fisher folk. However, no marine protected area is notified in West Bengal, neither sea grass is present in the state.

Following this rationale, the mouzas identified under this category are as follows:

Table 5 List of Administrative Block Mouzas in CRZ IA Zone of West Bengal¹⁶

District	Block	Mouza
North 24 Parganas	Hasnabad	Bhurkunda, Chak Tengramari, Chimta, Ghoshalati, Kuliadanga Abad, Mohanpur Abad, Shulkuni Abad
	Hingalganj	Ambaria, Banstala, Bispur, Charalkhali, Chhota Sahebkhali, Dulduli, Hemnagar, Jogesganj, Kalitala, Kanaikati, Ketarchak, Khosbas, Kothabari, Lebukhali, Madhabkati, Malekanghumti, Mamudpur, Parghumti, Patghara, Pukuria chak, Putia Mathbari, Ramapur, Rupmari, Sahebkhali, Samsernagar, Sandelerbil, Sarapkati, Shridharkati,

¹⁶As per the CRZ Notification 2011, the forests areas being mangrove forests are designated as CRZ 1A.

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		Singerkati
	Sandeshkhali-I	Bara Sehara, Hatgachhi, Kalinagar, Kanmari, Nityabaria, Nyajat
	Sandeshkhali-II	Atapur, Bermajhur, Bhangatuskhali, Daudpur, Dhamakhali, Dholkhali, Durgamandap, Dwarirjangan, Gabbaria, Hatgachha, Jeliakhali Pashchimkhanda, Jeliakhali Purbakhanda, Jhupkhali, Joygopalpur, Khulna, Korakati, Manipur, Sitalia, Sukhdoani, Tushkhali
South 24 Parganas	Basanti	A (Birinchi Bari), Amratala, Ananda Abad, Basanti, Bhangankhali, Bugulakhali, Chandrakona, Char Bidiyabad, Chharanikhali, Chunakhali, Dakshin Mokamberia, Dakshin Narayantala, Gadkhali, Goran Bose, Harbhangi, Hare Krishnapur, Hiranmaypur, Hogal Duri, Jyotispur, Kala Hazra, Kathal Beria, Kumarkhali, Laskarpur, Lot No 124, Lot No 125, Lot No 126, Manasakhali, Mazidbari, Naliakhali, Napharganj, Narayantala, Parbattipur, Purandar, Radha Ranipur, Radhaballabhpur, Ramchandrakhali, Ramkrishnapur, Sachekhali, Sajinatala, Sonakhali, Tetultala, Uttar Battala
	Canning - I	Banibada Belekhali, Budhkhali, Dabu, Garkhali, Golabari, Herobhanga, Hinchakhali, Kripakhali, Modhukhali, Nikarighata
	Diamond Harbour - I	Sultanpur
	Gosaba	Amlamethi, Amtali, Arampur, Bagbagan, Bali, Baramollakhali, Bhupendrapur, Bijaynagar, Bipradaspur, Birajnagar, Chandipur, Chhota Mollakhali, Chimta, Dayapur, Dulki, Gopalkata, Gosaba, Hamilton Abad, Harispur, Hetalbari, Jelepara, Jhaukhali, Kachukhali, Kalidaspur, Kamakhyapur, Kamarpara, Kumirmari, Manmathanagar, Mathurakhanda, Mitrapur, Pakhiralay, Palpur, Pathankhali, Pujjali, Radhanagar Dakshin, Radhanagar Purba, Ramnagar, Rangabalia, Sambhunagar, Satjalia, Sonagan, Taranagar, Uttardanga
	Jaynagar - II	Bhubankhali, Chuprijhara, Nalgora, Radhaballabhpur, Sonatikri
	Kakdwip	Akshaynagar, Bamanagar, Bhubannagar, Chandipur, Dakshin Kasiabad, Ganespur, Gangadharpur, Gobindarampur, Gopalnagar, Harendranagar, Hesamabad, Kakdwip, Kalinagar, Kasiabad, Kasinagar, Koaberia, Lakshmipur, Madhusudanpur, Manmathapur, Mrinalnagar, Ramgopalpur, Ramtanunagar, Sankiberia, Sibkalinagar, Sibnagar, Srikrishnanagar, Taktipur Abad, Thangara, Uttar Chandranagar, Uttar Durgapur, Uttar Kasiabad
	Kulpi	Arunnagar, Belpukuria, Bishnurampur, Chak Ruplaskar, Dari Ratneshwarapur, Durganagar, Hanra, Hari Narayanpur, Inchhinbaria, Lakshmipur, Masamari, Raytala, Tyangra Char, Uttar Mukundapur
	Kultali	Alitakhali, Ambikanagar, Andharia, Baikuntapur, Balaharania, Benimadharpur, Bhubaneshwari, Binodpur, Dakshin Durgapur, Dakshin Garankati, Debipur Gurguria, Deulbari Debipur, Dongajora, Gopalganj, Jalabaria, Japtala, Kaikhali, Kailashnagar, Katamari, Kisorimohanpur, Kundakhali, Lot no. 118, Lot-120, Lot-121, Madhabpur, Madhusudanpur, Madhya Gurguria, Maipit, Meraganj, Purba Gabtala, Purba Gurguria, Purba Syamnagar, Sankizahan, Syamnagar
	Mathurapur – II	Baradanagar, Baribhanga Abad, Chaplarkhop, Dakshin

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		Jaykrishnapur, Damkal, Dighirpar Bakultala, Jagannath Chak, Kailaspur, Kankandighi, Kumrapara, Madhusudan Chak, Mahabatnagar, Nagendrapur, Nandakumarpur, Naranpur, Narendrapur, Pashchim Jatar Deul, Purba Jatar Deul, Purba Shridharpur, Radhakantapur Abad, Raydighi Abad
	Namkhana	Amrabati, Bagdanga, Baliara, Bijaybati, Bisalakshmipur, Budhakhali, Dakshin Chandanpiri, Dakshin Chandranagar, Dakshin Durgapur, Debnagar, Durganagar, Dwariknagar, Fedrick Island, Ganesnagar, Haripur, Henry's Island, Iswaripur, Kusumtala, Lakshmipur Abad, Lothian Island, Madanganj, Maharajaganj, , Mousani, Nadabhanga, Namkhana, Narayanganj, Narayanpur, Patibania, Phatikpur, Radhanagar, Rajnagar, Rajnagar Srinathgram, Sibnagar Abad, Sibpur, Sibrapur, Susni Island, Uttar Chandanpiri
	Patharpratima	Abad Gangadharpur, Achintyanagar, Banashyamnagar, Baradapur, Bhagabatpur, Bishnupur, Brojaballabhpur, Buraburir Tat, Burge Island, Chhota Banashyamnagar, Chintamanipur, Dakshin Durgapur, Dakshin Gobindapur, Dakshin Kasinagar, Dakshin Lakshminarayanpur, Dakshin Mahendrapur, Dakshin Raypur, Dakshin Sibganj, Dakshin Sibpur, Dakshin Surendraganj, Debi Chak, Digambarpur, Durbachati, Durgagobindopur, Gangapur, Gayadham, Gobardhanpur, Gobindapur Abad, Gopalnagar Dakshin, Gopalnagar Uttar, Harikrishnapur, Heramba Gopalpur, Indranarayanpur, Indraprastha, Indrapur, Jagindrapur, Jameson Island, Kamdebnagar, Kamdebpur, Kaorakhali, Kedarpur, Kisori Nagar, Krishnadaspur..Plot G 1st Portion (A), Krishnapur, Kshetramohanpur, Kuemuri, Kumarpur, Lakshmi Janardanpur, Lakshmipur, Mabendranagar, Madhabnagar, Maheshpur, Meherpur, Parbatipur, Paschim Dwarakapur, Paschim Sridharpur, Paschim Sripatinagar, Paschim Surendranagar, Plat G 6Th Portion, Plot E 6Th Portion (Khas), Plot G 1st Portion (B), Purba Chintamonipur, Purba Dwarokapur, Purba Sripatinagar, Purba Surendranagar, Purnachandrapur, Radhakrishnanagar, Raj Rarajeshwaripur, Rakhapur, Rakshaskhali, Ramganga, Sagar Madhabpur, Sibnagar, Sitarampur, Southern Portion Plot L, Sridharnagar, Srinarayanpur, Taranagar, Upendranagar, Uttar Mahendrapur, Uttar Surendraganj
	Sagar	Bamankhali, Bankimnagar, Beguakhali, Bishnupur, Chandipur, Chemagari, Companir Chhar, Debi Mathurapur, Dhablat, Gangasagar, Ghoramara, Gobindapur, Haradhanpur, Kamalpur, Kastala, Kaylapara, Khan Saheber Abad, Krishnanagar, Mahishamari, Manasadwip 2nd Portion, Mandirtala, Mrityunjaynagar, Muriganga, Naraharipur, Phuldubi, Radhakrishnapur, Ramkrishnapur, Rudranagar, Sagar, Sapkhali, Sikarpur, Sumatinagar
Purba Medinipur	Contai I	Baguran Jalpai, Biramput, Dakshin Serpur, Jharkosbar, Mankaraiput, Purushottampur, Raghosarddarbar Jalpai, Samudrapur Jalpai, Saradpur, Serpur Jalpai, Syamraybar Jalpai
	Deshopran	Bankipur, Bhogpur, Daha Sonamui, Dakshin Aria, Dakshin Kadua, Dihi Mukundapur, Gopalpur, Haripur, Kadua Mukandapur, Kalurayber, Kanai Chatta, Kasafalia, Phulbari, Pratappur, Rasulpur, Sikdar Chak, Tiakola
	Haldia	Banskhana Jalpai, Iswardaha Jalpai
	Haldia	Haldia Municipality

	Municipality	
	Khajuri-I	Kanthibari
	Khajuri-II	Ali Chak, Arakbari, Baman Chak, Banbasrya, Dekhali, Dhobaghata Baman Chak, Gobindapur, Gorahar Jalpai, Joshua, Kadirabad Chak, Kalagachhia, Katka Debi Chak, Meidinagar, Nankar Gobindapur, Nij Kashba, Oashil Chak, Pacharya, Radhanagar, Safarchata, Thanaberya
	Nandigram - I	Dinabandhupur, Gangra, Gangra Char, Jalpai part V, Kendamari Jalpai, Nakchira Char, Saudkhali Char, Sonachura
	Ramnagar - I	Alampur, Atili, Balarampur, Begundiha, Berakhana, Birampur, Chandpur, Chhota Balarampur, Dattapur, Deulbatta, Digha, Gadadharpur, Gangadharpur, Jagaibasan, Jaldha, Jhawa, Junbani, Katandiha, Kuliyata, Maitrapur, Mukundapur, Nilpur, Ramnagar, Raypur, Sankarpur, Somaibasan, Tajpur, Talaria
	Ramnagar - II	Baichibania, Dadanpatra, Deuli, Kalindi, Mandarmani, Patharmuha, Purushottampur, Satilapur, Silampur, Sonamuhi
	Sutahata	Begunbere, Erekhali, Maniruddin Char

The list of Prohibited and Permissible activities is detailed in Section 2.2.1 & Section 2.2.2 of the CZMP Report. Maps are provided districtwise, separately.

3.1.3 Mouzas in CRZ II Zones in West Bengal

CRZ II includes areas which are areas that have been developed up to or close to the shoreline. Following this rationale, the mouzas identified under this category are as follows:

Table 6 List of Mouzas in CRZ II Zone of West Bengal

District	Block	Mouza
North 24 Parganas	Haroa	Atghara, Haroa, Khasbalanda, Nazarnagar
South 24 Parganas	Basanti	Basanti, Kathal Beria, Radhaballabhpur, Ramchandrakhali, Sonakhali
	Canning-I	Matia
	Kakdwip	Akshaynagar, Ganespur, Kakdwip, Kalinagar
	Namkhana	Amrabati, Lakshmipur Abad
	Sagar	Beguakhali, Chemagari, Dhablat, Gangasagar, Purushottampur, Sagar, Sibpur
Purba Medinipur	Haldia	Banskhana Jalpai, Iswardaha Jalpai
	Haldia Municipality	Haldia Municipality
	Mahishadal	Badur, Bhangagara, Kesabpur Jalpai, Suklalpur, Tentulberya
	Ramnagar - I	Atili, Balarampur, Begundiha, Berakhana, Bhagi Baharampur, Bil Amria, Birampur, Chandpur, Chhota Balarampur, Dalbaldya, Dattapur, Digha, Gadadharpur, Gangadharpur, Ghersai, Gobindabasan, Jagadisapur, Jagaibasan, Jaldha, Jamra Syampur, Jasipur, Jhaugerya, Jhawa, Kaema, Khadal Gobra, Kiagoria, Lachhipur, Maitrapur, Mukundapur, Nilpur, Panch Daria, Raypur, Sankarpur, Somaibasan, Tajpur
	Ramnagar - II	Dadanpatra, Mandarmani, Mania, Purushottampur, Silampur, Sonamuhi
	Sutahata	Anarnagar, Begunbere, Erekhali, Gajipur, Hariballavpur,

		Latpatia, Maniruddin Char, Matiram Chak, Matirampur, Parbbatipur, Raynagar, Sadaram Chak, Urddhabmal
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The list of Prohibited and Permissible activities are detailed in Section 3.4.1 & Section 3.4.2 of the CZMP Report. Maps are provided districtwise, separately.

3.1.4 Mouzas in CRZ III Zones in West Bengal

CRZ III includes areas which are relatively undisturbed and those do not belong to either CRZ-I or II which include coastal zone in the rural areas (developed and undeveloped) and also areas within municipal limits or in other legally designated urban areas, which are not substantially built up. Following this rationale, the mouzas identified under this category are as follows:

Table 7 List of Mouzas in CRZ III Zone of West Bengal

District	Block	Mouza
North 24 Parganas	Haroa	Baltia, Baroj, Dakshin Ranigachhi, Gobaria Abad, Haldaha, Indali, Kamarganti, Khasbalanda, Kulti, Latarbagan, Makhala, Munsigheri, Nazarnagar, Ramchakirgheri, Ranigachhi, Raykhan, Samla
	Hasnabad	Bedemari, Bhabanipur, Bhurkunda, Chak Khanpukur, Chak Patli, Chak Tengramari, Chimta, Ghoshalati, Ichhapur, Kharampur Abad, Kuliadanga Abad, Mohanpur Abad, Par Bhabanipur, Shulkuni Abad
	Hingalganj	Ambaria, Bainara, Bankra Dobar, Banstala, Bhandarkhali, Bispur, Charalkhali, Chhota Sahebkhali, Dhanikhali, Dharambaria, Dulduli, Durgapur Baylani, Hemnagar, Jogesganj, Kakaria, Kalitala, Kanaikati, Ketarchak, Khosbas, Kothabari, Kumirmari, Lebukhali, Madhabkati, Malekanghumti, Mamudpur, Parghumti, Patghara, Pukuria chak, Purba Khejurbaria, Putia Mathbari, Ramapur, Rupmari, Sahebkhali, Samsernagar, Sandelerbil, Sarapkati, Shridharkati, Singherkati
	Minakhan	Amadpur, Atpukur, Bachhra, Balihati, Bamanpukuria, Behari (P), Chaital, Chak Ahammadpur, Kachurhula, Kushangra, Madari, Malancha Abad, Mallick Gheri, Minakhan, Mohanpur, Muchikhola, Niruli, Ramjaygheri, Sarabaria, Uchildaha, Uttar Akrotala
	Sandeshkhali-I	Bara Sehara, Baunia Abad, Bayarmari Abad, Bholakhali, Chhota Sehara, Dakshin Akhratala, Fakirtakia, Gajalia, Ghatihara, Ghoshpur, Hatgachhi, Kalinagar, Kanmari, Khariat Abad, Matbari Abad, Nityabaria, Nyajat, Putimari, Radhanagar, Raypur
	Sandeshkhali-II	Atapur, Bauthakurani, Bermajhur, Bhangatushkhali, Daudpur, Dhamakhali, Dholkhali, Durgamandap, Dwarirjangal, Gabbaria, Hatgachha, Jeliakhali Pashchimkhanda, Jeliakhali Purbakhanda, Jhupkhali, Joygopalpur, Khulna, Korakati, Manipur, Rampur, Sitalia, Sukhdoani, Tongtala, Tushkhali
South 24 Parganas	Basanti	A (Birinchhi Bari), Amjhara, Amratata, Ananda Abad, Basanti, Bhangankhali, Bharatgar, Bugulakhali, Chandrakona, Char Bidyarabad, Chharanikhali, Chunakhali, Dakshin Battala, Dakshin Mokamberia, Dakshin Narayantala, Gadkhali, Goran Bose, Harbhangi, Hare Krishnapur, Hiranmaypur, Hogal Duri, Jyotispur, Kala Hazra, Kathal Beria, Krishnagar, Kumarkhali, Kumirmari, Laskarpur, Lot No 126, Manasakhali, Mazidbari, Naliakhali, Napharganj, Narayantala, Parbattipur, Purandar, Radha Ranipur,

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	Radhaballabhpur, Ramchandrakhali, Ramkrishnapur, Ranigar, Sachekhali, Sajinatata, Sonakhali, Tetultala, Uttar Battala
Canning - I	Banibada Belekhal, Bayarsing, Budhkhali, Dabu, Dighirpar, Garkhali, Golabari, Herobhanga, Hinchakhali, Khas Kumarkhali, Kripakhali, Matia, Modhukhali, Nikarighata, Taldi
Canning – II	Baintala, Bibir Abad, Chelikati, Chunpuri, Daharani, Ganga Cher, Hediara Abad, Jogendranagar, Kalikatala, Kaorakhali, Kaparpuri, Khagra, Khunkhali, Matherdighi, Maukhali Kumarkhali, Patikhali, Sabek Mahisahara, Saranger Abad, Tambuldaha
Diamond Harbour - I	Sultanpur
Gosaba	Amlamethi, Amtali, Arampur, Bagbagan, Bali, Baramollakhali, Bhupendrapur, Bijaynagar, Bipradaspur, Birajnagar, Chandipur, Chhota Mollakhali, Chimta, Dayapur, Dulki, Gopalkata, Gosaba, Hamilton Abad, Harispur, Hetalbari, Jelepara, Jhaukhali, Kachukhali, Kalidaspur, Kamakhyapur, Kamarpara, Kumirmari, Manmathanagar, Mathurakhanda, Mitrapur, Pakhiralay, Palpur, Pathankhali, Pujjali, Radhanagar Dakshin, Radhanagar Paschim, Radhanagar Purba, Ramnagar, Rangabalia, Sambhunagar, Satjalia, Sonagan, Taranagar, Uttardanga
Jaynagar - II	Bhubankhali, Chuprijhara, Manirtat, Nalgora, Radhaballabhpur, Rupnagar, Sapla, Sonatikri
Kakdwip	Akshaynagar, Bamanagar, Bhubannagar, Chandipur, Dakshin Kasiabad, Ganespur, Gangadharpur, Gobindarampur, Gopalnagar, Harendranagar, Hesamabad, Kakdwip, Kalinagar, Kasiabad, Kasinagar, Koaberia, Lakshmipur, Madhusudanpur, Manmathapur, Mrinalnagar, Nabutala, Ramchandranagar, Ramgopalpur, Ramratanpur, Ramtanunagar, Sankiberia, Sibkalinagar, Sibnagar, Srikrishnanagar, Surjyanagar, Taktipur Abad, Thangara, Uttar Chandranagar, Uttar Durgapur, Uttar Kasiabad
Kulpi	Arunnagar, Belpukuria, Bishnurampur, Chak Ruplaskar, Dari Ratneshwarapur, Durganagar, Garankati, Hanra, Hari Narayanpur, Inchinbaria, Jadabnagar, Krishnachandrapur, Lakshmipur, Masamari, Rangatala, Raytala, Shyamnagar, Tyangra Char, Uttar Mukundapur
Kultali	Alitakhali, Ambikanagar, Andharia, Baikuntapur, Balaharania, Benimadhappur, Bhubaneshwari, Binodpur, Dakshin Durgapur, Dakshin Garankati, Debipur Gurguria, Deulbari Debipur, Dongajora, Godabar, Gopalganj, Jalabaria, Japtala, Kaikhali, Kailashnagar, Kaksaha, Katamari, Kisorimohanpur, Kundakhali, Lot-120, Lot-121, Madhabpur, Madhusudanpur, Madhya Gurguria, Maipit, Mandaler Lat, Meraganj, Purba Gabtala, Purba Gurguria, Purba Syamnagar, Sankizahan, Syamnagar
Mathurapur – I	Abad Bhagabanpur, Amirpur, Banstala Baraghari, Brahmapur, Ghat Bakultala, Jogendranagar, Rajarampur
Mathurapur – II	Baradanagar, Baribhanga Abad, Chaplarkhop, Dakshin Jaykrishnapur, Damkal, Dighirpar Bakultala, Jagannath Chak, Kailaspur, Kankandighi, Kumrapara, Madhusudan Chak, Mahabatnagar, Nagendrapur, Nandakumarapur, Naranpur, Narendrapur, Pashchim Jatar Deul, Purba Jatar Deul, Purba Shridharpur, Radhakantapur Abad, Raydighi Abad
Namkhana	Bagdanga, Baliara, Bijaybati, Bisalakshmipur, Budhakhali,

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		Dakshin Chandanpiri, Dakshin Chandranagar, Dakshin Durgapur, Debnagar, Durganagar, Dwariknagar, Fedrick Island, Ganesnagar, Haripur, Henry's Island, Iswaripur, Kusumtala, Madanganj, Maharajaganj, Mousani, Nadabhanga, Namkhana, Narayanganj, Narayanpur, Patibania, Phatikpur, Radhanagar, Rajnagar, Rajnagar Srinathgram, Sibnagar Abad, Sibpur, Sibrampur, Susni Island, Uttar Chandanpiri
	Patharpratima	Abad Gangadharpur, Achintyanagar, Banashyamnagar, Baradapur, Bhagabatpur, Bishnupur, Brojaballabhpur, Buraburir Tat, Burge Island, Chhota Banashyamnagar, Chintamanipur, Dakshin Durgapur, Dakshin Gangadharpur, Dakshin Gobindapur, Dakshin Kasinagar, Dakshin Lakshminarayanpur, Dakshin Mahendrapur, Dakshin Raypur, Dakshin Sibganj, Dakshin Sibpur, Dakshin Surendraganj, Daspur, Debi Chak, Digambarpur, Durbachati, Durgagobindopur, Gangapur, Gayadham, Gobardhanpur, Gobindapur Abad, Gopalnagar Dakshin, Gopalnagar Uttar, Harikrishnapur, Heramba Gopalpur, Indranarayanpur, Indraprastha, Indrapur, Jagindrapur, Jameson Island, Kamdebnagar, Kamdebpur, Kaorakhali, Kedarpur, Kisor Nagar, Krishnadaspur..Plot G 1st Portion (A), Krishnapur, Kshetramohanpur, Kuemuri, Kumarpur, Lakshmi Janardanpur, Lakshnipur, Mabendranagar, Madhabnagar, Maheshpur, Meherpur, Parbatipur, Paschim Dwarakapur, Paschim Sridharpur, Paschim Sripatinagar, Paschim Surendranagar, Piprakhali, Plat G 6Th Portion, Plot E 6Th Portion (Khas), Plot G 1st Portion (B), Purba Chintamonipur, Purba Dwarokapur, Purba Sripatinagar, Purba Surendranagar, Purnachandrapur, Radhakrishnanagar, Raj Rarajeshwaripur, Rakhapur, Rakshaskhali, Ramganga, Sagar Madhabpur, Sibnagar, Sitarampur, Sridharnagar, Srinarayanpur, Taranagar, Upendranagar, Uttar Mahendrapur, Uttar Surendraganj
	Sagar	Bamankhali, Bankimnagar, Bishnupur, Chandipur, Companir Chhar, Debi Mathurapur, Ghoramara, Gobindapur, Haradhanpur, Harinbari, Kachubaria, Kamalpur, Kastala, Kaylapara, Khan Saheber Abad, Krishnanagar, Mahishamari, Manasadwip 2nd Portion, Mandirtala, Mrityunjaynagar, Muriganga, Naraharipur, Phuldubi, Radhakrishnapur, Ramkrishnapur, Rudranagar, Sapkhali, Sikarpur, Sumatinagar
Purba Medinipur	Contai I	Baguran Jalpai, Biramput, Dakshin Serpur, Damodarpur Jalpai, Jharkosbar, Machhlandapur Jalpai, Maharampur, Mankaraiput, Purushottampur, Raghuardarbar, Raghusarddarbar Jalpai, Samudrapur, Samudrapur Jalpai, Saradpur, Serpur Jalpai, Sujanbhunabar, Syamraybar Jalpai
	Deshopran	Amtalia, Bahar Chhanberya, Bankipur, Bar Chandibheti, Basudebberya, Beni Chak, Bhogpur, Bhupati Chak, Chandibhetibar, Chechuraput, Chhanberya, Daha Sonamui, Dakshin Amtalia, Dakshin Aria, Dakshin Kadua, Dariapur, Daulatpur, Deulpote, Dihi Mukundapur, Durgapur, Ghoraghata, Gopalpur, Haripur, Harrahaldina, Jagannathpur, Kadua Mukandapur, Kalagachhia, Kalurayber, Kanai Chatta, Kasafalia, Kulanjara, Phulbari, Pirijpur, Pratappur, Purbba Amtalia, Rasulpur, Sikdar Chak, Sunia, Tiakola, Umapatibar, Uttar Amtalia
	Khajuri - I	Ajaya, Ali Chak, Amjadnagar Golokpatra, Baharganja,

		Bajbajia, Bali Chak, Bikramnagar, Chhatnabari, Dakshin Kalamdan, Debi Chak, Golabari, Herya Atmaram Chak, Jahanabad, Jararnagar, Kanthibari, Kulta, Kultha Jagannath Chak, Lakhi, Mohati, Mukutshila, Patna, Uttar Kalamdan
	Khajuri - II	Ali Chak, Alipur, Arakbari, Baman Chak, Banbasrya, Baratala, Barkasaria, Boga, Chauddachuli, Dekhali, Dhobaghata Baman Chak, Gorahar, Gorahar Jalpai, Haludbari, Joshua, Kadirabad Chak, Kalagachhia, Kartikkhali, Kaseria, Kastala, Katka Debi Chak, Kayal Chak, Keshab Chak, Khajuri, Madakhali, Mansinghabar, Meidinagar, Mundamari, Nankar Gobindapur, Nij Kashba, Nonapata, Oashil Chak, Oshmanpur, Pacharya, Padarbheri, Pakuria, Panikhya, Pankhai, Radhanagar, Safarchata, Sahebnagar, Satsimali, Serkhan Chak, Shyampur Jalpai, Shyampur Katka, Sundarpur, Thanaberya
	Nandigram - I	Basuli Chak, Brindaban Chak, Dinabandhupur, Gangra, Gangra Char, Gokulnagar, Jalpai part V, Jalpai Part VII, Jelyamara, Kalicharanpur, Kanango Chak, Kendamari Jalpai, Manuchak Jalpai, Nakchira Char, Nayachak, Saudkhali Char, Saudkhali Jalpai, Simulkunda, Sonachura, Sonachura Jalpai
	Nandigram - II	Amdabad, Birulia, Jalpai part II, Jalpai part III, Kamalpur, Mangal Chak, Naya Chak Bayal, Rani chak, Subdi
	Ramnagar - I	Alampur, Deulbatta, Dublabari, Junbani, Katandiha, Kuliyata Ramnagar, Talaria
	Ramnagar - II	Baichibania, Chatakasimpur, Deuli, Kalikapur, Kalindi, Kandarpapur, Narandia, Patharmuha, Phulbari, Purushottampur, Rania, Satilapur
	Sutahata	Begunbere

The list of Prohibited and Permissible activities is detailed in Section 2.2.1 & Section 2.2.2 of the CZMP Report. Maps are provided districtwise, separately.

3.1.5 Mouzas in CRZ IVA Zones in West Bengal

CRZ IVA includes areas which include the water area from the Low Tide Line to twelve nautical miles on the seaward side. Following this rationale, the mouzas identified under this category are as follows:

Table 8 List of Mouzas in CRZ IVA Zone of West Bengal

District	Block	Mouza
South 24 Parganas	Namkhana	Fedrick Island, Henry's Island, Lakshampur Abad, Lothian Island
	Patharpratima	Gobardhanpur, Plat G 6Th Portion
	Sagar	Beguakhali, Bisalakshipur, Chemagari, Dhablat, Gangasagar, Sagar, Sibpur
Purba Medinipur	Deshopran	Bankipur, Kalurayber
	Ramnagar - I	Atili, Begundiha, Berakhana, Chandpur, Digha, Gadadharpur, Gangadharpur, Gobindabasan, Jamra Syampur, Kiagoria, Tajpur
	Ramnagar - II	Silampur

The list of Prohibited and Permissible activities is detailed in Section 2.2.1 & Section 2.2.2 of the CZMP Report. Maps are provided districtwise, separately.

3.1.6 Mouzas in CRZ IVB Zones in West Bengal Areas

CRZ IVB includes the water area of the tidal influenced water body from the mouth of the water body at the sea up to the influence of tide which is measured as five parts per thousand during the driest season of the year.

Following this rationale, the mouzas identified under this category are as follows:

Table 9 List of Mouzas in CRZ IVB Zone of West Bengal

District	Block	Mouza
North 24 Parganas	Haroa	Baltia, Baroj, Dakshin Ranigachhi, Gobaria Abad, Haldaha, Haroa, Kamarganti, Khasbalanda, Kulti, Makhala, Munsigheri, Nazarnagar, Ramchakirgheri, Ranigachhi, Raykhan, Samla
	Hasnabad	Bedemari, Bhabanipur, Bhurkunda, Chak Khanpukur, Chak Patli, Chak Tengramari, Chimta, Ghoshalati, Ichhapur, Kharampur Abad, Kuliadanga Abad, Mohanpur Abad, Par Bhabanipur, Shulkuni Abad
	Hingalganj	Ambaria, Bainara, Bankra Dobar, Banstala, Bhandarkhali, Bispur, Charalkhali, Chhota Sahebkhali, Dhanikhali, Dharambaria, Dulduli, Durgapur Baylani, Hemnagar, Jogesganj, Kakaria, Kalitala, Kanaikati, Ketarchak, Khosbas, Kothabari, Kumirmari, Lebukhali, Madhabkati, Malekanghumti, Mamudpur, Parghumti, Patghara, Pukuria chak, Purba Khejurbaria, Putia Mathbari, Ramapur, Rupmari, Sahebkhali, Samsernagar, Sandelerbil, Sarapkati, Shridharkati, Singherkati
	Minakhan	Amadpur, Atpukur, Bachhra, Balihati, Bamanpukuria, Behari (P), Chak Ahammadpur, Kachurhula, Kushangra, Madari, Malancha Abad, Mallick Gheri, Minakhan, Mohanpur, Muchikhola, Niruli, Ramjaygheri, Sarabaria, Uchildaha, Uttar Akratata
	Sandeshkhali-I	Bara Sehara, Baunia Abad, Bayarmari Abad, Bholakhali, Chhota Sehara, Dakshin Akhratala, Gajalia, Ghatihara, Ghoshpur, Hatgachhi, Kalinagar, Kanmari, Khariat Abad, Nityabaria, Nyajat, Putimari, Radhanagar, Raypur
	Sandeshkhali-II	Atapur, Bauthakurani, Bermajhur, Bhangatushkhali, Daudpur, Dhamakhali, Dholkhali, Durgamandap, Dwarirjangal, Gabbaria, Hatgachha, Jeliakhali Pashchimbkhanda, Jeliakhali Purbakhanda, Jhupkhali, Joygopalpur, Khulna, Korakati, Manipur, Rampur, Sitalia, Sukhdoani, Tongtala, Tushkhali
South 24 Parganas	Basanti	A (Birinchhi Bari), Amratata, Ananda Abad, Basanti, Bhangankhali, Bugulakhali, Chandrakona, Char Bidiyabad, Chharanikhali, Chunakhali, Dakshin Mokamberia, Dakshin Narayantala, Gadkhali, Goran Bose, Harbhangi, Hare Krishnapur, Hiranmaypur, Hogal Duri, Jyotispur, Kala Hazra, Kathal Beria, Kumarkhali, Laskarpur, Lot No 124, Lot No 125, Lot No 126, Manasakhali, Mazidbari, Naliakhali, Napharganj, Narayantala, Parbattipur, Purandar, Radha Ranipur, Radhaballabhpur, Ramchandrakhali, Ramkrishnapur, Sachekhali, Sajinatala, Sonakhali, Tetultala, Uttar Battala
	Canning - I	Banibada Belekhal, Budhkhali, Dabu, Dighirpar, Garkhali, Golabari, Herobhanga, Hinchakhali, Khas Kumarkhali, Kripakhali, Matia, Modhukhali, Nikarighata
	Canning – II	Chelikati, Chunpuri, Daharani, Hediari Abad, Maukhali Kumarkhali, Tambuldaha

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Diamond Harbour - I	Sultanpur
Gosaba	Amlamethi, Amtali, Arampur, Bagbagan, Bali, Baramollakhali, Bijaynagar, Bipradaspur, Birajnagar, Chandipur, Chhota Mollakhali, Chimta, Dayapur, Dulki, Gopalkata, Gosaba, Hamilton Abad, Harispur, Hetalbari, Jelepara, Jhaukhali, Kachukhali, Kalidaspur, Kamakhyapur, Kamarpara, Kumirmari, Manmathanagar, Mathurakhanda, Mitrapur, Pakhiralay, Palpur, Pathankhali, Pujjali, Radhanagar Dakshin, Radhanagar Paschim, Radhanagar Purba, Ramnagar, Rangabalia, Sambhunagar, Satjalia, Sonagan, Uttardanga
Jaynagar - II	Bhubankhali, Chuprihara, Nalgora, Radhaballabhpur, Sonatikri
Kakdwip	Akshaynagar, Bamanagar, Bhubannagar, Chandipur, Dakshin Kasiabad, Ganespur, Gangadharpur, Gobindarampur, Gopalnagar, Harendranagar, Hesamabad, Kakdwip, Kalinagar, Kasiabad, Kasinagar, Koaberia, Lakshmipur, Madhusudanpur, Manmathapur, Mrinalnagar, Ramgopalpur, Ramratanpur, Ramtanunagar, Sankiberia, Sibkalinagar, Srikrishnanagar, Taktipur Abad, Thangara, Uttar Chandranagar
Kulpi	Arunnagar, Belpukuria, Bishnurampur, Chak Ruplaskar, Dari Ratneshwarapur, Durganagar, Hanra, Hari Narayanpur, Jadabnagar, Lakshmipur, Masamari, Nutan Tyangrachar, Rangatala, Raytala, Tyangra Char, Uttar Mukundapur
Kultali	Ambikanagar, Andharia, Baikuntapur, Balaharania, Benimadharpur, Bhubaneshwari, Dakshin Garankati, Debipur Gurguria, Deulbari Debipur, Dongajora, Gopalganj, Jalabaria, Japtala, Kaikhali, Kailashnagar, Katamari, Kisorimohanpur, Kundakhali, Lot no. 118, Lot-120, Lot-121, Madhabpur, Madhusudanpur, Madhya Gurguria, Maipit, Meraganj, Purba Gurguria, Purba Syamnagar, Sankizahan, Syamnagar
Mathurapur – I	Abad Bhagabanpur, Amirpur, Banstala Baraghari, Ghat Bakultala, Jogendranagar, Rajarampur
Mathurapur – II	Baradanagar, Baribhanga Abad, Chaplarkhop, Dakshin Jaykrishnapur, Damkal, Dighirpar Bakultala, Jagannath Chak, Kailaspur, Kankandighi, Kumrapara, Mahabatnagar, Nagendrapur, Nandakumarpur, Purba Jatar Deul, Purba Shridharpur, Radhakantapur Abad, Raydighi Abad
Namkhana	Amrabati, Bagdanga, Baliara, Bijaybati, Bisalakshmipur, Budhakhali, Dakshin Chandranagar, Dakshin Durgapur, Debnagar, Durganagar, Dwariknagar, Fedrick Island, Ganesnagar, Haripur, Henry's Island, Iswaripur, Kusumtala, Lothian Island, Madanganj, Maharajaganj, Mousani, Nadabhanga, Namkhana, Narayanganj, Narayanpur, Patibania, Phatikpur, Radhanagar, Rajnagar, Rajnagar Srinathgram, Sibnagar Abad, Sibpur, Uttar Chandanpiri
Patharpratima	Abad Gangadharpur, Achintyanagar, Banashyamnagar, Baradapur, Bhagabatpur, Bishnupur, Brojballabhpur, Buraburir Tat, Burge Island, Chhota Banashyamnagar, Chintamanipur, Dakshin Durgapur, Dakshin Gobindapur, Dakshin Kasinagar, Dakshin Lakshminarayanpur, Dakshin Raypur, Dakshin Sibganj, Dakshin Sibpur, Dakshin Surendraganj, Durbachati, Durgagobindopur, Gangapur, Gobardhanpur, Gobindapur Abad, Gopalnagar Dakshin, Gopalnagar Uttar, Harikrishnapur, Heramba Gopalpur,

		Indranarayanpur, Indraprastha, Indrapur, Jagindrapur, Jameson Island, Kamdebnagar, Kamdebpur, Kaorakhali, Kedarpur, Kisori Nagar, Krishnadaspur..Plot G 1st Portion (A), Krishnapur, Kshetramohanpur, Kuemuri, Kumarpur, Lakshmi Janardanpur, Lakshmipur, Mabendranagar, Madhabnagar, Maheshpur, Meherpur, Parbatipur, Paschim Dwarakapur, Paschim Sridharpur, Paschim Sripatinagar, Paschim Surendranagar, Piprakhali, Plat G 6Th Portion, Plot E 6Th Portion (Khas), Plot G 1st Portion (B), Purba Chintamonipur, Purba Dwarokapur, Purba Sripatinagar, Purnachandrapur, Radhakrishnanagar, Raj Rarajeshwaripur, Rakshaskhali, Ramganga, Sagar Madhabpur, Sibnagar, Sitarampur, Southern Portion Plot L, Sridhamnagar, Srinarayanpur, Taranagar, Upendranagar, Uttar Mahendrapur, Uttar Surendraganj
	Sagar	Bamankhali, Bankimnagar, Beguakhali, Bishnupur, Chandipur, Chemagari, Companir Chhar, Debi Mathurapur, Ghoramara, Gobindapur, Haradhanpur, Kachubaria, Kamalpur, Kastala, Kaylapara, Khan Saheber Abad, Khasimara (Dialuvated), Krishnanagar, Lohachara (Dialuvated), Mahishamari, Manasadwip 2nd Portion, Mandirtala, Mrityunjaynagar, Muriganga, Naraharipur, Phuldubi, Radhakrishnapur, Ramkrishnapur, Rudranagar, Sapkhali, Sikarpur, Sumatinagar
Purba Medinipur	Contai I	Baguran Jalpai, Dakshin Serpur, Damodarpur Jalpai, Jharkosbar, Machhlandapur Jalpai, Maharampur, Purushottampur, Raghusarddarbar Jalpai, Samudrapur, Samudrapur Jalpai, Serpur Jalpai
	Deshopran	Amtalia, Bahar Chhanberya, Bar Chandibheti, Chhanberya, Daha Sonamui, Dakshin Amtalia, Dakshin Aria, Deulpote, Dihi Mukundapur, Ghoraghata, Haripur, Kasafalia, Phulbari, Pratappur, Purbba Amtalia, Rasulpur, Sikdar Chak, Sunia, Umapatibar, Uttar Amtalia
	Haldia	Banskhana Jalpai, Iswardaha Jalpai
	Haldia Municipality	Haldia Municipality
	Khajuri - I	Ali Chak, Amjadnagar Golokpatra, Baharganja, Bajbajia, Dakshin Kalamdan, Debi Chak, Jahanabad, Kanthibari, Mohati, Mukutshila, Patna
	Khajuri - II	Ali Chak, Arakbari, Banbasrya, Boga, Dekhali, Dhobaghata Baman Chak, Gobindapur, Gorahar, Gorahar Jalpai, Kadirabad Chak, Kartikkhali, Kastala, Katka Debi Chak, Kayal Chak, Madakhali, Mundamari, Nankar Gobindapur, Oashil Chak, Panikhya, Pankhai, Saheb Nagar, Serkhan Chak, Shyampur Jalpai, Sundarpur
	Mahishadal	Badur, Bhangagara, Kesabpur Jalpai, Suklalpur, Tentulberya
	Nandigram - I	Basuli Chak, Brindaban Chak, Dinabandhupur, Gangra, Gangra Char, Gokulnagar, Jalpai part V, Jalpai Part VII, Kanango Chak, Kendamari Jalpai, Nakchira Char, Saudkhali Char, Saudkhali Jalpai, Simulkunda, Sonachura, Sonachura Jalpai
	Nandigram - II	Amdabad, Jalpai part II, Jalpai part III, Kamalpur, Mangal Chak, Rani chak, Subdi
	Ramnagar - I	Alampur, Atili, Balarampur, Begundiha, Birampur, Deulbatta, Digha, Gobindabasan, Jagaibasan, Jaldha, Jhaugerya, Junbani, Katandiha, Khadal Gobra, Kuliyata, Maitrapur, Mukundapur, Nilpur, Ramnagar, Raypur, Sankarpur, Somaibasan, Tajpur, Talaria

	Ramnagar – II	Baichibania, Dadanpatra, Deuli, Kalikapur, Kalindi, Kandarpapur, Mandarmani, Mania, Narandia, Patharmuha, Phulbari, Purushottampur, Satilapur, Silampur, Sonamuhi
	Sutahata	Anarnagar, Begunbere, Erekhali, Hariballavpur, Latpatia, Maniruddin Char, Matiram Chak, Matirampur, Parbbatipur, Sadaram Chak

The list of Prohibited and Permissible activities is detailed in Section 2.2.1 & Section 2.2.2 of the CZMP Report. Maps are provided districtwise, separately.

3.1.7 Full Mouzas coming under Coastal Regulation Zones

Some mouzas of the three districts completely come under CRZ areas. They are listed explicitly in this section.

Table 10 List of Mouzas fully in CRZ Zones of West Bengal

District	Block	Mouza
South 24 Parganas	Basanti	Lot No 124, Lot No 125
	Kulpi	Nutan Tyangrachar
	Kultali	Lot no. 118
	Namkhana	Henry's Island, Lothian Island, Susni Island
	Patharpratima	Burge Island, Jameson Island, Plat G 6Th Portion, Plot E 6Th Portion (Khas), Southern Portion Plot L
Sagar	Bisalakshipur, Khasimara (Dialuvated), Lohachara (Dialuvated)	
Purba Medinipur	Deshopran	Kalurayber
	Haldia	River
	Khajuri-II	Gobindapur
	Ramnagar - I	Atili, Begundiha, Digha, Jhawa, Kiagoria

All other mouzas are partly in different CRZ zones.

3.2 Record of Public Consultations

3.2.1 North 24 Parganas

3.2.1.1 Details of Public Consultation

With reference to the CRZ Notification 2011 (Annexure-I, Para-IV), wherein it has been stated that the Draft Coastal Zone Management Plan shall have to be given wide publicity and suggestions and objections received in accordance with Environment (Protection) Act 1986. It further states that a public hearing shall have to be held at the district level by the concerned Coastal Zone Management Authority and based on suggestions and objections received the CZMPs shall be revised and approval of MoEF should be obtained.

Accordingly, a Public hearing was held at the Office of the Sub Divisional Officer, Basirhat, North 24 Parganas on 7th December, 2017 by the West Bengal State Coastal Zone Management Authority in association with District Officials and the resident stakeholders of the area.

Key Points of the Public Hearing are as follows:

1. The meeting was jointly chaired by Addl District Magistrate (LR), North 24 Parganas and Chief Environment Officer & Member Secretary, WBSCZMA. The Sub-Divisional Officer,

Panchayat Samity Members, Panchayat members and other officers of the District administration were also present during the process.

2. At the initiation, the Member Secretary of WBSCZMA and Chief Environment Officer welcomed the participants to the public consultation providing a brief of the hearing procedure and inviting objections and suggestions to the Draft Coastal Zone Management Plan (CZMP).
3. The Senior Environment Officer addressed the participants and explained the salient points of Coastal Regulation Zone Notification with special emphasis on the district and mentioned that the zonation has been done based on the HTL Line prepared by National Centre for Sustainable Coastal Management (NCSCM) and the criteria provided in the notification for characterization of Zones. The names of the Mouzas appearing in the different zones do not imply that the entire Mouza comes under the said CRZ zone.
4. The matter was further clarified through a power point presentation showing the Coastal Regulation Zones of the district and the coastal blocks which come under the CRZ.
5. Further, each category of CRZ I, II, III (NDZ & other areas), IVA, IVB, Ecologically Sensitive Areas, the process of identification as per the CRZ Notification 2011 was clarified and a detailed list of Mouzas in each category of the blocks was displayed.
6. The stakeholders present were then requested to put forward their queries, objections and suggestions which are listed below:
 - a. ADM (LR), North 24 Parganas pointed out that there are a number of old settlement areas in Haroa, Minakhan etc which have been developed long back and as such those areas should be placed under CRZ II.
 - b. He requested all Panchayat Samities and people of the district to take up development activities 100 m away from the HTL of the rivers as a thumb rule. So that the development works do not come in conflict with CRZ areas and permissions for the developmental projects become smooth.
 - c. It was explained that any development activity within 100 mt or width of the creek, whichever is less from the HTL will have to be recommended by the State Coastal Zone Management Authority (SCZMA).
 - d. SDO, Basirhat pointed out that permission for STP within the NDZ (100 mts or width of the creek whichever is less) can be given but not dumping of Municipal Solid Waste (MSW).
 - e. The panchayat representative of Sandeshkhali I stated that mouzas like Kalinagar, Kanmari, Nyajat, Gajalia, Baunia Abad, Dakshin Akhratala have substantial areas already developed within CRZ zones. They may be redesignated as CRZ II. The Authority was requested to go through the same prior to finalization of the CZMP.
 - f. Same was the case of Bermajur, Dhamakhali Mouzas under Sandeshkhali II having large number of guest houses as opined by the panchayat representatives of Sandeshkhali II and needs to be designated as CRZ II. The Authority was requested to go through the same prior to finalization of the CZMP.

Finally ADM (LR) stated that there was not much problem in the district as the requirement of the district is primarily confined to roads, bridges, jetties, rain shelters and the like. He further requested the authority to bring the rules of CRZ to the notice of the Sundarban Development Board as they also construct road, bridge, jetties, tubewell and other structures in the district.

It was stated that the points raised by the participants will be placed before the steering committee before finalization of CZMP.

3.2.2 South 24 Parganas

3.2.2.1 Current Activities

The following table lists the current land use pattern of the coastal blocks of the district¹⁷:

¹⁷ District Profile, South 24 Parganas, Land & Land Reforms Department, Government of West Bengal

Table 11: Current land use pattern of the coastal blocks of South 24 Parganas

Land Use	Area (km²)	%Share
Agricultural (Single Crop)	1265.47	34.05%
River	932.66	25.09%
Rural Settlement	511.31	13.76%
Forest	427.73	11.51%
Agriculture (Double/Multi Crop)	346.93	9.33%
Aquaculture	117.92	3.17%
Social Forestry	39.40	1.06%
Inland Natural	27.60	0.74%
Horticulture Plantation	20.55	0.55%
Scrub/ Wasteland	8.57	0.23%
Lakes/Ponds / Tanks/Canal	7.89	0.21%
Urban Settlement / Housing	5.47	0.15%
Brick Kiln	4.28	0.12%
Public Utilities and Facility	0.51	0.01%
Transportation / Railway Complex	0.38	0.01%
Commercial Area	0.11	0.00%
Educational Institute	0.11	0.00%
Recreational Area	0.03	0.00%
Health	0.03	0.00%
Sports Complex	0.02	0.00%
Industry(Orange)	0.02	0.00%
Institutional (Government)	0.01	0.00%
Industry (Red)	0.01	0.00%
Seaport Complex	0.00	0.00%
Acquired Land	0.00	0.00%
Tourism	0.00	0.00%
Proposed Industrial Area	0.00	0.00%
Non-Polluting Industries	0.00	0.00%
Sandy Area	0.00	0.00%
Salt Pan	0.00	0.00%
Total	3717.01	100.00%

3.2.2.2 Details of Public Consultation

With reference to the CRZ Notification 2011 (Annexure-I, Para-IV), wherein it has been stated that the Draft Coastal Zone Management Plan shall have to be given wide publicity and suggestions and objections received in accordance with Environment (Protection) Act 1986. It further states that a public hearing shall have to be held at the district level by the concerned Coastal Zone Management Authority and based on suggestions and objections received, the CZMPs shall be revised and approval of MoEF shall be obtained.

Accordingly, a Public hearing was held at the seminar hall of the Zilla Parishad, South 24 Parganas on 15th December, 2017 by the West Bengal State Coastal Zone Management Authority in association with District Officials and the resident stakeholders of South 24 Parganas District.

Key Points of the Public Hearing are as follows:

- 1 The meeting was jointly chaired by the Senior Environment Officer and the Addl. District Magistrate (LR), South 24 Parganas.
- 2 At the initiation, the Senior Environment Officer gave the welcome address to the persons present in the public consultation providing a brief of the hearing procedure and requesting objections and suggestions to the Draft Coastal Zone Management Plan (CZMP). The salient points of Coastal Regulation Zone Notification with special emphasis on the area was further elucidated along with the procedure of demarcation of zonation, based on the

HTL Line prepared by National Centre for Sustainable Coastal Management (NCSCM) as per the CRZ Notification, 2011. It was also clarified that the names of the Mouzas appearing in the different zones do not imply that the entire Mouza comes under the said CRZ zone.

- 3 The matter was further clarified through a power point presentation showing the Coastal Zones of West Bengal contained within the CRZ of the district and the coastal blocks which come under the CRZ.
- 4 Further, each category of CRZ I, II, III (NDZ & other areas), IVA, IVB, Ecologically Sensitive Areas along with the process of identification as per the CRZ Notification 2011 was clarified and a detailed list of Mouzas in each category of the blocks was displayed.
- 5 The stakeholders present were then invited to put forward their queries, objections and suggestions which are listed below:
 - a. The brick kiln owners pointed out that a lot of chimneys of brick kilns are present within 50m of High Tide Lines in the district and asked if these can be regularised in such CRZ areas. They said that offices and other buildings of brick kilns can easily be kept out of CRZ.
 - b. Another major observation was that at the crossing of the Jamtala-Kukurkhali Road and Kaikhali Road Junction of Jalabaria Mouza of Kultali Block (Northern Part) of South 24 Parganas, a small portion comes under the No Development Zone of CRZ III. There is however important permanent structures like school, college, masjid, market, brick kiln, etc. The local persons here requested to make this small area as CRZ II as there are already existing permanent development structures here. It was clarified that public utilities such as School, dispensary, rain shelters, roads, bridges, jetties and the like are permissible in NDZ areas.
 - c. The brick kiln owners asked if brick drying can be performed in NDZ areas of river front. It was clarified that activities which do not require any sort civil construction can be done in NDZ.
 - d. The participants were of the opinion that for the security of life and property in Sundarban area, keeping NDZ of 100 mts is extremely necessary and development works can be taken up towards the landward side keeping leaving the NDZ of 100 mts.

Finally, it was stated that the points raised in the hearing would be placed before the Steering Committee for consideration before finalizing the CZMP.

3.2.3 Purba Medinipur

3.2.3.1 Current Activities

The following table lists the current land use pattern of the coastal blocks of the district¹⁸:

Table 12: Current land use pattern of the coastal blocks of Purba Medinipur

Land Use	Area (km ²)	%Share
Agriculture (Double/Multi Crop)	526.27	35.43%
Rural Settlement	330.37	22.24%
Agricultural (Single Crop)	296.14	19.94%
River	106.26	7.15%
Urban Settlement / Housing	37.88	2.55%
Scrub/ Wasteland	34.70	2.34%
Horticulture Plantation	32.84	2.21%
Aquaculture	27.74	1.87%
Industry (Red)	18.82	1.27%
Salt Pan	13.10	0.88%
Social Forestry	11.89	0.80%
Non-Polluting Industries	10.16	0.68%
Seaport Complex	7.88	0.53%
Lakes/Ponds / Tanks/Canal	6.36	0.43%

¹⁸ District Profile, Purba Medinipur, Land & Land Reforms Department, Government of West Bengal

Land Use	Area (km²)	%Share
Forest	5.42	0.36%
Sandy Area	4.56	0.31%
Brick Kiln	3.82	0.26%
Tourism	3.75	0.25%
Inland Natural	2.77	0.19%
Proposed Industrial Area	1.56	0.11%
Acquired Land	1.23	0.08%
Public Utilities and Facility	0.67	0.05%
Educational Institute	0.42	0.03%
Recreational Area	0.37	0.02%
Commercial Area	0.10	0.01%
Transportation / Railway Complex	0.09	0.01%
Industry (Orange)	0.01	0.00%
Institutional (Government)	0.00	0.00%
Sports Complex	0.00	0.00%
Health	0.00	0.00%
Total	1485.18	100.00%

3.2.3.2 Details of Public Consultation

With reference to the CRZ Notification 2011 (Annexure-I, Para-IV), wherein it has been stated that the Draft Coastal Zone Management Plan shall have to be given wide publicity and suggestions and objections received in accordance with Environment (Protection) Act 1986. It further states that a public hearing shall have to be held at the district level by the concerned Coastal Zone Management Authority and based on suggestions and objections received the CZMPs shall be revised and approval of MoEF shall be obtained.

Accordingly, a Public hearing was held at Block Development Office of Ramnagar 1, Purba Medinipur on 5th December, 2017 by the West Bengal State Coastal Zone Management Authority in association with District Officials and the resident stakeholders of the area.

Key Points of the Public Hearing are as follows:

- 1 The meeting was jointly chaired by Chief Environment Officer, Department of Environment & Member Secretary, WBSCZMA and Addl District Magistrate (G), Purba Medinipur.
- 2 At the initiation, the Member Secretary of WBSCZMA and Chief Environment Officer gave the welcome address to the persons present in the public consultation providing a brief of the hearing procedure and requesting objections and suggestions to the Draft Coastal Zone Management Plan (CZMP).
- 3 The Senior Environment Officer also addressed the attendees elucidating the salient points of Coastal Regulation Zone Notification with special emphasis on the area and mentioned that the zonation has been done based on the HTL Line prepared by National Centre for Sustainable Coastal Management (NCSCM) added to the criteria provided in the notification for characterization of Zones. The names of the Mouzas appearing in the different zones do not imply that the entire Mouza comes under the said CRZ zone.
- 4 The matter was further clarified through a power point presentation showing the Coastal Zones of West Bengal contained within the CRZ of the district and the coastal blocks which come under the CRZ.
- 5 Further, each category of CRZ I, II, III (NDZ & other areas), IVA, IVB, Ecologically Sensitive Areas along with the process of identification as per the CRZ Notification 2011 was clarified and a detailed list of Mouzas in each category of the blocks was displayed.
- 6 The stakeholders present were then requested to put forward their queries, views, objections and suggestions to draft plan which are listed as follows:
 - a. The Executive Officer of Digha Shankarpur Development Authority (DSDA) requested to keep Mandarmoni & Tajpur areas in CRZ II as there are already a lot of existing and proposed development projects within the CRZ zones. The Authority requested DSDA to look into the areas and put forth a proposal conforming to CRZ Notification 2011.

- b. It was pointed out by the Executive Officer, DSDA that the demarcations of HTL and NDZ along the tidal influenced waterbodies are not in consonance with the Notification at places. It was brought to his notice that based on satellite imagery the CZMP has to be based on the High Tide Line provided by National Centre for Sustainable Coastal Management (NCSCM), the HTL was finalized and drawn by NSCSM. The NDZ was marked as per the Notification where the width of the tidal influenced waterbody was taken to be from HTL of one bank to the HTL of the opposite bank in case of river or creek.
- c. Sabhapati of Ramnagar 1 Panchayat samity stated that people in the coastal areas grow mangroves and enquired if the cultivated mangrove patches would be allowed to be felled for other projects in future. To this it was clarified that if the mangrove patches fall beyond CRZ areas, CRZ notification will not be applicable but other rules may apply.
- d. Some persons expressed concern about whether existing dwelling houses will be demolished after the CZMP is in place and were informed that no such action will take place for existing dwelling units of local people in CRZ areas but they should not increase the built up area.
- e. The Executive Officer of Digha Shankarpur Development Authority (DSDA) put forward that turtle nesting grounds along the coast of Digha in Ramnagar 1 Block has to be revised as there is no turtle nesting in this whole stretch. It was clarified that the map was produced by NCSCM from historical data but as presently the condition of the beach has changed and the beach is not suitable for nesting of turtles, so no turtle comes to the beach since long. The matter has already been communicated to NCSCM and the turtle nesting site will not be present in the CZMP of Digha.
- f. Executive Officer, DSDA suggested to designate entire Digha Stretch as CRZ II because the area has already been developed.
- g. Tajpur area was requested by DSDA to be revised and designated as CRZ II.
- h. Many people belonging to fishermen community have built huts/kutchha/semi pucca in the CRZ areas. They requested that they should be allowed to build permanent masonry structures. It was clarified that the matter would be looked into within the ambit of CRZ Notification 2011.
- i. In case of Mandarmoni, the one man stating himself to be spokesperson of the Dakshinbanga Matsyajibi Forum opposed the construction of Hotels & Lodges in Mandarmoni area and stated that they are causing damage to the beach as a result fish harvest is dwindling and fishermen are at peril. He requested the authority to consider the conditions of the local fisherman rather than the 80 lodges that are there. He urged the government to think of the overall socio economic development of the local people.
- j. People also requested to put physical boundary demarcation of CRZs for ease of understanding in the field.
- k. The hoteliers stated that there are hotels towards the north (landward side) of the sea side road in Kiagoria Mouza built before 1991. The authority informed that they should provide papers supporting these and submit to the department to designate these zones as CRZ II zones.
- l. Executive Officer, DSDA stated that a tunnel aquarium proposal is there in Digha which may intrude into NDZ area. He was requested to place the details of the project as per CRZ Notification 2011.
- m. The hoteliers stated that there are many hotels under construction at present south of the foreshore road in Ramnagar I block on the seaward side which needs to be considered.

The authority was of the view that any new construction of hotels within CRZ without CRZ clearance is not permissible.

- n. One of the participants suggested that NDZ should be of 50m only like in Kerala.
- o. One of the participants suggested that recent satellite images should be used for preparation of CZMP.
- p. Fishermen have requested that those fishermen who have got funds under "Pradhanmantri Abas Yojana" should be allowed to construct houses under "Amar Bari" or "Pradhan Mantri Abasan Yojana" within CRZ.

The authority was of the view that the planning authority or DSDA should look into the matter and place the matter with all documents before the SCZMA.

- q. The Gram Pradhan stated that Purushottampur name given in the map should be changed to Dakshin Purushottampur.

It was informed that the suggestions received at the public hearing would be placed before the Steering Committee for decision.

4 Map Interpretations

The Plan consists of 1:25,000 scale maps of the entire area of the coastal stretches of the Coastal Zone Management Plan area of the state of West Bengal. The CZMP Plan consists of three districts – North 24 Parganas, South 24 Parganas and Purba Medinipur of the state. The 31 coastal blocks thus included in the plan are as follows:

- ❖ **Purba Medinipur** : Contai I, Contai II (Deshapran), Haldia, Khajuri I, Khajuri II, Nandigram I, Nandigram II, Ramnagar I, Ramnagar II, Sutahata
- ❖ **North 24 Parganas**: Haroa, Hasnabad, Hingalganj, Sandeshkhali I, Sandeshkhali II, Minakhan
- ❖ **South 24 Parganas**: Basanti, Canning I, Canning II, Gosaba, Jaynagar I, Jaynagar II, Kakdwip, Kulpi, Kultali, Mathurapur I, Mathurapur II, Namkhana, Patharpratima, Sagar

The entire area has been divided into 73 grids for mapping purpose as directed by MOEF&CC with each grid measuring 7.5" x 7.5" on 1:25,000 scale. High Tide Line (HTL) has been provided by NCSCM as per CRZ 2011 Notification. Low Tide Line (LTL) has been drawn by IESWM of West Bengal.

Two types of maps have been prepared for this plan – Coastal Regulation Zone (CRZ) Maps and Land Use and Land Cover (LULC) Maps for all the 73 grids. A total of 146 maps have thus been prepared including all details as required. All maps of this CZMP have been provided separately in districtwise booklets and placed with the Plan.

As per the maps, 500m from the HTL has been demarcated as Coastal Regulations Zone. The CRZ Maps show the different CRZ Zones in each Grid with the Mouza boundaries overlaid and LULC Maps show the different Land Uses and land cover in each Grid with the Mouza boundaries overlaid.

In the Sundarban Reserved Forest area, regular inundation takes place hence coastal regulation zones for reserve forests could not be demarcated separately except the LTL.

It may also be noted that NCSCM is working on erosion prone areas. Hence, it is not being marked in the ICZM Plan maps at present prior to receipt of the same from NCSCM.

As significant development has taken place since the date of inception of the CRZ Notification and future urban development planned in the three Development Authority areas – Digha Sankarpur Development Authority (DSDA), Haldia Development Authority (HDA) and Gangasagar Bakhali Development Authority (GBDA), the Coastal regulation zones falling in the coastal mouzas of these Development Authorities have been categorized as CRZ II zones.

Ecologically Sensitive Areas have been designated as CRZ IA as they are part of CRZ I as per the CRZ 2011 Notification.

Width of the creek definition has been applied for the CZMP Plan as per the CRZ 2011 Notification.

Buffer for mangroves has been provided all around of 50m as per notification though on the waterside this buffer is notional.

Maps have been provided in A2 size (districtwise) alongwith the CZM Plan. A1 size maps have also been provided in hard as well as in soft copy in 1:25,000 scale. For ease of hard copy print submission, A2 size maps are hence of a relative scale.

4.1 Interpretation of Purba Medinipur Maps:

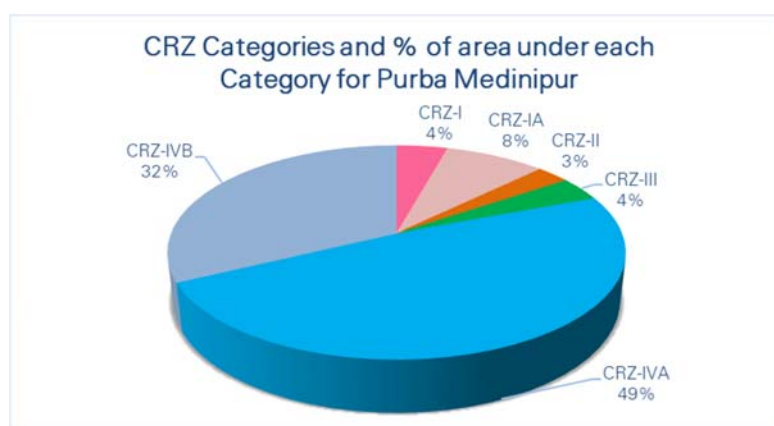
Coastal Blocks of Purba Medinipur where CR Zones fall include the following map grids:

Grid No.	Blocks of Purba Medinipur	Grid No.	Blocks of Purba Medinipur
SE73O6	Ramnagar I	SE73O13	Deshopran & Khajuri II
73O10SW	Ramnagar I	SW79C1	Khajuri II & Sagar (South 24 P)

73O10NW	Ramnagar I & II	NE73O9	Khajuri I
NE73O10	Ramnagar I & II, Contai I	73O13NW	Khajuri I & II, Deshopran, Nandigram II
73O14NW	Contai I & Deshopran	NE73O13	Khajuri I & II, Nandigram I & II
73O13SW	Deshopran	NW79C1	Nandigram I, Khajuri II& Sagar (South 24 P)
SE73N16	Nandigram I & II & Haldia	SW79B4	Nandigram I, Haldia, Haldia Municipality, Sutahata
SE79B4	Haldia Municipality, Sutahata& Kakdwp, Kulpi (South 24 P)	NW79B4	Haldia, Haldia Municipality, Sutahata
NE79B4	Haldia Municipality, Sutahata& Kulpi (South 24 P)		

4.1.1 CRZ Zones in Purba Medinipur

The district's CRZ zone areas have been mapped according to each category and area has been calculated. The maps show that in the 11 coastal blocks 12% of the total area is in CRZ I falling between the HTL & the LTL & CRZ IA the areas that are ecologically sensitive and the geomorphological features which play a



role in the maintaining the integrity of the coast, 3% of the land falls in CRZ II mainly comprising of DSDA area and HDA area along with some other areas of urban settlements. 4% of the land is falling in CRZ III & No Development Zone from HTL to 500 m and the remaining 80% of the area falls in CRZ IVA which is the water area from the Low Tide Line to twelve nautical miles on the seaward side & IVB including the water area of the tidal influenced water body from the mouth of the water body at the sea upto the influence of tide which is measured as five parts per thousand during the driest season of the year.

4.1.2 Proposed development activities

There is a Proposed Port at Tajpur of Ramnagar I Block of Purba Medinipur as seen in Map Grid NE73O10.

There is also Proposed Installation of H. energy in Sutahata Block of Purba Medinipur as seen in Map Grid 79B4NW.

These have been marked explicitly in the CZMP Plan.

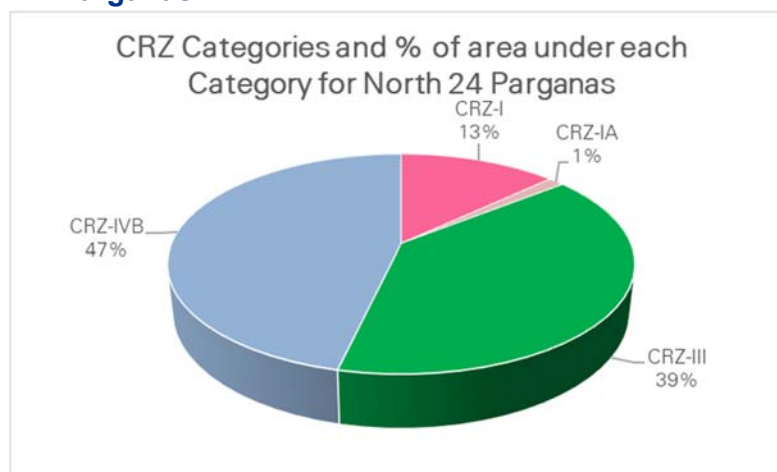
4.2 Interpretation of North 24 Parganas Maps:

Coastal Blocks of North 24 Parganas where CRZ Zones fall include the following map grids:

Grid No.	Blocks of North 24 Parganas	Grid No.	Blocks of North 24 Parganas
SE79B10	Haroa, Minakhan	79B15SW	Sandeshkhali I & II
79B14SW	Haroa, Minakhan, Hasnabad	SE79B15	Sandeshkhali II, Hingalganj
SE79B14	Hasnabad	SW79F3	Hingalganj
NE79B11	Minakhan, Sandeshkhali I	NE79B16	Hingalganj
79B15NW	Minakhan, Sandeshkhali I & II	NW79F4	Hingalganj
NE70B15	Sandeshkhali I & II, Hingalganj		

4.2.1 CRZ Zones in North 24 Parganas

The district's CRZ areas have been mapped according to each category and area has been calculated. The maps show that in the 6 coastal blocks 14.31% of the total area is in CRZ I falling between the HTL & the LTL & CRZ IA the areas that are ecologically sensitive and the geomorphological features which play a role in the maintaining



the integrity of the coast, 0.03% of the land falls in CRZ II mainly comprising of urban settlement areas at the block centers. A majority of the CRZ area amounting to 39.3% of the land is falling in CRZ III & No Development Zone from HTL to 500 m and the remaining 46.36% of the area falls in CRZ IVB including the water area of the tidal influenced water body from the mouth of the water body at the sea upto the influence of tide which is measured as five parts per thousand during the driest season of the year.

4.3 Interpretation of South 24 Parganas Maps:

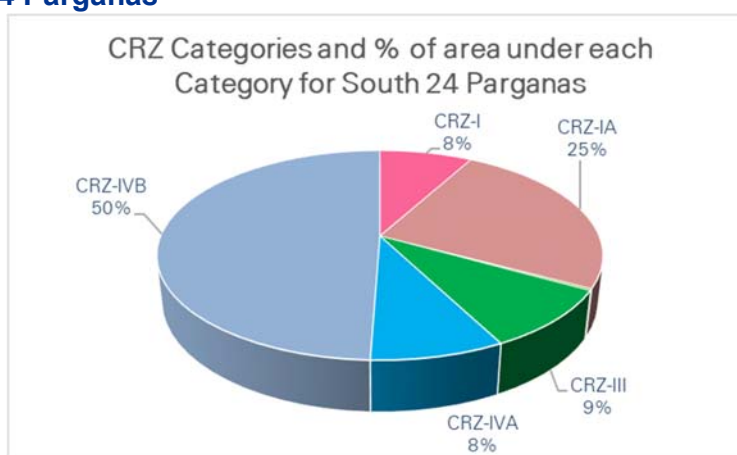
Coastal Blocks of South 24 Parganas where CRZ Zones fall include the following map grids:

Grid No.	Blocks of South 24 Parganas	Grid No.	Blocks of South 24 Parganas
SE79C2	Sagar & Namkhana	SW79C6	Namkhana & Patharpratima
SE79C6	Patharpratima & Kultali	79C10SW	Kultali
SE79C10	Kultali & Gosaba (Forest Block)	79C14SW	Gosaba (Forest Block)
SE79C14	Gosaba (Forest Block)	SW79G2	Gosaba (Forest Block)
NW79G2	Gosaba (Forest Block)	NE79C14	Gosaba (Forest Block)
79C14NW	Gosaba (Forest Block)	NE79C10	Gosaba (Forest Block) & Kultali
79C10NW	Kultali	NE79C6	Patharpratima & Kultali
NW79C6	Namkhana & Patharpratima	NE79C2	Sagar & Namkhana
NW79C2	Sagar	SW79C1	Sagar & Khajuri II (Purba Medinipur)
SE79C1	Sagar, Kakdwip, Namkhana	SW79C5	Kakdwip, Namkhana, Patharpratima
SE79C5	Patharpratima & Kultali	SW79C9	Kultali, Patharpratima
SE79C9	Kultali, Gosaba (Forest Block)	79C13SW	Gosaba (Forest Block)
SE79C13	Gosaba (Forest Block)	SW79G1	Gosaba (Forest Block)
NW79G1	Gosaba (Forest Block)	NE79C13	Gosaba (Forest Block)
79C13NW	Gosaba (Forest Block)	NE79C9	Gosaba (Forest Block), Kultali, Basanti
NW79C9	Kultali, Mathurapur II, Jaynagar II	NE79C5	Mathurapur, Patharpratima
NW79C5	Kulpi, Kakdwip, Patharpratima, Mathurapur I	NE79C1	Kakdwip, Kulpi, Sagar
SE79B4	Kakdwip, Kulpi & Haldia Municipality, Sutahata (Purba Medinipur)	NE79B4	Kulpi & Sutahata (Purba Medinipur)
SW79B8	Kulpi, Mathurapur I	SE79B8	Mathurapur I & II, Jaynagar
79B12SW	Jaynagar II, Kultali	SE79B12	Kultali, Basanti, Gosaba, Gosaba (Forest Block)

79B16SW	Gosaba, Gosaba (Forest Block)	SE79B16	Gosaba, Gosaba (Forest Block)
SW79F4	Gosaba (Forest Block)	NW79F4	Gosaba (Forest Block) & Hingalganj (North 24 P)
NE79B16	Gosaba, Gosaba (Forest Block) & Hingalganj (North 24 P)	79B16NW	Gosaba, Gosaba (Forest Block), Basanti
NE79B12	Basanti, Canning I, Kultali	79B12NW	Kultali, Jaynagar I&II, Canning I
79B11SW	Jaynagar I, Canning I&II	SE79B11	Canning I&II, Basanti
79B15SW	Canning II, Basanti, Gosaba & Sandeshkhali II (North 24 Parganas)	79B15NW	Canning II & Sandeshkhali I (North 24 Parganas)
NE79B11	Canning II & Minakhan, Sandeshkhali I (North 24 Parganas)		

4.3.1 CRZ Zones in South 24 Parganas

The district's CRZ areas have been mapped according to each category and area has been calculated. The maps show that in the 6 coastal blocks 32.90% of the total area is in CRZ I falling between the HTL & the LTL & CRZ IA the areas that are ecologically sensitive and the geomorphological features play a role in the maintaining the integrity of the coast.



This is mainly because of the Sunderban Reserve Forest area which forms a major part of this district and is in addition to the coastal administrative blocks. 0.28% of the land falls in CRZ II mainly comprising of urban settlement areas at the block centers and the Gangasagar Bakkhali Development authority (GBDA) area. 9% of the land is falling in CRZ III & No Development Zone from HTL to 500 m and the remaining 58% of the area falls in CRZ IVA which is the water area from the Low Tide Line to twelve nautical miles on the seaward side & IVB including the water area of the tidal influenced water body from the mouth of the water body at the sea upto the influence of tide which is measured as five parts per thousand during the driest season of the year. This is again mainly because of the Sunderban Reserve Forest area which forms a major part of this district and hence is beyond the coastal blocks.

4.3.2 Proposed development activities

There is a Proposed Coast Guard Base at Frazerganj in Namkhana Block of South 24 Parganas as seen in Map Grid 79C6SW. This proposed base falls under CRZ II as it is part of the GBDA Area.

There is also a Proposed Port (Marine Industrial Cluster) at Kulpi of South 24 Parganas as seen in Map Grid 79B4SE.

These have been explicitly marked in the CZMP map.

5 Way Forward

This CZMP for West Bengal supersedes the CZMP of 1996. The maps have been prepared with accuracy and georeferenced. The various categories have been precisely demarcated.

The CZMP will guide activities to be taken up in the coastal areas of West Bengal. It will be the base document upon which all decision making for coastal zone activities will be made.

As stipulated, the maps have been prepared in 1:25,000 scale.

All intending project proponents in coastal areas, who apply to the West Bengal State Coastal Zone Management Authority for clearance shall have to prepare maps in 1:4000 scale based on the maps prepared in this CZMP.

The CZMP will be made available with District level committee headed by District Magistrate where it can be used for consultation and interpretation. The CZMP will also be available on the website of the department.

The next step for the State will be to prepare local level maps in 1:4000 scale for more accurate local level demarcation of CRZ categories. This exercise will be taken up after notification of the CZMP. Once the local level maps are in place, interpretation would become easier and more accessible. Local bodies and other agencies would be able to use maps for implementation of the CRZ Plan.

The local level CZM Maps will be prepared by engaging the authorized agency viz. IESWM.

The cadastral maps as procured from the Land and Land Records Department, Government of West Bengal would be georeferenced and the HTL and LTL will be demarcated on the said maps based on detailed physical verification using coastal geomorphological signatures or features in accordance with the approved CZM Maps.

HTL (as defined in the CRZ notification, 1991) and LTL will also be demarcated along the banks of tidal influenced inland water bodies with the help of geomorphological signatures or features.

Classifications shall be transferred into local level CZM maps from the CZM Plans.

In future it is expected that greater delegation would be made to the district level committee already constituted under the chairmanship of the District Magistrate concerned for enforcement of CRZ regulations and monitoring of development work in coastal areas.

A Annexures

A.1 List of petroleum and chemical products permitted for storage in [CRZ except CRZ-I(A)]

1. Crude oil;
2. Liquefied Petroleum Gas;
3. Motor spirit;
4. Kerosene;
5. Aviation fuel;
6. High speed diesel;
7. Lubricating oil;
8. Butane;
9. Propane;
10. Compressed Natural Gas;
11. Naphtha;
12. Furnace oil;
13. Low Sulphur Heavy Stock;
14. Liquefied Natural Gas;
15. Fertilizers and raw materials for manufacture of fertilizers.

A.2 Letter informing absence of Turtle Nesting Ground in Digha Coastal Belt & Sea Grass in Sunderbans

A.3 Formation of Working Committee and Steering Committee for the preparation of CZMP of West Bengal

A.4 Minutes of meetings of Public Consultations