BEFORE THE NATIONAL GREEN TRIBUNAL

Southern Bench Chennai

ORIGINAL APPLICATION NO. 195 OF 2024 (SZ)

IN THE MATTER OF:

Tribunal on its own motion-SUO MOTU based on News Item titled "Linking Mangalureans to their rivers" appearing in the Hindu dated 20.10.2023"

AND

Central Pollution Control Board (CPCB)

Rep by its Member Secretary, and Ors. **... RESPONDENTS**

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Signed and verified on this 5th day of September, 2024 at Bengaluru

5/9/2024

DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV.FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

Counsel for
1st Respondent

REGIONAL DIRECTORATE BENGALURU CENTRAL POLLUTION CONTROL BOARD
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE, GOVT OF INDIA
B'LURU-79
560079

BEFORE THE NATIONAL GREEN TRIBUNAL

Southern Bench Chennai

Original Application No. 195 of 2024 (SZ)

IN THE MATTER OF:

Tribunal on its own motion-SUO MOTU based on News Item titled "Linking Mangalureans to their rivers" appearing in the Hindu dated 20.10.2023"

AND

Central Pollution Control Board
Rep by its Member Secretary, and Ors. **... RESPONDENTS**

REPLY ON BEHALF OF THE RESPONDENT NO. 1:
THE CENTRAL POLLUTION CONTROL BOARD

1. That, Hon'ble NGT (SZ) vide order dated 02.08.2024 in the instant case has sought the reply from this answering Respondent herein i.e. CPCB over the instant matter. Thereby, the reply is made in succeeding paragraphs.

2. That, CPCB is a statutory Board constituted under Section 3 of The Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and The Environment (Protection) Act, 1986.

5/3/2025

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

REPLY

3. That, it is respectfully submitted that by order dated 26.04.2024, Hon'ble NGT transferred OA No. 387/2024(PB) to the Southern Bench for further proceedings and it was renumbered as OA No. 195/ 2024 (SZ). The issues raised are similar to OA No. 191/2024 (PB) and OA No. 52/ 2024 (SZ). OA No. 191/2024 (PB) was also transferred to the Southern Zonal Bench for listing it along with the Pending O.A 52 of 2024(SZ)as per Hon'ble NGT order dated 05 .03.2024.

4. That it is respectfully submitted that Original Application No. 195 of 2024 (SZ) is relating to the issues of development of waterfront around Mangalore, Karnataka which is similar to the issues raised in OA No. 52/2024(SZ) and OA No. 191/2024.The Hon'ble NGT in the matter of OA No. 191/2024 (PB) vide order dated 5th March, 2024 constituted a Joint Committee comprising representative of :- (i) Member Secretary - CPCB, (ii) Regional Office, MoEF&CC, Mangalore, (iii) District Magistrate – Dakshina Kannada Mangalore and (iv) Representative of the Director – National Centre for Coastal Research (NCCR) and directed the committee to inspect the site and file a report. The District Magistrate – Dakshina Kannada Mangalore was designated as a nodal officer for Co- ordination & Compliance.

5. That it is respectfully submitted that in the matter of OA No. 191/2024 (PB), in compliance to Hon'ble NGT order dated 05.03.2024, the committee inspected the project site on 11.06.2024 along the Netravathi River Bank from the Netravathi railway bridge to Bolara sea face.

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
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The committee verified compliance with the Coastal Regulation Zone (CRZ) Clearance issued by the Karnataka State Coastal Zone Management Authority (KSCZMA) dated 07-10-2022. During the meeting and inspection, the committee interacted with representatives from the stakeholder Departments, as follows:

- Mangaluru Smart City Limited,
- Regional Director (Environment) (RDE), Mangalore,
- Forest Department, Deputy Conservator of Forest, Mangaluru, and
- Few members of the applicant's organization and other local stakeholders present during the inspection.

6. That, it is respectfully submitted that the committee submitted detailed report before Hon'ble NGT on 20.06.2024. The main findings and recommendations of the Joint Committee are detailed below:

   i. As per the DPR proposal, the project is being developed along a 2.1 km stretch from Netravathi Bridge to Bolar Sea Face which consists of non-motorized eco-friendly walk way and cycle path. According to CRZ clearance, the walking track and cycle track must be realigned from the intertidal area close to the water to the stable river bank (CRZII area), and all proposed structures such as toilet blocks, food kiosks, buggy sheds, ticket counters, etc., are to be aligned on the landward side of the line corresponding to old structures constructed prior to 1991.

17/8/2024

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

ii. On the day of inspection, no construction activity was taking place. As on 11-06-2024, the project proponent has completed dismantling structures, clearing of shrub and grasses and stone masonry work in segments (not in continuous) along the 1.6 km stretch, out of the total proposed works for the 2.1 km stretch.

iii. In November 2023, the applicant submitted a representation to the Regional Director (Environment) Mangalore (hereafter referred as RDE). Following communications from the RDE, the project proponent cleared all debris dumped in the river and utilized it for backfilling. Further, the committee observed that JCB for excavation and bulldozer was used for levelling the land in the initial stages of the project on the landward side near the railway bridge. During the visit, the committee also observed that at certain points along the project stretch, debris from pre-existing tile industries and broken tiles have been dumped over the years.

iv. Out of the total stretch of 2.1 km, currently, 1.6 km stretch has been completed in patches. It was noted that the Forest Department, based on the representation received by the applicant, counted the number of trees in the project area on 01-01-2024 and found a total of 133 trees. It was observed that height of the pre-existing stone masonry revetment has been raised above High Flood Line to reduce risk on inundation and land filling has been carried out on the land ward side of the revetment wall except at one location and the project proponent has initiated dismantling of the same.

J. Chandra Babu
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REGIONAL DIRECTORATE - BENGALURU
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v. The project proponent constructed a bird watching area spanning 42m abetting the railway bridge by dumping material into CRZ 1B area, which is contrary to the approved CRZ clearance. During inspection, it was observed that the project proponent has initiated dismantling of this unauthorized construction. It was noted that stone masonry revetment has been built over the existing masonry revetment, necessitated by the increased height due to land filling on the landward side of the wall.

vi. The project is falling under CRZ-II area and there were only few sporadic mangroves in few patches near to project area. Though a few mangrove plants (sporadic in nature) are noted in some locations, there are no large patches of mangroves meeting the CRZ requirement. It is evident from the approved Coastal Zone Management Plan (CZMP) map wherein no such large mangrove patches (including 1000 square meters or more), were recorded. No significant damage was noted with respect to mangroves during physical observation.

vii. As per Environmental Impact Assessment (EIA) report submitted for the project approval, the project proponent has proposed for restoration of old stone masonry along the river to raise up to High Flood Level (HFL) to protect the area from floods. Compliance status was observed by the committee for restoration of old stone masonry along the river to raise up to HFL to protect the area from floods and the project proponent has increased the height of the existing old dry boulder revetment wall by 600mm above HFL as per their EIA report. The committee is of the view that increasing height of existing old retaining wall along the river bank is intended to prevent erosion, stabilize the bank, and protect the adjacent areas from inundation.

5/8/2024

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

viii. The committee observed that the project proponent had erected temporary sheds with steel structures on concrete footings to enhance the river view. These structures are situated on the landward side of the existing buildings. Apart from minimal concrete footings intended for supporting temporary structures, no additional concrete usage was observed. However, at the location where a view gallery being constructed, it was found concrete footing is on the other side of pre-existing building line. A Copy of the Joint Committee Report dated 20.06.2024 is attached as **Annexure-1**.

7. It is respectfully submitted that the issues referred in OA No. 52/2024(SZ), OA 191/ 2024 (SZ) and OA 195/2024 (SZ) are similar in nature and three matters are listed along with pending OA 52/ 2024 (SZ). CPCB as part of joint committee in the matter of OA 191/2024 has already submitted the findings and is under consideration of Hon'ble NGT (SZ).

8. Hence, it is respectfully submitted that as part of joint committee, CPCB has already made its submissions. In view of these, it is respectfully submitted that Hon'ble NGT may exclude CPCB from the respondents list.

9. That, answering respondent craves leaves of the Hon'ble Tribunal to file additional reply, in future, if required.

5/8/2024

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

10. That, it in light of the above submission, it is respectfully submitted that this Answering respondent i.e. CPCB, shall abide by any order(s) or direction(s) passed by this Hon'ble tribunal in the instant OA.

5/3/2024

DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

COUNSEL FOR
RESPONDENT No. 1

REGIONAL DIRECTORATE BENGALURU CENTRAL POLLUTION CONTROL BOARD
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE, GOVT OF INDIA
B'LURU-79
बेंगलुरु - 560079

BEFORE THE NATIONAL GREEN TRIBUNAL

Southern Bench Chennai

ORIGINAL APPLICATION NO. 195 OF 2024 (SZ)

IN THE MATTER OF:

Tribunal on its own motion-SUO MOTU based on News Item titled "Linking Mangalureans to their rivers" appearing in the Hindu dated 20.10.2023"

AND

Central Pollution Control Board

Rep by its Member Secretary, and Ors. **... RESPONDENTS**

AFFIDAVIT

I, J Chandra Babu, son of late Shri. J Balaramaiah, aged 56 years, having office at the Regional Directorate (Bengaluru), Central Pollution Control Board (CPCB), 1st& 2nd Floors, Nisarga Bhavan A- Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, Bengaluru – 560 079, Karnataka, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

5/3/2025

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

2. That the accompanying reply may be read part and parcel of the present affidavit as I am competent to swear this affidavit.

3. That the accompanying reply has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

5/9/2024

DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

VERIFICATION

Verified at Bengaluru on this day of 5th September, 2024 that the contents of the above reply are correct and true on the basis of the record of the cases as mentioned in the day to day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

5/9/2024

DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

R1

COUNSEL FOR

RESPONDENT No. 1

REGIONAL DIRECTORATE BENGALURU CENTRAL POLLUTION CONTROL BOARD
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE, GOVT OF INDIA
B'LURU-79
बेंगलुरु - 560079

Annexure 1

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Joint committee Report
OA 191/2024 (PB) AND OA 387/2024 (PB) AND IA 22/2024 MERGED WITH OA 52/2024 (SZ)IN COMPLIANCE TO HON'BLE NGT ORDERS DATED 05-03-2024

INDEX

Mullai Muhilan M.P IAS
Deputy Commissioner &
District Magistrate
Mangalore, Dakshina Kannada

Place: Mangaluru
Date: 20.06.2024

JOINT COMMITTEE REPORT
IN THE MATTER OF OA 191/2024 (PB) AND OA 387/2024 (PB) AND IA 22/2024 MERGED WITH OA 52/2024 (SZ)IN COMPLIANCE TO HON'BLE NGT ORDERS DATED 05-03-2024

SUBMITTED TO
THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN BENCH. CHENNAI

JUNE 2024

JOINT COMMITTEE REPORT IN THE MATTER OF OA 191/2024 (PB) AND OA 387/2024 (PB) AND IA 22/2024 MERGED WITH OA 52/2024 (SZ)IN COMPLIANCE TO HON'BLE NGT ORDERS DATED 05-03-2024

I. Preamble

National Environment Care Foundation filed a case OA 52/2024 (SZ) on 23-01-2024 in Hon'ble NGT(SZ) against Mangalore Smart City Ltd & Others regarding alleged violations in Water Front Promenade Development on Nethravathi River Bank. In addition, Hon'ble NGT Principal Bench registered Suo moto case OA 191/2024 (SZ) based on News item dated 26-01-2024 titled "Nethravati Waterfront Promenade project is Hurting Lives of Common People Stakeholders".

In the mater of OA 191/2024 (PB), Hon'ble NGT vide order dated 05-03-2024 constituted a committee comprising of representative of (i) Member Secretary, CPCB (ii) RO, MOEF&CC Mangalore (iii) District Magistrate, Dakshina Kannada Mangalore and (iv) Director, National Centre for Coastal Research (NCCR) to visit the site and ascertain the factual position. In addition, Hon'ble NGT Principal Bench registered Suo-moto case on the basis of the news item titled "Linking Mangalureans to their rivers" appearing in The Hindu dated 20.10.2023. The news item relates to the development of waterfront around Mangalore, Karnataka. OA 387/2024 was transferred to Southern Bench and directed to hear the matter alongwith OA 52/2024 (SZ). Hon'ble NGT Southern Bench vide order dated 31-05-2024 w.r.t the above said cases directed the committee to submit the report by 24-06-2024.

II. Hon'ble NGT orders

In the matter of O.A. No.191 of 2024, Hon'ble NGT Principal Bench Vide Order dated 05.03.2024, has constituted a Joint Committee comprising of (i) Member Secretary - CPCB, (ii) Regional Office, MoEF&CC, Mangalore, (iii) District Magistrate – Dakshina Kannada Mangalore and (iv) Representative of the Director – National Centre for Coastal Research (NCCR). The District Magistrate – Dakshina Kannada Mangalore was designated as a nodal officer for coordinating the Committee and the Committee was also directed to inspect the site and file a report.

In accordance with the above direction of the Hon'ble NGT, the Joint Committee has been constituted with the following nominated members:

1.	Shri. Mullai Muhilan M.P, District Magistrate, Dakshina Kannada, Mangaluru, Karnataka
2.	Smt. Mahima T, Scientist 'E', Central Pollution Control Board, Regional Directorate, Bengaluru
3.	Dr. R. Sridhar, Scientist 'D',

	Ministry of Environment Forest & Climate Change, Regional Office, Bengaluru
4.	Sh. Satya Kiran Raju, Scientist 'E' National Centre for Coastal Research (NCCR), Chennai

III. Inspection by the Joint Committee:

The committee convened a meeting on 11-06-2024, at 11:00 AM at the DC office in Mangaluru. Following the meeting, the committee inspected the project site along the Netravathi River Bank from the Netravathi railway bridge to Bolara sea face. The committee verified compliance with the CRZ Clearance issued by the Karnataka SCZMA on 07-10-2022. During the meeting and inspection, the committee interacted with representatives from the departments namely 1. Mangaluru Smart City Limited, 2. Regional Director (Environment), Mangalore and 3. Forest Department, Deputy Conservator of Forest, Mangaluru. The committee also interacted with few members of the applicant's organization and other local stake holders present during the inspection.

IV. About the project

According to the Detailed Project Report (DPR) dated August 2022 submitted for project approval, the project activity includes the following components:

1)	Dismantling structure and jungle cleaning (i.e., Clearing of shrubs and grasses)
2)	Promenade
3)	Softscapes
4)	Irrigation
5)	Electrical works
6)	Plumbing works & STP
7)	Pedestrian pathway
8)	Cycle parking-7 no.s
9)	Food Kiosk (3mx 3m)-6 no.s
10)	Kiosk at Jeppu-1no.s
11)	Toilet block-4 no.s
12)	Buggy shed- 1no.s
13)	Facility Management Office-1no.s
14)	Pavilion 3mx9m- 5no.s
15)	Ticket counter-5no.s
16)	Play Equipment & Gym Equipment (LS)

As per the DPR proposal, the project is being developed along a 2.1 km stretch from Nethravathi Bridge to Bolar Sea Face which consists of non-motorized eco-friendly walk way and cycle path. According to CRZ clearance, the walking track and cycle track must be

realigned from the intertidal area close to the water to the stable river bank (CRZ II area), and all proposed structures such as toilet blocks, food kiosks, buggy sheds, ticket counters, etc., are to be aligned on the landward side of the line corresponding to old structures constructed prior to 1991.

V. Current status of the project as on 11-06-2024.

During the inspection, the project proponent informed the committee that the following activities have been completed so far in around 1.6 km of the proposed 2.1 km stretch. On the day of inspection, no construction activity was taking place. As on 11-06-2024, the project proponent has completed dismantling structures, clearing of shrub and grasses and stone masonry work in segments (not in continuous) along the 1.6 km stretch, out of the total proposed works for the 2.1 km stretch.

	Location along the stretch	Activity	Measurement
1	Nethravathi river Commonwealth tile factory	Size Stone Masonry (SSM) Work near Land side	281m
		SSM work near Riverside	248m + 42m = 290m
		Violation demolished	42m
		Toilet block	1 No
		Pedestrian Shelter	1 No
		laterite pathway	260m
		brick pathway	Length - 40m width 2 to 2.5m
2	Nethravathi river J H Morgan	SSM Work near Land side	155m
		SSM work near Riverside	165m
		Toilet block	1 No
		Office Block	1 No
3	Nethravathi river ICE Factory	SSM work near Riverside	154m
		Viewing block	1 No
4	Nethravathi river Near Boatyard	SSM Work River side	105m
		SSM Work Land side	55.4m
		Toilet Block	1 No

On the day of inspection, the committee observed that no construction activity was taking place. It was noted that the aforementioned works have been executed in patches and not in a continuous stretch.

VI. Observations of the Joint Committee

The committee reviewed the allegations raised by the petitioner. On the basis of site inspection, the committee's observations on the allegations are given below:

Sl. No	Allegations made by the Applicant (as mentioned in OA 191/2024 dated 05/03/2024)	Observation of the Committee
1	Operation of a bulldozer within the ecologically sensitive riverbanks of Netravathi, specifically coordinates (12.842127, 74.851319), an area known for the presence of mangroves and trees	**Current Status:** On the day of inspection, no construction activities were taking place, and no construction debris were found dumped in the project area. The excavated earth and construction debris have been utilized for backfilling to raise the height above the high flood level (HFL) by approximately 600mm to 750mm, as stated by the project proponent. **(Fig. 1)** **Observation:** In November 2023, the applicant submitted a representation to the Regional Director (Environment), Mangalore. Following communications from the RDE, the project proponent cleared all debris dumped in the river and utilized it for backfilling. Further, the committee observed that JCB was used for excavation and bulldozer for levelling the land in the initial stages of the project on the landward side near the railway bridge. During the visit, the committee also observed that at certain points along the project stretch, debris from pre-existing tile industries and broken tiles have been dumped over the years.
2.	The alleged planning of removal of trees and dumping of soil in the intertidal zone by MSCL, to create a 9-meter-wide space for cycle track and walk path.	Out of the total stretch of 2.1 km, currently, a 1.6 km stretch has been completed in patches. It was noted that the Forest Department, based on the representation received by the applicant, counted the number of trees in the project area on 01-01-2024 and found a total of 133 trees. **The report of Forest Department dated 22-01-2024 is given in Annexure-I.**

		It was observed that the height of the pre-existing stone masonry revetment has been raised above HFL (**Fig. 1**) to reduce risk on inundation and land filling has been carried out on the land ward side of the revetment wall except at one location and the project proponent has initiated dismantling of the same.
3.	Alleged violation of Coastal Regulation Zone (CRZ) involving unauthorized dumping of some construction site debris into the Netravathi river at Mulihithulu to acquire 9 meters of land for the project	The project proponent constructed a bird-watching area spanning 42 meters abetting the railway bridge by dumping material into CRZ IB area, which is contrary to the approved CRZ clearance. During inspection it was observed that the project proponent has initiated dismantling of this unauthorized construction **(Fig. 3).** It was noted that stone masonry revetment has been built over the existing masonry revetment, necessitated by the increased height due to land filling on the landward side of the wall.
4.	Pre 2022 Google Maps imagery before the commencement of the project and subsequent to its execution, it has been observed that approximately 30 and more mangroves and significant trees are no longer present in the area.	The project is falling under CRZ-II area and there were only few sporadic mangroves in few patches near to project area. Though a few mangrove plants (sporadic in nature) are noted in some locations, there are no large patches of mangroves meeting the CRZ requirement (**Fig. 5**). It is evident from the approved CZMP map wherein no such large mangrove patches (including 1000 square meters or more), were recorded. No significant damage was noted w.r.t mangroves during physical observation. **Copy of the approved CZMP is given in the Annexure - II.** Further, on comparison with historical satellite images before & after execution of project, committee observed that there is loss in vegetation. As part of project proposal, removal of bushes/grasses is included by project proponent (**Fig. 4**).

		The project proponent has carried out Environment Impact Assessment study before commencement of project through M/s Aditya Environmental Services Pvt Ltd (NABET accredited EIA consultant). Local level CRZ map for the project is prepared by Institute of Remote Sensing, Anna University before start of project. In both reports it is mentioned that no mangroves are present in the vicinity of the project site.

VII. Compliance status of the conditions of CRZ clearance dated 07-10-2022

The committee reviewed the compliance status of the conditions imposed by the Karnataka SCZMA in its CRZ clearance on 07-10-2022. On the basis of site inspection, the compliance status of the conditions is given below:

Sl. No.	Conditions given in the CRZ clearance	Compliance status as observed by the committee
1)	No permanent / concrete structure should be constructed.	As per EIA report submitted for the project approval, the project proponent had proposed for restoration of old stone masonry along the river to raise up to HFL to protect the area from floods. It was observed that the project proponent has increased the height of the existing old dry boulder revetment wall by 600mm above HFL as per their EIA report. **(Photos of revetment wall attached separately).** The committee is of the view that increasing height of existing old retaining wall along the river bank is intended to prevent erosion, stabilize the bank, and protect the adjacent areas from inundation.
2)	No sewage should be let into nearby water body.	Currently, the project is under construction, and toilet blocks have not yet been constructed. Therefore, no sewage is being generated at this stage
3)	No dumping of solid wastes into water bodies and shall dispose of waste in scientific manner.	On the day of inspection, it was noted that no solid waste had been dumped into water bodies. Additionally, an existing open stormwater drain

		at one location had been converted into a fully enclosed drain using concrete.
4)	The work should be taken up as per the provisions of CRZ notification 2011.	The committee observed that the project proponent has erected temporary sheds with steel structures on concrete footings to enhance the river view **(Fig. 2).** These structures are situated on the landward side of the existing buildings. Apart from minimal concrete footings intended for supporting temporary structures, no additional concrete usage was observed. However, at the location where a view gallery being constructed, it was found concrete footing is on the other side of pre-existing building line.

VIII. Concern raised by the local stakeholders

Local stakeholders present during the inspection expressed concern about the livelihoods of individuals involved in shipbuilding activities at three shipyards located adjoining the project area. It was noted that each shipyard employs approximately 50-60 people. As of now, no construction activity has commenced in these locations.

IX. Photos taken during the site visit and satellite images used for analysis are attached. Attached the Annexure-I (The report of Forest Department dated 22-01-2024) and II (Copy of the approved CZMP) along with the report.

The above observations of the Joint Committee are submitted for the kind perusal of the Hon'ble NGT.

Shri. Mullai Muhilan M.P, District Magistrate, Dakshina Kannada, Mangaluru	20/6/24
Smt. Mahima T, Scientist 'E' Central Pollution Control Board, Regional Directorate, Bengaluru	Mahima T
Dr. R. Sridhar, Scientist 'D' Ministry of Environment Forest & Climate Change, Regional Office, Bengaluru	20/6/24
Sh. Satya Kiran Raju, Scientist 'E' National Centre for Coastal Research (NCCR), Chennai	A. Satya Kiran Raju 20.06.24

***

Fig. 1. Photos taken during the site visit

Fig. 1. ***Photo showing increase of height of retaining wall***

Fig. 2. Photos taken during the site inspection

Temporary shed on concrete footing to facilitate river view

Construction of concrete footing

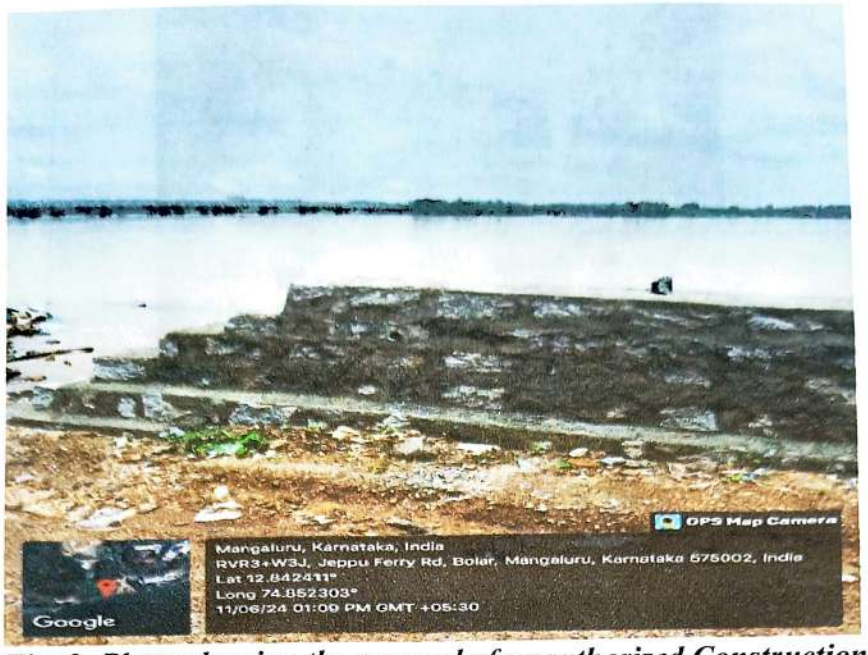


Fig. 3. ***Photo showing the removal of unauthorized Construction***

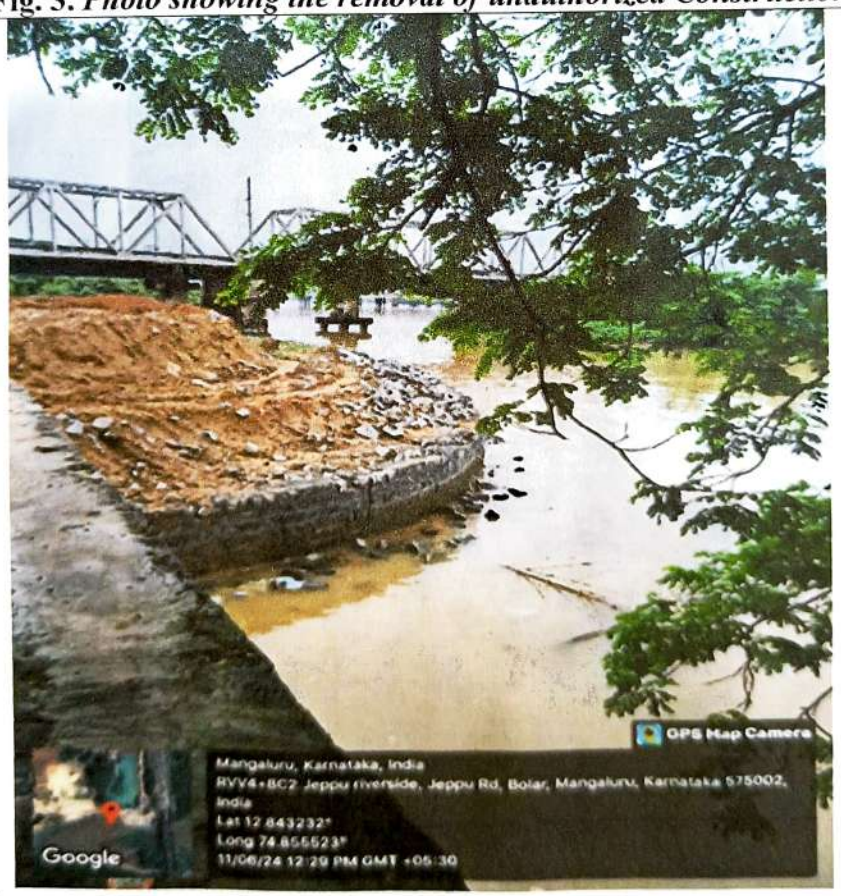
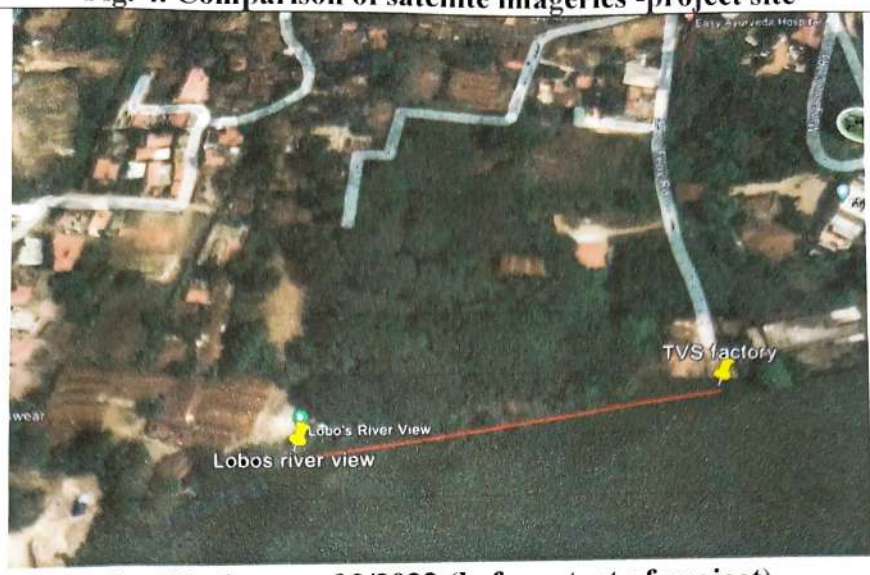


Fig. 3. ***Photo showing the removal of unauthorized Construction near railway bridge***

Fig. 4. Comparison of satellite imageries -project site

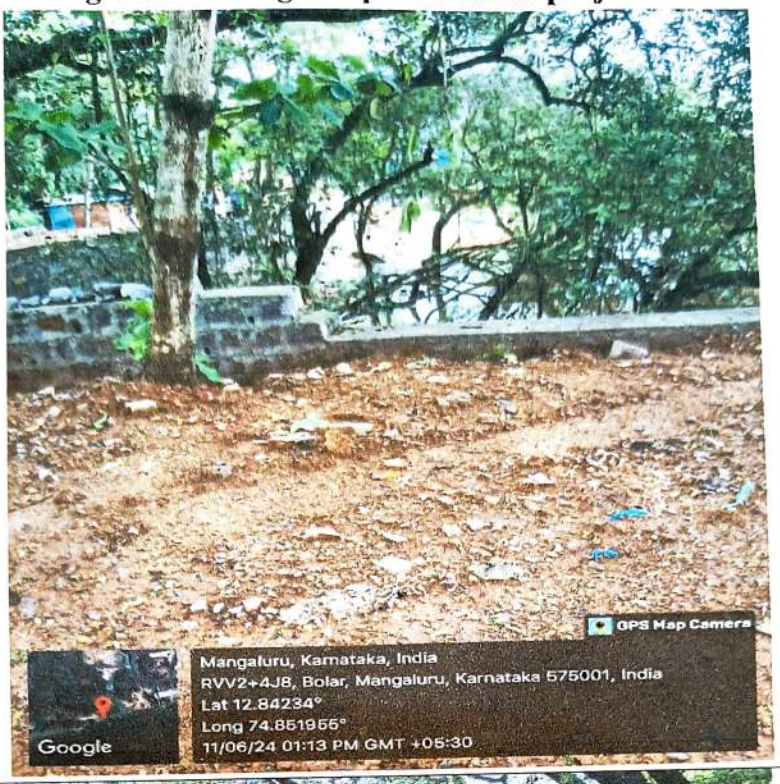


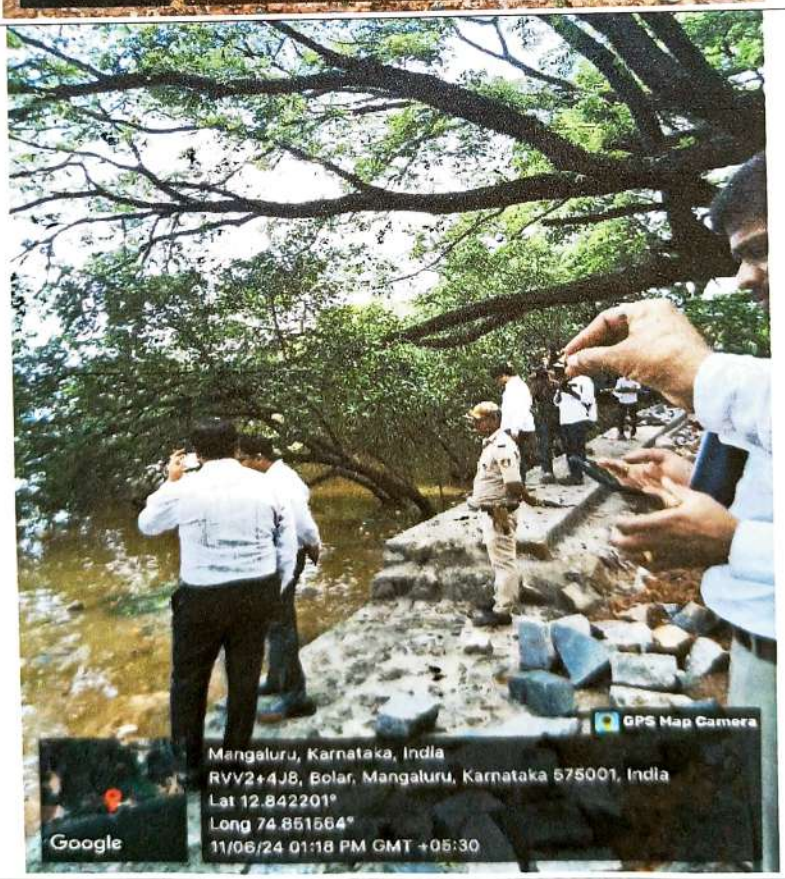
Satellite image of 3/2022 (before start of project)

Satellite image 11/2023 (prior to execution of project)

Satellite image of 2/2024 post execution of project

Fig. 5. Few mangrove plants on the project site





***

Annexure – 1
&
Annexure – 2

Karnataka Forest Department

Phone: 0824 – 2425167 E-Mail:rangeforestmangalore@yahoo.in
Office of the Range Forest Officer , Mangaluru Range, Hoige Bazaar, Mangaluru.

Sl.no:GL:2311:2023-24. Date: 30-12-2023.

To,

Managing Director
Mangalore smart city limited
Mangalore.

Dear Sir,

Subject :- Regarding trees in Netravati River front project under smart city work in Jeppinamogru village, Mangalore.
Referance:- 1. Your office letter no: ಮ.ಸ್ಮಾ.ಸಿ.ಲಿ/ತಾಂತ್ರಿಕ/EE/AEE-3/AE-5/ Cr-86/2023-24/759. Dated: 14-12-2023.

*****

This is to inform you that as you have taken up the work in Netravati river under smart city project, National Environment care federation® , Ashoknagar, Mangalore and Nagarika Hita Vedike® , the Retreat, 2nd cross, lower bendoor, Mangalore -575002 have submitted a petition regarding the damages done to the trees near by ongoing project work. As per the field visit there are Terminalia catapa, Raintree, Peltaforum etc species of 133 trees are marked by red paint. Therefore we request you to avoid any damages to the trees or any branches of the trees while carryout your work.

Thanking you,

Your's Faithfully

Range Forest Officer
Mangaluru Range, Mangaluru.

Copy to:-

1. Deputy Conservator of Forests, Mangalore Division, Mangalore for kind information.
2. Assistant Conservator of Forest Mangalore Sub division & TA to Deputy Conservator of Forests, Mangalore Division, Mangalore for kind information.

Regarding Trees in Netravathi river front project under smart city work in Jeppinamogaru Village , Mangalore

Sl No	|Species	Height	Girth	cubic meter	Remarks
1	Raintree	1.00	3.50		
2	Raintree	4.00	1.60		
3	Raintree	2.00	4.40		
4	Jungle wood	2.00	0.65		
5	Jungle wood	8.00	0.50		
6	Caryota urens	3.00	0.35		
7	Raintree	4.00	0.90		
8	Uppalige	1.50	0.90		
9	Badam	2.50	0.65		
10	Cocount	6.00	0.80		
11	Ambate	2.00	1.40		
12	Cocount	8.00	0.90		
13	Cocount	6.00	0.75		
14	Mangrove	1.00	1.20		
15	Mangrove	1.00	0.75		
16	Mangrove	1.00	0.40		
17	Mangrove	1.00	0.30		
18	Mangrove	2.00	0.40		
19	Buruga	1.00	0.60		
20	Mangrove	2.00	0.50		
21	Mangrove	1.00	0.70		
22	Mangrove	2.00	0.55		
23	Mangrove	2.00	0.40		
24	Raintree	4.00	2.20		
25	Raintree	3.00	2.50		
26	Cocount	12.00	0.80		
27	Badam	10.00	0.70		
28	Cocount	6.00	0.75		
29	Neerambate	3.00	0.90		
30	Cocount	5.00	0.65		
31	Peltafarm	1.00	0.65		
32	Buruga	12.00	0.90		
33	Cocount	7.00	0.85		
34	Cocount	8.00	0.90		Dead tree
35	Raintree	3.00	1.10		

36	Cocount	10.00	0.90		
37	Raintree	2.00	1.60		
38	Peltafarm	1.00	1.05		
39	Cocount	7.00	0.75		
40	Raintree	5.00	1.00		
41	Peltafarm	2.00	0.95		
42	Mangrove	1.00	0.50		
43	Mangrove	1.00	0.50		
44	Mangrove	1.00	0.45		
45	Cocount	1.00	0.70		
46	Cocount	12.00	0.75		
47	Raintree	5.00	1.20		
48	Cocount	8.00	0.75		
49	Cocount	9.00	0.75		
50	Cocount	9.00	0.85		
51	Raintree	3.00	1.35		
52	Mangrove	4.00	1.25		
53	Mangrove	3.00	1.35		
54	Mangrove	1.00	0.80		
55	Mangrove	6.00	1.30		
56	Mangrove	2.00	0.85		
57	Mangrove	3.00	0.50		
58	Mangrove	2.00	0.35		
59	Mangrove	3.00	1.15		
60	Mangrove	2.00	0.30		
61	Mangrove	4.00	0.40		
62	Mangrove	4.00	0.40		
63	Mangrove	2.00	0.50		
64	Mangrove	3.00	0.65		
65	Mangrove	2.00	0.85		
66	Mangrove	2.00	0.25		
67	Mangrove	4.00	0.70		
68	Mangrove	2.00	0.80		
69	Jungle wood	4.00	0.20		
70	Uppalige	4.00	0.25		
71	Jungle wood	4.00	0.90		
72	Manjotti	4.00	0.45		
73	Shivane	6.00	1.45		
74	Honge	2.00	0.40		
75	Raintree	6.00	2.65		
76	Jungle wood	2.00	0.50		
77	Jungle wood	2.00	0.40		

78	Raintree	6.00	2.10		
79	Raintree	3.00	1.85		
80	Buruga	3.00	1.10		
81	Raintree	2.00	0.90		
82	Peltafarm	1.00	0.70		
83	Raintree	2.00	0.80		
84	Raintree	2.00	1.70		
85	Peltafarm	2.00	0.90		
86	Cocount	5.00	0.80		
87	Cocount	6.00	0.75		
88	Ambate	2.00	0.80		
89	Cocount	6.00	0.85		
90	Raintree	2.00	1.15		
91	Buruga	4.00	0.90		
92	Jungle wood	2.00	0.80		
93	Jungle wood	2.00	0.80		
94	Buruga	4.00	0.90		
95	Cocount	6.00	0.80		
96	Cocount	7.00	0.80		
97	Cocount	7.00	0.85		
98	Cocount	4.00	0.60		
99	Cocount	6.00	0.90		
100	Cocount	4.00	0.75		
101	Cocount	4.00	0.65		
102	Cocount	5.00	0.75		
103	Cocount	4.00	0.60		
104	Cocount	5.00	0.80		
105	Caryota urens	3.00	0.60		
106	Ambate	2.00	0.75		
107	Cocount	6.00	0.75		
108	Badam	2.00	0.45		
109	Badam	5.00	0.70		
110	Raintree	3.00	3.05		
111	Ficus racemosa	3.00	1.10		
112	Gobbaragida	1.00	0.70		
113	Ficus racemosa	4.00	1.30		
114	Gliricidia	1.00	0.65		
115	Gliricidia	2.00	0.65		
116	Gliricidia	1.00	0.55		
117	Jungle wood	4.00	0.60		
118	Baynay	4.00	1.10		
119	Badam	5.00	0.60		

120	Cocount	4.00	0.90		
121	Cocount	8.00	.1.05		
122	Cocount	3.00	0.70		
123	Cocount	6.00	0.80		
124	Ashwatha	1.00	2.00		
125	Peltafarm	3.00	0.40		
126	Badam	3.00	0.25		
127	Devadar	2.00	0.90		
128	Ficus racemosa	3.00	1.30		
129	Jungle wood	4.00	0.75		
130	Buguri	1.00	1.30		
131	Koyamarva	1.00	1.30		
132	Cheri	1.00	0.25		
133	Cheri	1.00	0.35		

ಗುತ್ತಿ ಅರಣ್ಯಪಾಲಕರು
ಮಂಗಳೂರು ಗುತ್ತಿ
ಮಂಗಳೂರು ವಲಯ

ಉಪ ವಲಯ ಅರಣ್ಯಾಧಿಕಾರಿ
ಮಂಗಳೂರು ಶಾಖೆ, ಮಂಗಳೂರು

ವಲಯ ಅರಣ್ಯಾಧಿಕಾರಿ
ಮಂಗಳೂರು ವಲಯ, ಮಂಗಳೂರು

Ref. No. AU/IRS/SJ/183-A -2022 Dt.11.10.2022 10

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

SPONSORED BY

M/s Mangaluru Smart City Limited
2nd Floor, City Corporation
M.G. Road, Lalbhagh
Mangaluru - 575 003

Prepared By

INSTITUTE OF REMOTE SENSING
ANNA UNIVERSITY, CHENNAI-25

November 2022

PROJECT DATA SHEET

Title: Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

Project No	: Ref. No. AU/IRS/SJ/ 183-A-2022 Dt.11.10.2022
Coordinator	: Dr. S. Jayalakshmi, Associate Professor
Done for	: **M/s Mangaluru Smart City Limited** 2nd Floor, City Corporation M.G. Road, Lalbhagh Mangaluru - 575 003
Survey Team	: Mr. S. Sathishkumar, IRS, AU Mr. S. Dineshkumar, IRS, AU
Mapping Team	: Mr. J. Prem Kumar, IRS, AU
Report Preparation	: Dr. S. Jayalakshmi, Associate Professor
Quality Check	: Dr. R. Vidhya, Professor Dr. M. Shanmugam, Associate Professor Ms. M. Navamuniyammal, Assistant Professor

The quality Assessment Committee for consultancy projects has scrutinized the local level CRZ map and corresponding text report of the above project on 08.11.2022. The principal consultant of the project has presented the approach adopted, findings of the study to the committee. The committee has evaluated the CRZ Map and the report for different parameters against the standards prescribed for the mapping. The positional accuracy, attribute accuracy, completeness, semantic accuracy of the output were assessed and found satisfactory. The committee recommends the approval of the map and associated report.

Dr. S. Jayalakshmi (Coordinator)

Dr. R. Vidhya (QA member)

Dr. M. Shanmugam (QA member)

M. Navamuniyammal (QA member)

DIRECTOR

Director
Institute of Remote Sensing
Anna University,
Chennai - 600 025.

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

ABSTRACT

On the request of **M/s Mangaluru Smart City Limited,** 2nd Floor, City Corporation,M.G. Road, Lalbhagh Mangaluru - 575 003, a survey was carried out to prepare the local level CRZ Map for the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by superimposing on approved CZMP (Map No KA 01 and 04) as per CRZ Notification 2011. The satellite imagery of the study area was interpreted for geomorphic features in the vicinity of the survey site. The cadastral map of the area provided by the client was used as the base map. Based on the geomorphology and topography in the vicinity of project area, HTL indicated on CZMP published as per CRZ notification 2011 has been identified and traced in the field by kinematic GNSS survey. The HTL, LTL and ecologically sensitive areas indicated in approved CZMP along with setback lines as per CRZ notification 2011 were superimposed on to georeferenced cadastral map to prepare a local level CRZ map at 1:4000 scale and CRZ map in 1:25000 scale. The layout of proposed Jetty and Waterfront Promenade as provided by the client was superimposed on the CRZ map as shown in Annexure II. Out of the total area of 812.04Sq.m of Jetty, 459.96 Sq.m falls in CRZ –I B, 0.3 Sq.m falls in CRZ – II and the remaining area of 351.78 Sq. m falls in CRZ IV B. Out of the total area of 172790.02 Sq.m of Waterfront Promenade, 45896.92 Sq.m falls in CRZ –I B, 113688.16 Sq.m falls in CRZ – II, 3021.73 Sq. m falls in CRZ IV B and the remaining area of 10183.21 Sq.m is in out of CRZ as per CRZ notification 2011. The generated HTL co-ordinates in WGS 84 system, CRZ map in 1:4000 scale, CRZ map in 1:25000 scale, approved CZMP and satellite imagery of the project site are presented in Annexure I, Annexure II, Annexure III, Annexure IV and Annexure V respectively.

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

1. INTRODUCTION

The coastal zone is the area of interaction between land and sea. The coastal Zone of Karnataka has a very high concentration of population along with ecologically sensitive areas like mangroves. There is a spurt of developmental activities arising from huge residential colonies, new industries and tourism centres along the coast and in coastal zone. There is a need to protect the coastal environment while ensuring continuing production and development. This zone is extremely vulnerable and has to be managed judiciously striking a balance between ecological and developmental needs.

Government of India has issued a notification during February 1991 for regulating the developments along the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action. The land between 500 meters from the High Tide Line (HTL) and the Low Tide Line (LTL) is identified as Coastal Regulation Zone (CRZ).

The Ministry of Environment, Forest & Climate Change has provided guidelines for demarcation of High Tide Line in the CRZ Notification, 2011. As per the guidelines, Cadastral (village) maps in 1:3960 or the nearest scale shall be used as the base maps. HTL and LTL will be demarcated in the cadastral map based on detailed physical verification using coastal

geomorphological signatures or features in accordance with the CZMP approved by the Central Government. 500 meter and 200 meter lines shall be demarcated with respect to the HTL.

In order to facilitate classification of Coastal Regulation Zones Government of India has approved few agencies/institutions across the Country vide Lr. No. J17011/8/92-1A III, dated 10.05.1999 of Ministry of Environment, Forest & Climate Change. Institute of Remote Sensing, Anna University being one of them, has been carrying out HTL and LTL mapping following the guidelines issued by Ministry of Environment, Forest & Climate Change, Government of India.

2. BACKGROUND OF THE STUDY

M/s Mangaluru Smart City Limited, 2nd Floor, City Corporation M.G. Road, Lalbhagh Mangaluru - 575 003, has requested Institute of Remote Sensing, Anna University for preparation of local level CRZ map for the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by superimposing on approved CZMP as per CRZ Notification 2011 in 1:4,000 scale and 7km radius CRZ map around project site at 1:25000 scale.

3. STUDY AREA

The proposed Jetty and Waterfront Promenade is located in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka. The proposed site is in the vicinity of Netravati River.

4. NEED FOR THE STUDY

The proposed Jetty and Waterfront Promenade of **M/S Mangaluru Smart City Limited,** 2nd Floor, City Corporation, M.G. Road, Lalbhagh Mangaluru - 575 003 needs to be assessed whether the site and the proposed activities are falls under regulations of CRZ Notification, 2011. Keeping in view of the requirements of notification, Institute of Remote Sensing, Anna University under took the project with following agreed scope of work:

- Superimposition of the project site and proposed pipeline on the approved CZMP by conducting field survey using DGPS survey.
- Preparation of local level CRZ map by superimposing HTL, LTL and Ecologically sensitive areas on cadastral map of 1:4000 scale and 7 Km radius CRZ map in 1:25000 scale.

5. METHODOLOGY ADOPTED

The cadastral map of project locations provided by the client has been used for preparation of local level CRZ map. The geomorphic characteristic of the coastal zone has been analyzed from the medium resolution satellite data. Coastal geomorphologic features and existence of permanent vegetation identified from the satellite imagery were used to transfer the HTL demarcated by NCSCM on approved CZMP. The approved CZMP is georeferenced using graticules available on the maps.

The cadastral map of Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka were digitized from approved CZMP to create a vector dataset of survey polygons in the vicinity of project locations. The same is superimposed on satellite imagery to identify the proposed project locations. The HTL, LTL and ecologically sensitive areas in the vicinity of project locations are digitized from georeferened approved

CZMP. 100m as setback line from HTL for Netravati River is generated using GIS buffering tool. The zones between LTL, HTL and setback lines are delineated to corresponding CRZ as per CRZ Notification 2011.

6. OUTPUT

The HTL was extracted from approved CZMP (Map No KA 01 and 04) in the vicinity of Netravati River which is nearby the proposed site. The generated HTL co-ordinates in WGS 84 system, CRZ map in 1:4000, CRZ map in 1:25000 scale, approved CZMP and satellite imagery of the project site are presented in Annexure I, Annexure II, Annexure III, Annexure IV and Annexure V respectively. The site coordinates are shown in Table 1.

Table 1 Coordinates of Jetty and Waterfront Promenade

Description	Label	Latitude	Longitude
Proposed Jetty	A	12° 50' 32.213" N	74° 51' 7.528" E
	B	12° 50' 32.213" N	74° 51' 8.729" E
	C	12° 50' 30.840" N	74° 51' 9.108" E
	D	12° 50' 30.839" N	74° 51' 8.047" E
Proposed Waterfront Promenade	E	12° 50' 25.886" N	74° 50' 59.207" E
	F	12° 50' 30.303" N	74° 50' 44.400" E
	G	12° 50' 34.413" N	74° 50' 32.154" E
	H	12° 50' 41.238" N	74° 50' 24.261" E
	I	12° 50' 50.292" N	74° 50' 15.309" E
	J	12° 50' 43.458" N	74° 50' 27.091" E
	K	12° 50' 36.819" N	74° 50' 31.407" E
	L	12° 50' 31.770" N	74° 50' 50.579" E
	M	12° 50' 34.290" N	74° 50' 56.037" E
	N	12° 50' 37.960" N	74° 50' 58.038" E
	O	12° 50' 33.767" N	74° 51' 6.491" E
	P	12° 50' 37.026" N	74° 51' 19.251" E
	Q	12° 50' 36.266" N	74° 51' 26.678" E
	R	12° 50' 37.289" N	74° 51' 36.357" E
	S	12° 50' 30.778" N	74° 51' 45.268" E
	T	12° 50' 29.764" N	74° 51' 44.572" E
	U	12° 50' 31.878" N	74° 51' 31.148" E
	V	12° 50' 35.376" N	74° 51' 21.098" E
	W	12° 50' 34.156" N	74° 51' 20.977" E
	X	12° 50' 31.716" N	74° 51' 24.810" E
	Y	12° 50' 31.675" N	74° 51' 20.742" E
	Z	12° 50' 33.340" N	74° 51' 17.521" E

7. CONCLUSION:

The salient conclusions of the study titled "Preparation of local level CRZ map for the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by superimposing on approved CZMP as per CRZ Notification 2011" are;

- The CRZ statement of the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka as per CRZ notification 2011 is shown in Table 2

Table.2 Proposed Jetty and Waterfront Promenade in various CRZ

Description	CRZ - Classification	Area in Sq.m	Total Area in Sq.m
Proposed Jetty	CRZ - IB	459.96	812.04
	CRZ - II	0.3	
	CRZ - IVB	351.78	
Proposed Waterfront Promenade	CRZ - IB	45896.92	172790.02
	CRZ - II	113688.16	
	CRZ - IVB	3021.73	
	Outside CRZ	10183.21	

- No mangroves were present in the vicinity of the proposed site.

PRINCIPAL CONSULTANT

DIRECTOR, IRS

Director
Institute of Remote Sensing
Anna University,
Chennai - 600 025.

ANNEXURE I

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

COORDINATES OF HTL POINTS(WGS 1984)

HTL Point	Latitude	Longitude
1	12° 50' 44.758" N	74° 50' 21.466" E
2	12° 50' 40.641" N	74° 50' 24.461" E
3	12° 50' 37.917" N	74° 50' 27.532" E
4	12° 50' 35.637" N	74° 50' 34.044" E
5	12° 50' 32.543" N	74° 50' 41.033" E
6	12° 50' 29.488" N	74° 50' 49.060" E
7	12° 50' 26.950" N	74° 50' 58.086" E
8	12° 50' 31.011" N	74° 51' 5.132" E
9	12° 50' 34.144" N	74° 51' 13.822" E
10	12° 50' 34.286" N	74° 51' 23.100" E
11	12° 50' 32.517" N	74° 51' 31.809" E
12	12° 50' 36.956" N	74° 51' 34.707" E
13	12° 50' 39.876" N	74° 51' 37.917" E
14	12° 50' 34.430" N	74° 51' 33.285" E
15	12° 50' 28.085" N	74° 51' 36.217" E
16	12° 50' 30.752" N	74° 51' 39.952" E
17	12° 50' 30.975" N	74° 51' 46.182" E
18	12° 50' 11.613" N	74° 51' 37.300" E
19	12° 50' 10.679" N	74° 51' 29.872" E
20	12° 50' 5.268" N	74° 51' 16.449" E
21	12° 50' 0.863" N	74° 51' 7.516" E
22	12° 49' 59.353" N	74° 50' 57.348" E

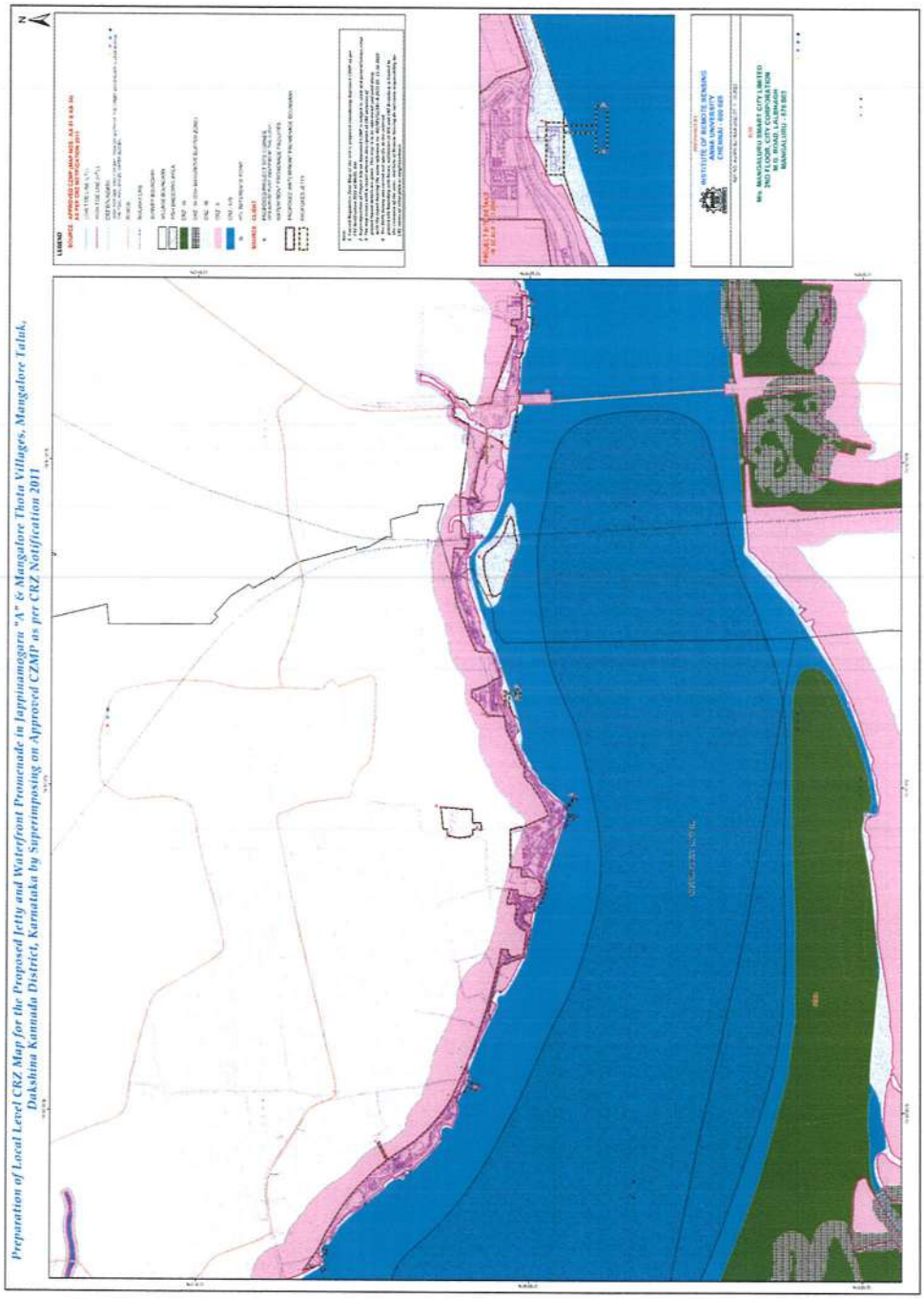
PRINCIPAL CONSULTANT

DIRECTOR, IRS

Director
Institute of Remote Sensing
Anna University,
Chennai - 600 025.

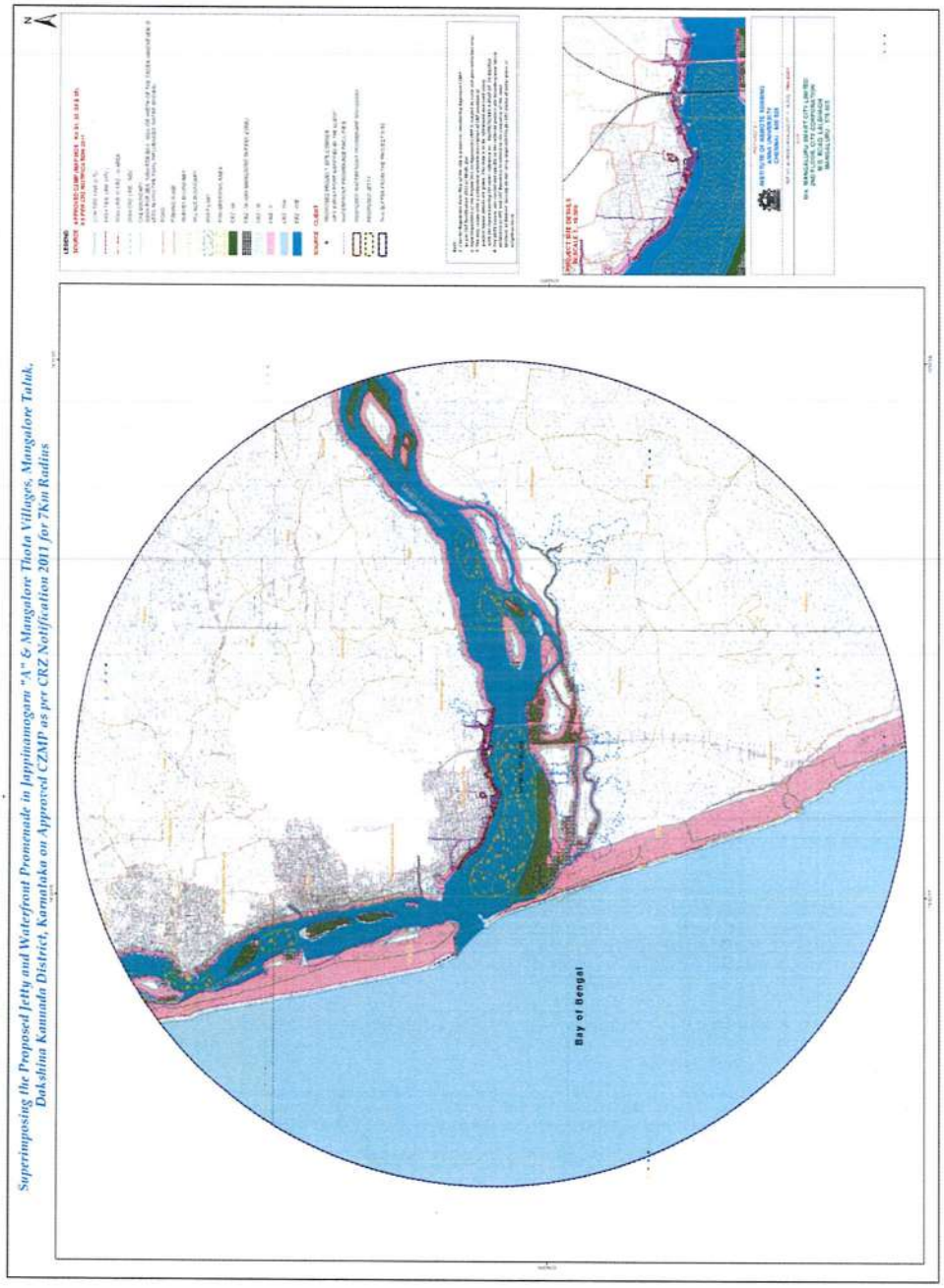
ANNEXURE II

LOCAL LEVEL CRZ MAP OF PROJECT SITE



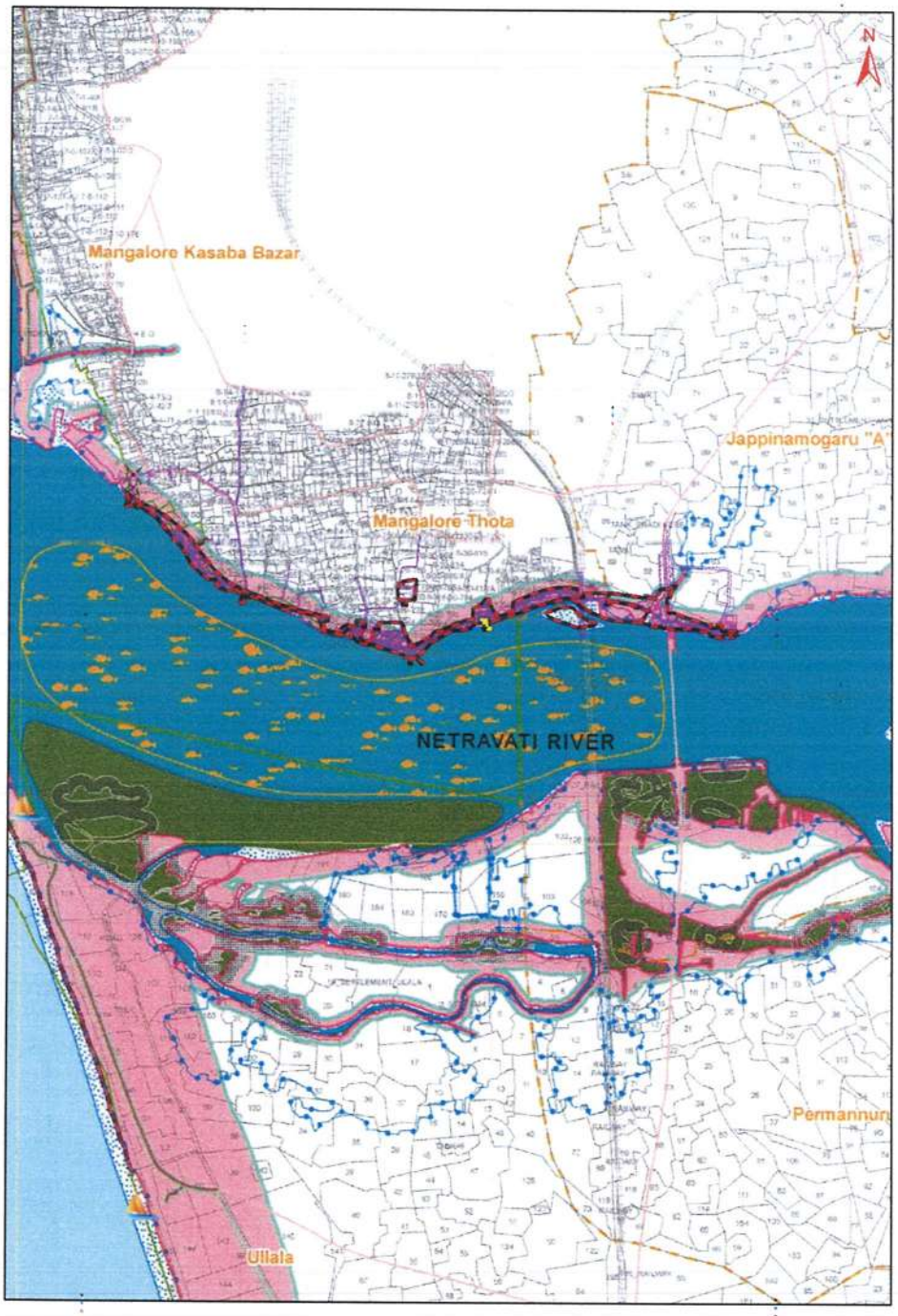
ANNEXURE III

CRZ MAP OF 7KM RADIUS ARROUND PROJECT SITE



ANNEXURE IV

PROJECT SITE SUPERIMPOSED ON APPROVED CZMP



Source: Map No. KA 01 and 04

ANNEXURE V

SATELLITE IMAGERY OF PROJECT SITE

Source: Google Earth