BEFORE THE NATIONAL GREEN TRIBUNAL, SOUTH ZONE

ORIGINAL APPLICATION NUMBER 151 /2024

[Earlier O.A. No. 79 of 2024 (LP) (PB)]

IN THE MATTER OF

Hugh Vas ..... Applicant

Vs.

Karnataka State Pollution Control Board & Others ... Respondents

AFFIDAVIT ON BEHALF OF KARNATAKA STATE POLLUTION CONTROL BOARD

PAPERBOOK

[PLEASE SEE INSIDE FOR INDEX]

DEVRAJ ASHOK

COUNSEL FOR KARNATAKA STATE POLLUTION CONTROL BOARD

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PLACE: BENGALURU

DATE: 31/03/2026

THROUGH COUNSEL

DEVRAJ ASHOK
PH: 8050637442

BEFORE THE NATIONAL GREEN TRIBUNAL, SOUTH ZONE

ORIGINAL APPLICATION NUMBER 151 /2024

[Earlier O.A. No. 79 of 2024 (LP) (PB)]

IN THE MATTER OF

Hugh Vas ..... **Applicant**

Vs.

Karnataka State Pollution Control Board & Others ... **Respondents**

AFFIDAVIT ON BEHALF OF THE KARNATAKA STATE POLLUTION CONTROL BOARD

I, Smt. Dr. Maheshwari Singh, aged about 39 years, presently working as the Environmental Officer (A/c), Karnataka State Pollution Control Board (the "**KSPCB**"), Mangaluru, Karnataka 575011 do hereby solemnly affirm and state that I am duly authorized and competent to depose the present affidavit, on behalf of the KSPCB. I am familiar with the facts and circumstances

pertaining to the present matter, based on the official documents/records of the Karnataka State Pollution Control Board and also in my official capacity and depose as set forth below:

1. It is respectfully submitted that the Principal Bench of the Hon'ble NGT had passed orders on 22/03/2024 constituting a committee, with the KSPCB as the nodal agency, to address the grievances raised by the Applicant in the above titled matter (such committee is hereafter also referred to as the "**Committee**"). It is respectfully submitted that the Applicant had raised issues, by way of a letter, pertaining to erosion of coastal areas and potential steps to be taken to remedy the situation, in the subject-matter areas. The issues raised by the Applicant by way of his letter petition and the consequent directions of the Principal Bench, NGT are a matter of record and the same are not reproduced herein for the sake of brevity.

2. Accordingly, the Committee constituted by the Principal Bench, NGT, undertook a site inspection of the subject-matter areas, with the participation of the Applicant and also obtained expert opinions to remedy the situation i.e., opinions from marine geologists, marine engineers and fisheries experts. Based on such information, a report of the entire proceedings was prepared. A copy of the inspection report of

the Committee pertaining to the inspection of the subject-matter site on 10/03/2025, is annexed herewith as ANNEXURE R1.

3. It may be noted that the Committee has made certain recommendations to be included in the implementation of coastline projects and the measures undertaken to contain coastline erosion. The contents of the Report of the Committee are self-explanatory and as such the same may be read as part and parcel of the present affidavit. The same are not reproduced herein to avoid repetition.

4. It is respectfully submitted that the KSPCB has thereby duly complied with the directions of this Hon'ble Tribunal in the present matter, which were made by way of order dated 22/03/2024. KSPCB will be obliged to submit any other information or particulars, as may be further directed by this Hon'ble Tribunal, if found expedient.

DEPONENT

NOTARY GOVT. OF INDIA

VERIFICATION

Verified on this 12th day of February, 2026, today at Bengaluru, that the contents of the above affidavit are true and correct to the best of my knowledge, information and belief and nothing material is concealed therefrom.

DEPONENT

NOTARY GOVT. OF INDIA

SWORN TO BEFORE ME 12/2/2026

CHANDRASHEKARAIAH. S
Advocate & Notary
No. 917, Kempegowda Nilaya
3rd Cross, Muthuraiyaswamy Extension
Sunkadakatte, Bangalore-560091

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Reg. No. 2057 Date 12/2/2026

Before the Hon'ble National Green Tribunal Principal Bench, New Delhi

Original Application No: 79/2024

Southern Zone Bench

Original Application No: 151/2024

In the matter of:

"Complaint filed by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action"

(SEA Erosion of the Southward of the Old Mangalore Riverine Port)

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Report of joint committee appointed by the Hon'ble National Green Tribunal Principal Bench, New Delhi (NGT) in the matter of original application no: 79/2024, southern zone bench original application no: 151/2024 with respect to "complaint filed by Mr. Capt Hugh Vas for directing to look into the grievances of the complainant and his suggestions for revival of both the schemes, relates to construction of groynes and offshore reefs and suggest appropriate remedial actions"

1. Preamble:

Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 (Southern Zone Bench Original Application NO: 151/2024) based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs.

The applicant in his petition attached the copy of 4 photos taken on 2nd 2023 of the said area which is very adversely affected by yearly sea erosion taking place which is located about 2 kilometres southward of the Old Mangalore (riverine) Port and beyond going to North Kerala, and 1 photo taken of the same sea wall of 125 metres in length soon after it was built on 21st October, 2017 which was done then on the initiative taken by petitioner and the local people living over there with all the concerned local authorities. Now, just to give a first hand idea of what is happening relating to sea erosion generally in India goes like this. Sea erosion takes place due to a combination of the very rough SOUTHWEST monsoon seas and the littoral drift (coastal current) which runs along the coastline, on the West Coast of South India predominantly from North to South, whereas on the East Coast, it is predominantly from South to North, and so when the British had built the breakwaters to make the Madras Harbour (an artificial harbour) back in about 1881, it helped in a big way for sand to accrete on the southern side of the harbour thus creating the Marina Beach over there which over the years

became very famous, whereas erosion was taking place on the northern side by which the Madras port/harbour has progressively grown in size northwards.

A similar phenomenon occurs on the West coast of South India, but in the opposite direction because of the predominant littoral drift running from North to South. So, when the breakwaters of the New Mangalore Port were extended seawards in 1977/78 for providing enough tranquillity for deep loaded ships to sail out of the port after loading Kudremukh iron ore, when the deepening of the harbour was undertaken by doing capital dredging which was done by me as the Master of the DCI dredger MOT VIII then. After that, the beach area on the north was progressively accreting sand which has since become the famous Panambur beach where many people come to visit from all over. However, on the southern side the Bengre beach where fishermen and many others are living, was fast eroding. Then some twenty years later the breakwaters of the Old Mangalore Port were built extending seawards and after that there was accretion taking place on the Bengre beach which now the Government wants to make it into a recreational area. However, at the same time, erosion started taking place on the southern side of the Old Mangalore Port. Meanwhile some of this erosion has since been arrested because of a couple of groynes and 2 nos. 200m long offshore reefs having been constructed under the Asian Bank Development Scheme, which however was then suddenly aborted because as per their plan they were supposed to construct 3 more such offshore reefs which together progressively would lead the littoral drift towards the shoreline gradually training this littoral drift in the required manner.

And to petitioner mind, this project now needs to be revived once again and built to its designed completion.

Also, the other alternative is by building groynes at periodic intervals which progressively converge with the coastline further south. So both the above mentioned schemes need to be deliberated upon by the concerned authorities at the earliest without further loss of time.

Back in 2017, upon me taking up this issue locally, a sea wall of 125 metres length was then constructed over there, called the Sea Ground, and a photo of this is now enclosed in the attached compressed folder, along with 4 other photos taken recently showing in sharp contract what has since become of it totally broken up with so much of beach erosion having taken place in these last 5/6 years, with some rocks now being placed over there as an emergency measure on the initiative taken by U T Khadar, local MLA and now Speaker of the Legislative Assembly and others.

This matter now needs to be urgently brought to the kind attention of the National Green Tribunal and acted upon in right earnest, though presently some emergency measures have since been taken up as mentioned above.

In view of the averments made in the application, Hon'ble NGT consider it appropriate that a Joint Committee be constituted to verify the factual position and suggest appropriate remedial action. Accordingly, Hon'ble NGT constitute a Joint Committee comprising of representatives of Karnataka Coastal Zone Management Authority, Karnataka State Pollution Control Board, and the Collector, Mangalore, Karnataka and direct the same to meet within two weeks, undertake visits to the site, look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action. The Karnataka State Pollution Control Board will be the nodal agency for coordination and compliance

Even though in the present case cognizance has been taken by this Bench on the basis of letter petition filed on public grievance portal with approval and assignment under order of Hon'ble Chairperson, but in view of the facts and circumstances of the case including the fact that the place of accrual of cause of action lies within jurisdiction of the Southern Zone Bench of this Tribunal at Chennai, Hon'ble NGT are of the considered view that it will be appropriate if the case is further heard by the Southern Zone Bench of this Tribunal at Chennai. Accordingly, the Registry is directed to list the matter

before the Southern Zone Bench of this Tribunal at Chennai on 24.05.2024 after obtaining orders from Hon'ble the Chairperson for transfer of the case. O.A No. 79/2024 Capt Hugh Vas Vs. State of Karnataka & Ors.

Factual and Action taken Report by the Joint Committee be filed before the Southern Zone Bench of this Tribunal at Chennai by email judicial-ngtsz@gov.inpreferably in the form of searchable PDF/OCR Supported PDF and not in the form of Image PDF.

A copy of this order be sent to the Member Secretary, Karnataka State Pollution Control Board, Karnataka Coastal Zone Management Authority and Collector, Manglore, Karnataka by email for requisite compliance. **Copy of the Hon'ble NGT order Annexure-1.**

2.0 Constitution of Committee:

In compliance to Hon'ble NGT order, Regional office Mangaluru has requested KSPCB, Head Office to constitute joint committee with above said members/invitees vide no: 280, dated: 06.11.2024 **(Annexure 2)**. Further Regional Office Mangaluru had once again requested the KSPCB, Head Office to include special invitee/additional member from multiple departments as the said matter is related to multiple departments vide No: 1058, dated: 12.08.2024 **(Annexure 3)**. Accordingly Board had issued Office Memorandum vide No: No.PCB/NGT/SEO/MIN/NGT/2024-25/3562, dated: 27.11.2024 constituted a committee consisting of the following members, the copy of the same is enclosed as **Annexure-4.**

Table1: Constitution of Committee as per Hon'ble NGT Order

Sl No	Name & Designation	Details
1.	The Deputy Commissioner, Dakshina Kannada-	Chairman of the Committee
2.	The Regional Director, CRZ, Karnataka Coastal Zone Management Authority, Representing the Member Secretary, Karnataka State Coastal Zone Management Authority ,Room No: 710, 7th Floor, IV Gate M S building , Bengaluru-	Member

	560001	
3.	The Regional Senior Environmental Officer(A/C), KSPCB Mangaluru	Member
4.	The Environmental Officer, KSPCB RO Mangaluru	Member convenor

Based on the above, Regional Office Mangaluru had scheduled the meeting/joint inspection intimation notice vide No: 1797, dated: 30.12.2024enclosed as **Annexure-5**, accordingly a meeting was conducted in presence of Additional Deputy Commissioner, Dakshina Kannada District on 03.01.2025 at 3.00 PM at 3rd Floor Court Hall, Deputy Commissioners Office, Mangalore D.K. The Joint Committee members along with the representatives from inline departments agreed for the joint inspection of the said location. To discuss the matter in presence of the complainant on 17.01.2025 as per letter Joint Inspection intimation Notice No:1865 Dated: 07.01.2025 **Annexure-6**. The Joint Inspection was rescheduled on **10.03.2025 at 10.00** AM vide Regional Office, Mangaluru-KSPCB letter No: 2312, dated: 27.02.2025 **Annexure-7.**

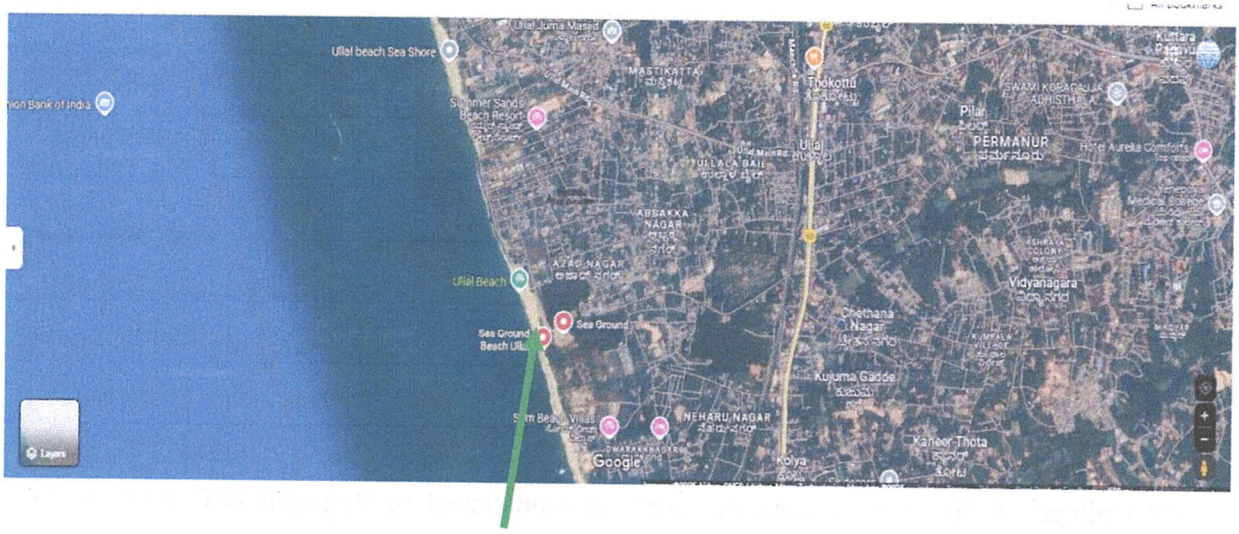
2.1: Site Visit

The Joint Committee made Spot inspection along with other invitees and complainants on 10.03.2025, with prior intimation to all the stake holders and representative from inline Departments. Discussions were held with the members after the spot visit. The members and invitees who attended the spot inspection are as below:

Sl No	Name & Designation	Department	Details
	Members of Committee		
1.	Sri. Mulliai Muhilan IAS,	Deputy Commissioner, Dakshina Kannada-	Chairman of the Committe
2.	Sri. Raghu D	Regional Director, CRZ, Karnataka Coastal Zone Management Authority	Representative of Member
3.	Sri. Keerthi Kumar	The Regional Senior Environmental Officer(A/C), KSPCB Mangaluru	Member
4.	Dr. H Lakshmikantha	The Environmental Officer, KSPCB	Member convenor

		RO Mangaluru	
Other officials Present during Inspection			
1.	Dr. Harshavardhan, KAS	Additional Deputy Commissioner, Dakshina Kannada	
2.	Mr. Capt Hugh Vas	Applicant who filed the OA At NGT	
3.	Sri. Manohar Acharya	Representative Of Port & Inland Water Transport Department, Dakshina Kannada	
4.	Sri Shashidhara S	Assistant Engineer Port And Fisheries, Mangaluru	
5.	Dr. T Nasar	NITK, Marine Engineering Division, Surathkal, Dakshina Kannada	
6.	Sri. B Krishnappa	Senior Manager (Env), Nava Mangalore Port Authority (Nmpa), Panambur, Mangalore	
7.	Dr. Sushmitha Rao	Coastal Development Authority, Govt of Karnataka, Lalbagh, Mangalore	
8.	Prof. Ramachandra Bhatt,	Former Professor Department of Fisheries, Mangaluru,	
9.	Prof. K S Jayappa,	Former Professor Department of Marine Geology, Mangaluru University	
10.	Sri. Alosyius Albeuquerque DAS	Managing Director, Albeuquerque Hotel Pvt Ltd. (Sume	
11.	Dr. Maheshwari Singh	The Deputy Environmental Officer, KSPCB RO Mangaluru	

2.2: Location of the Joint Inspection: The Joint Committee visited referred area at Sea Ground, Ullala along with complainants and officers from line departments and subject experts. The location details of seaground beach Ullala is as follows;



Seaground Beach at Ullala Beach

Map showing the Location of site inspection is attached as **Annexure-8**

1) Observations made during inspection by Joint Committee:

1. The Joint committee met the Complainants, interacted with them and visited the areas in question at Phalguni (Gurupura) river i.e. sand bars/Dhakke regions.
2. The complainant Mr. Capt Hugh Vas, pointed out that twenty years later the breakwaters of the Old Mangalore Port were built extending seawards and after that there was accretion taking place on the Bengre beach which now the Government wants to make it into a recreational area. However, at the same time, erosion started taking place on the southern side of the Old Mangalore Port. Meanwhile some of this erosion has since been arrested because of a couple of groynes and 2 nos. 200m long offshore reefs having been constructed under the Asian Bank Development Scheme, which however was then suddenly aborted because as per their plan they were supposed to construct 3 more such offshore reefs which together progressively would lead the littoral drift towards the shoreline gradually training this littoral drift in the required manner.
3. The complainant has expressed that, the said project needs to be revived once again and built to its designed completion and also other alternatives were suggested to build groynes at periodic intervals which progressively converge with the coastline further south. So requested to deliberate the both the above-mentioned schemes by the concerned authorities at the earliest.
4. complainant also mentioned that, back in 2017, upon him taking up this issue locally, a sea wall of 125 metres length was then constructed over there, called the

Sea Ground was totally broken up with so much of beach erosion having taken place in these last 5/6 years and with some rocks now being placed over there as an emergency measure.

Further to the joint inspection and discussion held on 10.03.2025 Mr. Capt Hugh Vas along with professional standings Mr.Aloysius Albuquerque, BE Civil,& Resident Proprietor, Summer Sands Beach Resort Ullal, Mangalore, Dr. K. S. Jayappa, MSc and PhD in Marine Geology & Former Professor of Marine Geology, Mangalore University, Mangalore and Dr. Ramachandra Bhatta, MA, MSc and PhD in Economics and Fisheries, & Former Professor at the College of Fisheries, Mangalore have communicated to Regional Office Mangaluru through email on 12.03.2025 to consider the following suggestions;

1) It was strongly recommended to critically review the Shoreline Management Plan (SMP) prepared for Karnataka Coast by the National Centre for Sustainable Coastal Management (NCSCM), Ministry of Environment, Forest and Climate Change, Government of India.
2) There seems to be an absence of standard consultations and public engagement while preparing the SMP. Hence requested to access the Final Project Completion Report of the ADB funded offshore reef Project for review to understand a lesson (pros & causes) before implementation of a newly proposed, as there is no perceptible impact on shoreline stability visible even after 5 years of completion of this project.
3) He requested for a Comprehensive Project Plan incorporating the impacts of cyclones and other coastal disasters. Instead of seawalls constructions (which are not long lasting and lead to erosion of beaches in front of them, shifting the erosion problem to adjacent areas or they undergo destruction by the SOUTHWEST monsoon waves), the concerned authority may think of recommending an alternative structure i.e. groins.
4) It was recommended to review the various factors responsible for severe erosion at Batapady coast after the construction of offshore reefs off Ullal, Summer Sands and Batapady (south of Someshwar) before undertaking the Proposed International Cruise Terminal Project.

5) It was also discussed that sand nourishment has not been done although it was a part and parcel of the ADB Project.
6) In the absence of availability of sand, and safer locations for sand mining for soft stabilization (sand nourishment), a feasibility study is necessary before undertaking the new project.
7) A large number of vented dams constructed across the rivers, tributaries and streams in DK and Udupi districts in order to store water for drinking, irrigation and industrial activities has led to the arrest of huge quantities of sand, which otherwise would have reached nearshore and finally been brought to the shore by waves (details/statistics like: number of dams, locations and their impact with proofs /photos will be provided if needed). In addition to this, sand mining in the estuaries since 2 – 3 decades has led to the suffering of beaches and reduction of their width.
8) Submerged breakwaters and offshore reefs constructed off Ullal, Summer Sands and Batapady at about 600 to 700 mts away from the shoreline are NOT serving as barriers for waves and accumulation of sediment on the leeward side of them in the form of **tombolo** is not visible. Hence, we opine that they should have been built within 300 mts of the shoreline, thereby they would have served the purpose better, and the cost of construction also could have been reduced.
9) It was informed in the meeting that construction of seawall recommended in the SMP has become a legal document for CRZ / CZMA approval. However, we recommend an alternative location and specific long-lasting solution such as construction of simple or T-groynes of about 100 mts length at 500 mts intervals.
10) Preservation of beaches as open spaces with aesthetic values is very much essential for the livelihood of fishermen / fisheries, tourism and recreational activities.
11) It was also requested that the Old Mangalore Port Authority / Pollution Control Board to share the soft copies of the following documents as promised which would help us to prepare and submit a comprehensive report thereafter, as follows:
    a) SMP prepared by NCSCM,
    b) Final Closure Report on ADB Project,

c) Project Plan / Proposal of the New International Cruise Terminal Project, and

d) Copy of the Project Proposal for tackling sea erosion at Ullal submitted to the Govt. of Karnataka, prepared by the research team of NITK, Surathkal.

Note: Tombolo is a coastal geomorphological landform which connects an island with the mainland. Here, we mean that a tombolo like landform should have been formed and connected the submerged reefs with the mainland.

The AEE, Port & Inland Water Transport Department, Dakshina Kannada has informed that SMP is a master document to be considered for all kind of developmental projects in coastal line and was prepared by NCSCM Chennai in consultation with localities. As per SMP erosion at Sea Ground Ullala has been suggested with sea wall with sand nourishment as temporary measure to mitigate/arrest/control sea erosion taking place annually during monsoon season. He also informed that Sand nourishment in Ullala and Someshwara area could not be completed due to tender issues. However, in case of any upcoming projects, sand nourishment could be considered in identified coordinates of Ullala beach.

Dr. T Nasar, professor NITK, Marine Engineering Division, Surathkal, Dakshina Kannada has suggested to conduct numerical modelling studies with respect to providing groins and reef identified coordinates of Ullala beach.

Deputy Commissioner heard the grievances and suggestions by Mr. Capt Hugh Vas, subject experts and Officers from concerned departments and informed the Port & Inland Water Transport Department to incorporate the suggestions made by complainant and subject experts while executing the said project, **proceedings of the joint inspection is enclosed as annexure -9**

The Assistant Executive Engineer, Port And Fisheries, Mangaluru has submitted the brief note/comment on CRZ of Dakshina Kannada enclosed as **Annexure 10**. The documents submitted includes point-wise remarks submitted on suggestion of Mr. Capt Hugh Vas along

with professional standings Mr. Aloysius Albquerque, BE Civil & Resident Proprietor, Summer Sands Beach Resort Ullal, Mangalore, Dr. K.S. Jayappa, MSc and PhD in Marine Geology & Former Professor of Marine Geology, Mangalore University, Mangalore and Dr. Ramachandra Bhatta, MA, MSc and PhD in Economics and Fisheries & Former Professor at the College of Fisheries, Mangalore during the joint inspection and discussion held on 10.03.2025 and the details of consultancy services for preparation of DPR for shore Protection Works in Dakshina Kannada District submitted by Chief Executive Officer, Development Ports & Inland Water Transport Department, Karawara.

Further the Assistant Executive Engineer, Port And Fisheries, Mangaluru has enclosed the report on Costal Protection works at Uchila-Battapadi, Ullala Taluk Dakshina Kannada District by Department of Water resources and Ocean Engineering NITK, Surathkal, Mangaluru-575025 and also submitted the para-wise reply to concerns of complainants.

Deputy Commissioner and District Magistrate
Dakshina Kannada District
Chairman of the Joint Committee

Regional Director (Environment),
Department of Forest, Ecology and Environment, ,
Dakshina Kannada- 575003.
Member

The Regional Senior Environmental Officer,
Zonal Office KSPCB, Mangaluru
Member

Environmental Officer, KSPCB, Mangaluru
Member Convenor

Annexure 1

Item No.2 (Court No. 2)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI.

(Through Physical Hearing with Hybrid VC Option)

Original Application No. 79/2024

Capt Hugh Vas ...Applicant

Versus

State of Karnataka & Ors. ...Respondents

Date of hearing: 22.03.2024

CORAM: HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER.
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER.

Applicant: None for the Applicant.

Application is registered based on a letter petition received by Email.

ORDER

1. Mr. Hugh Bas has sent by email the present letter petition to this Tribunal, which has been treated and registered as O.A. No. 79/2024.

2. The relevant part of the letter petition enumerating grievances of the applicant is reproduced as follows:-

X X X X

I am herewith sending you 4 photos taken on 2nd 2023 of the said area which is very adversely affected by yearly sea erosion taking place which is located about 2 kilometres southward of the Old Mangalore (riverine) Port and beyond going to North Kerala, and 1 photo taken of the same sea wall of 125 metres in length soon after it was built on 21st October, 2017 which was done then on the initiative taken by me and the local people living over there with all the concerned local authorities.

Now, just to give a first hand idea of what is happening relating to sea erosion generally in India goes like this.

Sea erosion takes place due to a combination of the very rough SW monsoon seas and the littoral drift (coastal current) which

runs along the coastline, on the West Coast of South India predominantly from North to South, whereas on the East Coast, it is predominantly from South to North, and so when the British had built the breakwaters to make the Madras Harbour (an artificial harbour) back in about 1881, it helped in a big way for sand to accrete on the southern side of the harbour thus creating the Marina Beach over there which over the years became very famous, whereas erosion was taking place on the northern side by which the Madras port/harbour has progressively grown in size northwards.

A similar phenomenon occurs on the West coast of South India, but in the opposite direction because of the predominant littoral drift running from North to South. So, when the breakwaters of the New Mangalore Port were extended seawards in 1977/78 for providing enough tranquility for deep loaded ships to sail out of the port after loading Kudremukh iron ore, when the deepening of the harbour was undertaken by doing capital dredging which was done by me as the Master of the DCI dredger MOT VIII then. After that, the beach area on the north was progressively accreting sand which has since become the famous Panambur beach where many people come to visit from all over. However, on the southern side the bengre beach where fishermen and many others are living, was fast eroding. Then some twenty years later the breakwaters of the Old Mangalore Port were built extending seawards and after that there was accretion taking place on the Bengre beach which now the Government wants to make it into a recreational area. However, at the same time, erosion started taking place on the southern side of the Old Mangalore Port. Meanwhile some of this erosion has since been arrested because of a couple of groynes and 2 nos. 200m long offshore reefs having been constructed under the Asian Bank Development Scheme, which however was then suddenly aborted because as per their plan they were supposed to construct 3 more such offshore reefs which together progressively would lead the littoral drift towards the shoreline gradually training this littoral drift in the required manner.

And to my mind, this project now needs to be revived once again and built to its designed completion.

Also, the other alternative is by building groynes at periodic intervals which progressively converge with the coastline further south. So both the above mentioned schemes need to be deliberated upon by the concerned authorities at the earliest without further loss of time.

Back in 2017, upon me taking up this issue locally, a sea wall of 125 metres length was then constructed over there, called the Sea Ground, and a photo of this is now enclosed in the attached compressed folder, along with 4 other photos taken recently showing in sharp contract what has since become of it totally broken up with so much of beach erosion having taken place in these last 5/6 years, with some rocks now being placed over there as an emergency measure on the initiative taken by U T Khadar, local MLA and now Speaker of the Legislative Assembly and others.

This matter now needs to be urgently brought to the kind attention of the National Green Tribunal and acted upon in right earnest, though presently some emergency measures have since been taken up as mentioned above.
X X X X"

3. Prima facie the averments made in the application raise substantial questions relating to environment arising out of the implementation of the enactments specified in Schedule-I to the National Green Tribunal Act, 2010.

4. In view of the averments made in the application, we consider it appropriate that a Joint Committee be constituted to verify the factual position and suggest appropriate remedial action. Accordingly, we constitute a Joint Committee comprising of representatives of Karnataka Coastal Zone Management Authority, Karnataka State Pollution Control Board, and the Collector, Mangalore, Karnataka and direct the same to meet within two weeks, undertake visits to the site, look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action. The Karnataka State Pollution Control Board will be the nodal agency for coordination and compliance.

5. Even though in the present case cognizance has been taken by this Bench on the basis of letter petition filed on public grievance portal with approval and assignment under order of Hon'ble Chairperson, but in view of the facts and circumstances of the case including the fact that the place of accrual of cause of action lies within jurisdiction of the Southern Zone Bench of this Tribunal at Chennai, we are of the considered view that it will be appropriate if the case is further heard by the Southern Zone Bench of this Tribunal at Chennai.

6. Accordingly, the Registry is directed to list the matter before the Southern Zone Bench of this Tribunal at Chennai on 24.05.2024 after obtaining orders from Hon'ble the Chairperson for transfer of the case.

7. Factual and Action taken Report by the Joint Committee be filed before the Southern Zone Bench of this Tribunal at Chennai by email judicial-ngtsz@gov.inpreferably in the form of searchable PDF/OCR Supported PDF and not in the form of Image PDF.

8. A copy of this order be sent to the Member Secretary, Karnataka State Pollution Control Board, Karnataka Coastal Zone Management Authority and Collector, Manglore, Karnataka by email for requisite compliance.

Arun Kumar Tyagi, JM

Dr. Afroz Ahmad, EM

March 22nd, 2024
n

ANNEXURE-2

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
ಪರಿಸರ ಭವನ, 10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು - 575 011

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

towards a cleaner Karnataka

No: PCB/(MNG)/NGT-OA No.79 /2024-25/ 280 Date: 6.4.24

NGT MATTER

To,

The Member Secretary
KSPCB,# 49, Parisara Bhavan
Church Street, Bengaluru-01

Kind Attention: SEO, Mines Section

Sir,

Sub: Formation of Joint Committee in the matter of NGT O.A. No.79/2024 based on letter petition by Mr. Capt Hugh Vas -reg.

Ref: 1.The Hon'ble National Green Tribunal, Principal Bench, New Delhi Order dated:22.03.2024 in respect of OA No.79/2024.
2. NGT Order forwarded through mail from Chairman Section dated:02.04.2024

*****

Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action as in NGT Order cited vide ref (1).

Further, Hon'ble NGT has directed to constitute a Joint Committee comprising of representatives of Karnataka Coastal Zone Management Authority, Deputy Commissioner, Dakshina Kannada District and Representative from KSPCB. Further, as the matter is not pertaining to KSPCB preview it is requested to include special invitee from representative of Port & inland water transport department, Representative from National Centre for Sustainable Coastal Management, Ministry Of Environment, Forest and Climate Change (MoEF & CC), Channai, Commissioner, Mangalore City Corporation, Representative from Coastal Security Police, as additional committee members for the said joint committee and KSPCB is made the nodal agency for Co-ordination and compliance.

Hence, to proceed further with the directions of Hon'ble Tribunal, the Board is requested to constitute a Joint Committee along with above said special invitees at the earliest in this regard.

This is for kind information and further needful action.

Your's Faithfully

ENVIRONMENTAL OFFICER (I/c),
KSPCB, RO-Mangaluru

Copy To,

1. Law Officer, Legal Cell, KSPCB, Bengaluru for information and necessary action
2. The Zonal Senior Environmental Officer, KSPCB, Mangaluru, D.K for kind information.
3. Case file

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
ಪರಿಸರ ಭವನ, 10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು - 575 011

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

towards a cleaner Karnataka

No: PCB/(MNG)/NGT-OA No.79 /2024-25/ 1058 . Date: 12.8.24.

To,

NGT MATTER-MOST URGENT

The Member Secretary
KSPCB,# 49, Parisara Bhavan
Church Street, Bengaluru-01

Kind Attention: SEO, Enforcement Cell

Sir,

Sub: Formation of Joint Committee in the matter of NGT O.A. No.79/2024.

Ref: 1.The Hon'ble National Green Tribunal, Principal Bench, New Delhi Order dated:22.03.2024 in respect of OA No.79/2024.
2.NGT Order forwarded through mail from Chairman Section dated:02.04.2024.
3. This Office letter to Board Office, KSPCB letter No: 280 Dated: 06.04.2024.
4. Office of Deputy Commissioner letter No:CLW(1)CR/NGT 79/2024/L-1 Dated: 13.05.2024.
5. This Office letter to Deputy Commissioner letter No: 904 Dated: 09.07.2024.
6. Office of Deputy Commissioner letter No:CLW(1)CR/2024/431777/L-1 Dated: 05.08.2024.

*****

Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action as in NGT Order cited vide ref (1).

Further, in order cited reference, the Hon'ble NGT has directed to constitute a Joint Committee state PCB being the nodal agency for co-ordination and compliance, comprising of representatives of following departments:

Sl No	Name & Designation	Details
01	Deputy Commissioner, Dakshina Kannada	Chairman
02	Karnataka Coastal Zone Management Authority	Member
03	Environmental Officer	Member convenor

Further, as the matter is related to multi departmental subject, it is requested to include special invitee/additional member from following departments:

Sl No	Name & Designation	Details
01	Representative of port & inland water transport department, Dakshina Kannada	Member
02	Representative from National Centre for Sustainable Coastal Management, Ministry Of Environment, Forest and Climate Change (MoEF & CC), Channai,	Member

(178)

24

03	Commissioner, Mangalore City Corporation, Lalbagh Mangalore	Member
04	Representative from Coastal Security Police, Dakshina Kannada	Member
05	Representative from NITK, Marine Engineering Division, Surathkal, Dakshina Kannada	Member
06	Representative from National Highway Authority India (NHAI) , Govt Of India, Pumpwell, Mangaluru, Dakshina Kannada	Member
07	Representative from Tourism Department, Govt of Karnataka, Bejai, Mangalore	Member
08	Director, Nava Mangalore Port Authority (NMPA), Panambur, Mangalore	Member
09	Representative from Coastal Development Authority, Govt of Karnataka , Lalbagh, Mangalore	Member
10	Representative from Public Works Department, Govt of Karnataka , Mangalore	Member
11	Tahsildar Mangalore Revenue Department, Mangalore, Dakshina Kannada	Member
12	Tahsildar Mulki, Revenue Department, Dakshina Kannada	Member

This office already requested to constitute a joint committee to submit the action taken report to Hon'ble NGT vide ref (3) and Deputy Commissioner is seeking action taken report on the said NGT matter vide ref (4 & 6).

Hence, it is requested to constitute a Joint Committee along with above said special invitees at the earliest.

This is for kind information and further needful action.

Your's Faithfully
Sd/-

ENVIRONMENTAL OFFICER
KSPCB, RO-Mangaluru

Copy To,

1. Deputy Commissioner, Dakshina Kannada, Mangalore for information
2. Law Officer, Legal Cell, KSPCB, Bengaluru for information and necessary action
3. Senior Environmental Officer-Mines section, Head Office, KSPCB, Bengaluru, D.K for kind information
4. The Zonal Senior Environmental Officer, KSPCB, Mangaluru, D.K for kind information.
5. Case file

ENVIRONMENTAL OFFICER
KSPCB, RO-Mangaluru

Annexure -4

ಹೆಲ್ಪ್‌ಲೈನ್ / Helpline : 080-25582559
ಈಮೇಲ್ / Email : contact@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : kspcb.karnataka.gov.in

080-25581383, 25589112
080-25589113, 25589114

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ ರಾಜ್ಯ, ಭಾರತ
"Parisara Bhavan", 1st to 5th Floor, # 49, Church Street, Bangalore - 560 001, Karnataka State, India

No. PCB/SEO/MIN/NGT/2024-25/ 3562 Date: 27 NOV 2024

OFFICE MEMORANDUM

Sub: Inspection by Joint Committee constituted by the Hon'ble National Green Tribunal, Principal Bench, New Delhi to verify the factual position relating to sea erosion taking place at southward of the Old Mangalore (riverine) Port and a similar phenomenon occurs on the West coast of South India, because of the predominant littoral drift and for appropriate remedial action – reg.

Ref: National Green Tribunal (NGT), Principal Bench, New Delhi (presently transferred to Southern Zone Bench at Chennai and renumbered as OA No. 151 of 2024(SZ) Order dated: 22.03.2024 in respect of OA No. 79/2024.

<<<>>>

Preamble:

Mr. Hugh Bas has sent the letter petition to National Green Tribunal, Principal Bench, New Delhi enumerating grievances relating to sea erosion taking place which is located about 2 kilometres southward of the Old Mangalore (riverine) Port and beyond going to North Kerala. A similar phenomenon occurs on the West coast of South India, but in the opposite direction because of the predominant littoral drift running from North to South. Meanwhile some of this erosion has been arrested because of a couple of groynes and 2 nos. 200 m long offshore reefs having been constructed. The applicant brought this matter to the kind attention of the National Green Tribunal that, this project needs to be revived in respect of both the schemes, of construction of groynes and offshore reefs. NGT is not aware of the present status.

In view of the averments made in the application, the Hon'ble NGT, Principal Bench, New Delhi vide Order dated:22.03.2024 cited at above reference, constituted a Joint Committee comprising of representatives of Karnataka Coastal Zone Management Authority, Karnataka State Pollution Control Board, and the Collector, Mangalore, Karnataka and direct to undertake visits to the site, look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and to suggest appropriate remedial action. The Karnataka State Pollution Control Board to be the nodal agency for co-ordination and compliance.

In line with Hon'ble NGT directions vide Order dated: 22.03.2024, a Joint Committee consisting of Officers from following Departments is herewith formed;

Sl. No.	Name & Designation	Details
1.	The District Collector, Dakshina Kannada District	Chairman

2.	The Senior Environmental Officer, Karnataka State Pollution Control Board, Zonal Office, Mangaluru.	Member
3.	The Member Secretary Karnataka Coastal Zone Management Authority Room No. 710, 7th Floor, IV Gate, M. S. Building, Bangalore - 560 001	Member
4.	The Environmental Officer, Karnataka State Pollution Control Board, Mangaluru.	Member Convener

This Committee shall visit the site, verify factual of the case & grievances of the applicant and submit report with appropriate remedial action at the earliest.

Encl.: Hon'ble NGT, Principal Bench, New Delhi Order dated:22.03.2024 in respect of OA No. 79/2024 (presently, O.A. No. 151 of 2024(SZ)).

Sd/-
MEMBER SECRETARY
KARNATAKA STATE POLLUTION CONTROL BOARD

To,

1. The District Collector,
   Dakshina Kannada District.
2. The Senior Environmental Officer,
   Karnataka State Pollution Control Board,
   Zonal Office, Mangaluru.
3. The Member Secretary,
   Karnataka Coastal Zone Management Authority
   Room No. 710, 7th Floor, IV Gate,
   M. S. Building, Bangalore - 560 001.
4. The Environmental Officer,
   Karnataka State Pollution Control Board,
   Mangaluru.

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Copy to:

1. The Senior Environmental Officer, Zonal Office, Mangaluru is directed to attend the Joint inspection and submit Joint inspection report on top priority since it is required to be submitted to the Hon'ble NGT within the stipulated time.

2. The Environmental Officer, Regional Office, Mangaluru is directed to co-ordinate with the Zonal SEO, Mangaluru and other departments and to submit the report within 04.12.2024.

3. Case File.

P. Dinesh

CHIEF ENVIRONMENTAL OFFICER-2

Annexure -5

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
ಪರಿಸರ ಭವನ, 10ಬಿ
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ಮಂಗಳೂರು - 575 011

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towards a cleaner Karnataka

No:PCB/(MNG)/NGT-OA No.151 (SZ) 79 (PB) /2024-2025/ 1797 Date: 30-12-24

NGT MATTER- MOST URGENT

'MEETING/JOINT INSPECTION INTIMATION NOTICE'

Sub: Meeting of the Joint Committee in the matter of NGT O.A. No.151/2024 (SZ) pertaining to letter petition by Mr. Capt Hugh Vas -reg.

Ref: 1.The Hon'ble National Green Tribunal, Principal Bench, New Delhi Order dated:22.03.2024 in respect of OA No.79/2024.
2.NGT Order forwarded through mail from Chairman Section dated:02.04.2024.
3. This Office letter to Board Office, KSPCB letter No: 280 Dated: 06.04.2024.
4. Office of Deputy Commissioner letter No:CLW(1)CR/NGT 79/2024/L-1 Dated: 13.05.2024.
5. This Office letter to Deputy Commissioner letter No: 904 Dated: 09.07.2024.
6. Office of Deputy Commissioner letter No:CLW(1)CR/2024/431777/L-1 Dated: 05.08.2024.
7. This Office letter to Board Office, KSPCB letter No: 1058 Dated: 12.08.2024.
8. Board Office Om No: 3562 Dated: 27.11.2024.

*****

As per the above subject and reference, Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action as in NGT Order cited vide ref (1) (Copy of the Hon'ble NGT order in is enclosed for kind reference).

In view of above, as per Hon'ble NGT direction a Joint Committee was formed consisting of Karnataka Coastal Zone Management Authority, Deputy Commissioner, Dakshina Kannada District and State PCB was made the nodal agency for coordination and compliance. Hence, a Joint Committee consisting of above members were constituted by Board Office vide Office Memorandum cited vide ref (8).

The matter was discussed with the Deputy Commissioner, Dakshina Kannada District who is also the Chairman of the Committee and he has directed to call all the Joint Committee members along with the other related departments for meeting on 03.01.2025 at 11.30 AM at 3rd Floor Court Hall, Deputy Commissioners Office, Mangalore D.K Dist followed by Joint inspection.

Encl: As Above

Sd/-
ENVIRONMENTAL OFFICER,
KSPCB, RO-Mangaluru
Member Convener of the Committee.

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To,

1. The Member Secretary, Karnataka Coastal Zone Management Authority, Room No:710, 7th Floor, IV Gate, M.S building, Bangalore-560001requested to attend the meeting.
2. Regional Senior Environmental Officer, Zonal Office, Karnataka State Pollution Control Board, Mangaluru, D.K District for information and necessary action.

Copy to with request to attend meeting/Joint inspection:

1. The Regional Director (Environment), Department of Forest, Ecology and Environment, Mangaluru. D.K.- 575003.
2. The Commissioner, Mangalore City Corporation, Lalbagh, Mangalore
3. Chief Executive Officer, Port & inland water transport department, Mangalore Divisional Office, Dakshina Kannada (Email: mangaloreport@gmail.com)
4. Superintendent of Police, Coastal Security Police, Dakshina Kannada Jurisdiction, Hejmadi, Kodi, Karnataka 574111
5. Head Of the Department, Marine Engineering Division, NITK, Surathkal, Dakshina Kannada
6. Tahsildar Revenue Department, Mangalore, Dakshina Kannada
7. Tahsildar , Revenue Department, Ullala, Mangalore, Dakshina Kannada
8. Deputy Director, Tourism Department, Govt of Karnataka, Bejai, Mangalore Email: adtourismmangalore@gmail.com 9448262576
9. Chief Engineer, Nava Mangalore Port Authority (NMPA), Panambur, Mangalore
10. Secretary ,Coastal Development Authority, Govt of Karnataka , No.06, 2nd floor, MCC Commercial Complex Lalbagh MANGALURU 575003.
11. Executive Engineer, Public Works Department, Govt of Karnataka , Mangalore.

Copy Submitted to:

1. The Member Secretary, Head Office, KSPCB, Bangalore for kind information.
2. The Deputy Commissioner, Mangaluru, Dakshina Kannada District for kind information with request to chair the meeting.
3. The Chief Environmental Officer-2 Head Office, KSPCB, Bangalore for kind information.
4. The Senior Environmental Officer, Enforcement Cell, Head Office, KSPCB, Bangalore for kind information.
5. Office Copy

ENVIRONMENTAL OFFICER,
KSPCB, RO-Mangaluru
Member Convener of the Committee.

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

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ಕರ್ನಾಟಕ ರಾಜ್ಯ
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towards a cleaner Karnataka

No:PCB/(MNG)/NGT-OA No.151 (SZ) 79 (PB) /2024-2025/1865 Date: 07-01-2025

NGT MATTER- MOST URGENT

JOINT INSPECTION INTIMATION NOTICE'

Sub: Inspection notice of the Joint Committee in the matter of NGT O.A. No.151/2024 (SZ) pertaining to letter petition by Mr. Capt Hugh Vas -reg.

Ref: 1.The Hon'ble National Green Tribunal, Principal Bench, New Delhi Order dated:22.03.2024 in respect of OA No.79/2024.
2.NGT Order forwarded through mail from Chairman Section dated:02.04.2024.
3. This Office letter to Board Office, KSPCB letter No: 280 Dated: 06.04.2024.
4. Office of Deputy Commissioner letter No:CLW(1)CR/NGT 79/2024/L-1 Dated: 13.05.2024.
5. This Office letter to Deputy Commissioner letter No: 904 Dated: 09.07.2024.
6. Office of Deputy Commissioner letter No:CLW(1)CR/2024/431777/L-1 Dated: 05.08.2024.
7. This Office letter to Board Office, KSPCB letter No: 1058 Dated: 12.08.2024.
8. Board Office Om No: 3562 Dated: 27.11.2024.
9. This Office Meeting Notice No:1797 Dated:30.12.2024.
10. Meeting conducted on 03.12.2024 at Deputy Commissioner Office.

*****

As per the above subject and reference, Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action as in NGT Order cited vide ref (1).

In view of above, as per Hon'ble NGT direction a Joint Committee was formed consisting of Karnataka Coastal Zone Management Authority, Deputy Commissioner, Dakshina Kannada District and State PCB was made the nodal agency for coordination and compliance. Hence, a Joint Committee consisting of above members were constituted by Board Office vide Office Memorandum cited vide ref (8).

Based on the above, Meeting conducted in presence of Additional Deputy Commissioner, Dakshina Kannada District on 03.01.2025 at 3.00 PM at 3rd Floor Court Hall, Deputy Commissioners Office, Mangalore D.K the Joint Committee members along with the representatives from inline departments agreed for the joint inspection of the said location and to discuss the matter in presence of the complainant on **17.01.2025 at 11.00 AM** .

Encl: As Above

Sd/-
ENVIRONMENTAL OFFICER,
KSPCB, RO-Mangaluru
Member Convener of the Committee.

To,

1. The Member Secretary, Karnataka Coastal Zone Management Authority, Room No:710, 7th Floor, IV Gate, M.S building, Bangalore-560001requested to attend the joint inspection.
2. Regional Senior Environmental Officer, Zonal Office, Karnataka State Pollution Control Board, Mangaluru, D.K District for information and necessary action.
3. Mr. Capt Hugh Vas, Mercara Hill Road, Kadri, Mangalore 575002 (9972158068) (hughdorothy.vas@gmail.com) requested to attend the joint inspection and suggest the remedial measures.

Copy to with request to attend Joint inspection:

1. The Regional Director (Environment), Department of Forest, Ecology and Environment, Mangaluru. D.K.- 575003.
2. The Commissioner, Mangalore City Corporation, Lalbagh, Mangalore
3. Chief Executive Officer, Port & inland water transport department, Mangalore Divisional Office, Dakshina Kannada (Email: mangaloreport@gmail.com)
4. Superintendent of Police, Coastal Security Police, Dakshina Kannada Jurisdiction, Hejmadi, Kodi, Karnataka 574111
5. Head Of the Department, Marine Engineering Division, NITK, Surathkal, Dakshina Kannada
6. Tahsildar Revenue Department, Mangalore, Dakshina Kannada
7. Tahsildar , Revenue Department, Ullala, Mangalore, Dakshina Kannada
8. Deputy Director, Tourism Department, Govt of Karnataka, Bejai, Mangalore Email: adtourismmangalore@gmail.com 9448262576
9. Chief Engineer, Nava Mangalore Port Authority (NMPA), Panambur, Mangalore
10. Secretary ,Coastal Development Authority, Govt of Karnataka , No.06, 2nd floor, MCC Commercial Complex Lalbagh MANGALURU 575003.
11. Executive Engineer, Public Works Department, Govt of Karnataka , Mangalore.

Copy Submitted to:

1. The Member Secretary, Head Office, KSPCB, Bangalore for kind information.
2. The Deputy Commissioner, Mangaluru, Dakshina Kannada District for kind information
3. The Chief Environmental Officer-2 Head Office, KSPCB, Bangalore for kind information.
4. The Senior Environmental Officer, Enforcement Cell, Head Office, KSPCB, Bangalore for kind information.
5. Office Copy

ENVIRONMENTAL OFFICER,
KSPCB, RO-Mangaluru
Member Convener of the Committee.

Annexure-7

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
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No:PCB/(MNG)/NGT-OA No.151 (SZ) 79 (PB) /2024-2025/2312 Date: 27-02-2025

NGT MATTER- MOST URGENT

JOINT INSPECTION INTIMATION NOTICE'

Sub: Inspection notice of the Joint Committee in the matter of NGT O.A. No.151/2024 (SZ) pertaining to letter petition by Mr. Capt Hugh Vas -reg.

Ref: 1.The Hon'ble National Green Tribunal, Principal Bench, New Delhi Order dated:22.03.2024 in respect of OA No.79/2024.
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5. This Office letter to Deputy Commissioner letter No: 904 Dated: 09.07.2024.
6. Office of Deputy Commissioner letter No:CLW(1)CR/2024/431777/L-1 Dated: 05.08.2024.
7. This Office letter to Board Office, KSPCB letter No: 1058 Dated: 12.08.2024.
8. Board Office Om No: 3562 Dated: 27.11.2024.
9. This Office Meeting Notice No:1797 Dated:30.12.2024.
10. Meeting conducted on 03.12.2024 at Deputy Commissioner Office.
11. Joint Inspection intimation Notice No::1865 Dated: 07.01.2025.

*****

As per the above subject and reference, Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action as in NGT Order cited vide ref (1).

In view of above, as per Hon'ble NGT direction a Joint Committee was formed consisting of Karnataka Coastal Zone Management Authority, Deputy Commissioner, Dakshina Kannada District and State PCB was made the nodal agency for coordination and compliance. Hence, a Joint Committee consisting of above members were constituted by Board Office vide Office Memorandum cited vide ref (8).

Based on the above, a meeting was conducted in presence of Additional Deputy Commissioner, Dakshina Kannada District on 03.01.2025 at 3.00 PM at 3rd Floor Court Hall, Deputy Commissioners Office, Mangalore D.K the Joint Committee members along with the representatives from inline departments agreed for the joint inspection of the said location and to discuss the matter in presence of the complainant on 17.01.2025 as per letter vide ref (11). But the said inspection was postponed. Now the Joint Inspection is rescheduled on **10.03.2025 at 10.00** AM, it is requested to attend the joint inspection on the said date with details.

Sd/-
ENVIRONMENTAL OFFICER,
KSPCB, RO-Mangaluru
Member Convener of the Committee.

To,

1. The Member Secretary, Karnataka Coastal Zone Management Authority, Room No:710, 7th Floor, IV Gate, M.S building, Bangalore-560001 requested to attend the joint inspection.
2. Regional Senior Environmental Officer, Zonal Office, Karnataka State Pollution Control Board, Mangaluru, D.K District for information and necessary action.
3. Mr. Capt Hugh Vas, Mercara Hill Road, Kadri, Mangalore 575002 (9972158068) (hughdorothy.vas@gmail.com) requested to attend the joint inspection and suggest the remedial measures.

Copy to with request to attend Joint inspection:

1. The Regional Director (Environment), Department of Forest, Ecology and Environment, Mangaluru. D.K.- 575003.
2. The Commissioner, Mangalore City Corporation, Lalbagh, Mangalore
3. Chief Executive Officer, Port & inland water transport department, Mangalore Divisional Office, Dakshina Kannada (Email: mangaloreport@gmail.com)
4. Superintendent of Police, Coastal Security Police, Dakshina Kannada Jurisdiction, Hejmadi, Kodi, Karnataka 574111
5. Head Of the Department, Marine Engineering Division, NITK, Surathkal, Dakshina Kannada
6. Tahsildar Revenue Department, Mangalore, Dakshina Kannada
7. Tahsildar , Revenue Department, Ullala, Mangalore, Dakshina Kannada
8. Deputy Director, Tourism Department, Govt of Karnataka, Bejai, Mangalore Email: adtourismmangalore@gmail.com 9448262576
9. Chief Engineer, Nava Mangalore Port Authority (NMPA), Panambur, Mangalore
10. Secretary ,Coastal Development Authority, Govt of Karnataka , No.06, 2nd floor, MCC Commercial Complex Lalbagh MANGALURU 575003.
11. Executive Engineer, Public Works Department, Govt of Karnataka , Mangalore.

Copy Submitted to:

1. The Member Secretary, Head Office, KSPCB, Bangalore for kind information.
2. The Deputy Commissioner, Mangaluru, Dakshina Kannada District for kind information
3. The Chief Environmental Officer-2 Head Office, KSPCB, Bangalore for kind information.
4. The Senior Environmental Officer, Enforcement Cell, Head Office, KSPCB, Bangalore for kind information.
5. Office Copy

ENVIRONMENTAL OFFICER,
KSPCB, RO-Mangaluru
Member Convener of the Committee.

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Manatobhaga Sri Mangaladevi Temple
ಹಿಂದು ದೇವಾಲಯ
A-One Fish Food Stall
Netravati river
66
ಸೇನರಹಿತ್ಲು
Senarathli
Opera Grand
Bureau Outdoor
ಓಯೋ 12974 ಎ ಕೆ ಇಂಟರ್ನ್ಯಾಷನಲ್
ಉಳ್ಳಾಲ
Ullal
Ullal Beach
The Cc
ಸೋಮೆಶ್ವರ
Someshwara
ಕೊಲ್ಯ
Kolya
Sri Someshwara Swami Temple
ಹಿಂದು ದೇವಾಲಯ
ಸೋಮೇಶ್ವರ
ಕಡಲ ತೀರ
Someshwar Beach
VAZCO Mangalore Beach Resort
Camp 21
ಪಟ್ಟಣ
Patna
Beach
ತಲಪಾಡಿ
ಜೆಎಚ್‌ಸಿ
Google

Annexure -9

Proceedings of the JOINT Inspection conducted regarding NGT O.A. No. OA No: 79/2024 (PB) 151/2024 (SZ) pertaining to letter petition by Mr. Capt Hugh Vas

Date& Time: 10.03.2025, 10.30 AM Onwards

Joint Committee Chairman/Members present during the inspection:

Sl No	Name & Designation	Department	Details
	Members of Committee		
1.	Sri. Mulliai Muhilan IAS,	Deputy Commissioner, Dakshina Kannada-	Chairman of the Committe
2.	Sri. Raghu D	Regional Director, CRZ, Karnataka Coastal Zone Management Authority	Representative of Member
3.	Sri. Keerthi Kumar	The Regional Senior Environmental Officer(A/C), KSPCB Mangaluru	Member
4.	Dr. H Lakshmikantha	The Environmental Officer, KSPCB RO Mangaluru	Member convenor
Other officials Present during Inspection			
1.	Dr. Harshavardhan, KAS	Additional Deputy Commissioner, Dakshina Kannada	
2.	Mr. Capt Hugh Vas	Applicant who filed the OA At NGT	
3.	Sri. Manohar Acharya	Representative Of Port & Inland Water Transport Department, Dakshina Kannada	
4.	Sri Shashidhara S	Assistant Engineer Port And Fisheries, Mangaluru	
5.	Dr. T Nasar	NITK, Marine Engineering Division, Surathkal, Dakshina Kannada	
6.	Sri. B Krishnappa	Senior Manager (Env), Nava Mangalore Port Authority (Nmpa), Panambur, Mangalore	
7.	Dr. Sushmitha Rao	Coastal Development Authority, Govt of Karnataka, Lalbagh, Mangalore	
8.	Prof. Ramachandra Bhatt,	Former Professor Department of Fisheries, Mangaluru,	
9.	Prof. K S Jayappa,	Former Professor Department of Marine Geology, Mangaluru University	
10.	Sri. Alosyius Albeuquerque DAS	Managing Director, Albeuquerque Hotel Pvt Ltd. (Sume	
11.	Dr. Maheshwari Singh	The Deputy Environmental Officer, KSPCB RO Mangaluru	

PREAMBLE:

Hon'ble NGT, Principal Bench, New Delhi has passed an order vide OA No: 79/2024 of 2022 dated:07.09.2022 based on the letter petition sent by Mr. Capt Hugh Vas for directing to look into the grievances of the applicant and his suggestions for revival of both the schemes, of construction of groynes and offshore reefs and suggest appropriate remedial action as in NGT Order cited vide dated:22.03.2024.

In view of above, as per Hon'ble NGT direction a Joint Committee was formed consisting of Karnataka Coastal Zone Management Authority, Deputy Commissioner, Dakshina Kannada District and State PCB was made the nodal agency for coordination and compliance. Hence, a Joint Committee consisting of above members were constituted by Board Office vide Office Memorandum No: 3562 Dated: 27.11.2024.

Based on the above, a meeting was conducted in presence of Additional Deputy Commissioner, Dakshina Kannada District on 03.01.2025 at 3.00 PM at 3rd Floor Court Hall, Deputy Commissioners Office, Mangalore D.K the Joint Committee members along with the representatives from inline departments agreed for the joint inspection of the said location and to discuss the matter in presence of the complainant on 17.01.2025 as per letter Joint Inspection intimation Notice No:1865 Dated: 07.01.2025. But the said inspection was postponed. The Joint Inspection was rescheduled on **10.03.2025 at 10.00** AM and accordingly joint committee members along with subject experts and officials from in line Department visited the affected area at Sea Ground, Ullala.

During the discussion, The Mr. Capt Hugh Vas, NGT case applicant has discussed about the plan of action for prevention of sea erosion in the said area and also expressed the following:

- The complainant Mr. Capt Hugh Vas, pointed out that twenty years later the breakwaters of the Old Mangalore Port were built extending seawards and after that there was accretion taking place on the Bengre beach which now the Government wants to make it into a recreational area. However, at the same time, erosion started taking place on the southern side of the Old Mangalore Port. Meanwhile some of this erosion has since been arrested because of a couple of groynes and 2 nos. 200m long offshore reefs having been constructed under the Asian Bank Development Scheme, which however was then suddenly aborted because as per their plan they were supposed to construct 3 more such offshore reefs which together progressively would lead the littoral drift towards the shoreline gradually training this littoral drift in the required manner.
- The complainant has expressed that, the said project needs to be revived once again and built to its designed completion and also other alternate vies were suggested to build groynes at periodic intervals which progressively converge with the coastline further south. So requested to deliberate the both the above-mentioned schemes by the concerned authorities at the earliest.
- He also mentioned that, back in 2017, upon him taking up this issue locally, a sea wall of 125 metres length was then constructed over there, called the Sea Ground was totally

broken up with so much of beach erosion having taken place in these last 5/6 years and with some rocks now being placed over there as an emergency measure.

Further to the joint inspection and discussion held on 10.03.2025 Mr. Capt Hugh Vas along with professional standings Mr.Aloysius Albuquerque, BE Civil,& Resident Proprietor, Summer Sands Beach Resort Ullal, Mangalore, Dr. K. S. Jayappa, MSc and PhD in Marine Geology & Former Professor of Marine Geology, Mangalore University, Mangalore and Dr. Ramachandra Bhatta, MA, MSc and PhD in Economics and Fisheries, & Former Professor at the College of Fisheries, Mangalore have communicated to this Office through email on 12.03.2025 to consider the following suggestions;

1. It was strongly recommended to Critically Review the Shoreline Management Plan (SMP) prepared for Karnataka Coast by the National Centre for Sustainable Coastal Management (NCSCM), Ministry of Environment, Forest and Climate Change, Government of India.
2. There seems to be an absence of standard consultations and public engagement while preparing the SMP. Hence requested to access the Final Project Completion Report of the ADB funded offshore reef Project for review to understand a lesson (pros & causes) before implementation of a newly proposed, as there is no perceptible impact on shoreline stability visible even after 5 years of completion of this project.
3. He requested for a Comprehensive Project Plan incorporating the impacts of cyclones and other coastal disasters. Instead of seawalls constructions (which are not long lasting and lead to erosion of beaches in front of them, shifting the erosion problem to adjacent areas or they undergo destruction by the SW monsoon waves), the concerned authority may think of recommending an alternative structure i.e. groins.
4. It was recommended to review the various factors responsible for severe erosion at Batapady coast after the construction of offshore reefs off Ullal, Summer Sands and Batapady (south of Someshwar) before undertaking the Proposed International Cruise Terminal Project.
5. It was also discussed that sand nourishment has not been done although it was a part and parcel of the ADB Project.
6. In the absence of availability of sand, and safer locations for sand mining for soft stabilization (sand nourishment), a feasibility study is necessary before undertaking the new project.
7. A large number of vented dams constructed across the rivers, tributaries and streams in DK and Udupi districts in order to store water for drinking, irrigation and industrial activities has led to the arrest of huge quantities of sand, which otherwise would have reached nearshore and finally been brought to the shore by

waves (details/statistics like: number of dams, locations and their impact with proofs /photos will be provided if needed). In addition to this, sand mining in the estuaries since 2 – 3 decades has led to the suffering of beaches and reduction of their width.

8. Submerged breakwaters and offshore reefs constructed off Ullal, Summer Sands and Batapady at about 600 to 700 mts away from the shoreline are NOT serving as barriers for waves and accumulation of sediment on the leeward side of them in the form of **tombolo** is not visible. Hence, we opine that they should have been built within 300 mts of the shoreline, thereby they would have served the purpose better, and the cost of construction also could have been reduced.
9. It was informed in the meeting that construction of seawall recommended in the SMP has become a legal document for CRZ / CZMA approval. However, we recommend an alternative location and specific long-lasting solution such as construction of simple or T-groynes of about 100 mts length at 500 mts intervals.
10. Preservation of beaches as open spaces with aesthetic values is very much essential for the livelihood of fishermen / fisheries, tourism and recreational activities.
11. It was also requested that the Old Mangalore Port Authority / Pollution Control Board to share the soft copies of the following documents as promised which would help us to prepare and submit a comprehensive report thereafter, as follows:
    a) SMP prepared by NCSCM,
    b) Final Closure Report on ADB Project,
    c) Project Plan / Proposal of the New International Cruise Terminal Project, and
    d) Copy of the Project Proposal for tackling sea erosion at Ullal submitted to the Govt. of Karnataka, prepared by the research team of NITK, Surathkal.

Note: Tombolo is a coastal geomorphological landform which connects an island with the mainland. Here, we mean that a tombolo like landform should have been formed and connected the submerged reefs with the mainland.

AEE, Port & Inland Water Transport Department, Dakshina Kannada has informed that SMP is a master document to be considered for all kind of developmental projects in coastal line and was prepared by NCSCM Chennai in consultation with localities. As per SMP erosion at Sea Ground Ullala has been suggested with sea wall with sand nourishment as temporary measure to mitigate/arrest/control sea erosion taking place annually during monsoon season. He also informed that Sand nourishment in Ullala and Someshwara area could not be completed due to tender issues. However, in case of any upcoming projects, sand nourishment could be considered in identified coordinates of Ullala beach.

Dr. T Nasar, professor NITK, Marine Engineering Division, Surathkal, Dakshina Kannada has suggested to conduct numerical modelling studies wrt providing groins and reef identified coordinates of Ullala beach.

Deputy Commissioner heard the grievances and suggestions by Mr. Capt Hugh Vas, subject experts and Officers from concerned departments and informed the Port & Inland Water Transport Department to incorporate the suggestions made by complainant and subject experts while executing the said project.

Sri. Mulliai Muhilan IAS,
Deputy Commissioner, Dakshina Kannada
Representative of Chairman of the Joint Committee

Annexure-10

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ಕರ್ನಾಟಕ ಸರಕಾರ

(ಮೂಲಸೌಲಭ್ಯ ಅಭಿವೃದ್ಧಿ, ಬಂದರು ಮತ್ತು ಒಳನಾಡು ಜಲಸಾರಿಗೆ ಇಲಾಖೆ)

ಕರ್ನಾಟಕ ಜಲಸಾರಿಗೆ ಮಂಡಳಿ

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನಿಯರವರ ಕಛೇರಿ,

ಬಂದರು ಮತ್ತು ಮೀನುಗಾರಿಕಾ ಉಪವಿಭಾಗ, ಹಳೇ ಬಂದರು, ಮಂಗಳೂರು – 575001

Tel No: 0824-2441002 Email: aeepfsdmlr@gmail.com

ನಂ: ಸಕಾಇಂ: ಬಂ&ಮೀ: ಉವಿಮಂ: NGT OA 79/2024 (PB) 151/2024(SZ): 25-26/ 76 ದಿ: ~~01.06.2025~~ 01.07.2025

ರಿಗೆ,

ಪರಿಸರ ಅಧಿಕಾರಿ,
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ,
ಪರಿಸರ ಭವನ, 10ಬಿ, ಬೈಕಂಪಾಡಿ ಇಂಡಸ್ಟ್ರಿಯಲ್ ಏರಿಯಾ,
ಮಂಗಳೂರು – 575011.

ಮಾನ್ಯರೇ,

ವಿಷಯ:– NGT O.A. No. 79/2024 (PB) 151/2024(SZ) pertaining to letter petition by Mr. Capt. Hugh Vas – regarding.

ಉಲ್ಲೇಖ:–
1. Karnataka State Pollution Control Board, Mangaluru vide letter No: PCB (MNG)/NGT- NGT O.A. No. 79/2024 (PB) 151/2024(SZ)/ 2024-258 2312 dt.27.02.2025.
2. Joint Inspection conducted on 10.03.2025 regarding NGT O.A. No. 79/2024 (PB) 151/2024(SZ) pertaining to letter petition by Mr. Capt. Hugh Vas.

****

ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, Capt. Hugh Vas ರವರು NGT ರಲ್ಲಿ ಹೂಡಿರುವ O.A. No. 79/2024 (PB) 151/2024(SZ) ದಾವೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ದಿನಾಂಕ 10.03.2025 ರಲ್ಲಿ ನಡೆಸಿರುವ ಜಿಲ್ಲಾಧಿಕಾರಿಯವರ ಅಧ್ಯಕ್ಷತೆಯ ಸಮಿತಿಯ ಜಂಟಿ ಪರಿವೀಕ್ಷಣೆ ಸಂದರ್ಭದಲ್ಲಿ ದಾವೆದಾರರಾದ Capt. Hugh Vas ರವರು ಸಲ್ಲಿಸಿರುವ ಸಲಹೆಗಳಿಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಅಂತವಾರು ಮಾಹಿತಿಗಳನ್ನು ಮತ್ತು ದಕ್ಷಿಣ ಕನ್ನಡ ಜಿಲ್ಲೆಯ ಸಮುದ್ರ ಕೊರೆತದ ಕುರಿತ ಟಿಪ್ಪಣಿಯನ್ನು ಇದರೊಂದಿಗೆ ಲಗತ್ತಿಸುತ್ತಾ, ತಮ್ಮ ಅವಗಾಹನೆಗಾಗಿ ಹಾಗೂ ಮುಂದಿನ ಸೂಕ್ತ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನಿಯರ್
ಬಂದರು ಮತ್ತು ಮೀನುಗಾರಿಕಾ ಉಪವಿಭಾಗ
ಮಂಗಳೂರು

4 OA (1)

Translated copy of Annexure-10

Government of Karnataka
(Infrastructure Development, Ports and Inland Water Transport Department)
Karnataka Maritime Board

Office of the Assistant Executive Engineer
Ports and Fisheries Sub-Division, Old Port, Mangalore-575001

Tel No: 0824-2441002 Email: aeepfsdmlr@gmail.com

No. AEE/P&F/SDM:NGT OA 79/2024 (PB) 151/2024(SZ): 25-26/76
01.07.2025

To,
The Environment Officer,
Karnataka State Pollution Control Board,
Parisara Bhavan, 10B, Baikampadi Industrial Area,
Mangalore-575011

Sir,

Sub: NGT OA No.79/2024 (PB) 151/2024 (SZ) pertaining to letter petition by Mr. Capt. Hugh Vas-regarding.

Ref: 1. Karnataka State Pollution Control Board, Mangaluru vide letter No. PCB (MNG)/NGT-NGT O.A. No.79/2024 (PB), 151/2024 (SZ)/2024-258, 2312, dated: 27.02.2025.
2. Joint Inspection conducted on 10.03.2025 regarding NGT O.A.No.79/2024 (PB) 151/2024 (SZ), pertaining to letter petition by Mr. Capt. Hugh Vas.

In connection with the above matter, the detailed information regarding the suggestions submitted by the Applicant Capt. Hugh Vas during the joint inspection of the Committee headed by the Deputy Commissioner held on 10.03.2025 in connection with the suit filed by Capt. Hugh Vas in NGT in O.A

HOA (2)

No.79/2024 (PB) 151/2024(SZ) and a note on sea erosion in Dakshina Kannada district are attached herewith for your perusal and further appropriate action.

Yours faithfully,
Sd/-
Assistant Executive Engineer,
Port and Fisheries Sub-Division,
Mangalore

Brief note/ comments on CRZ of Dakshina Kannada District

Sea Erosion of Dakshina Kannda District:

During every monsoon season in the coastal region, and due to the cyclonic effects that occur in the Arabian Sea, sea erosion commonly happens because of the impact of large waves striking the shoreline. Based on previous reports of sea erosion and to prevent damage to public properties caused by sea erosion, proposals for long-term sea erosion control structures are submitted in accordance with the directions of public representatives and the district administration, subject to the availability of government grants.

For the long-term sea erosion control works in the coastal region, the designs and technical plans are prepared with the assistance of Karnataka Engineering Research Station (KERS), Mandya (under the Government of Karnataka), and the Central Water Power Research Station (CWPRS), Pune, which are reputed technical institutions.

The long-term sea erosion control works undertaken in Dakshina Kannada District under various Heads of Account are attached herewith ***(Annexure-I).***

Sustainable Coastal Protection & Management Investment Program– Karnataka (SCPMIP-K)

To find a permanent solution to sea erosion–affected areas along the coastal region of Karnataka State, the National Coastal Protection Project (NCPP) was formulated in the year 2007. To manage sea erosion, the State Government prepared a Master Plan and approached the Asian Development Bank (ADB) through the Government of India for financial assistance.

Accordingly, to address the sea erosion that occurred along the Ullal coastline of Dakshina Kannada District after the year 2000, it was planned in 2011 to implement sustainable coastal protection measures with ADB support by adopting an innovative design approach.

Under the ADB Sustainable Coastal Protection and Management Project for Karnataka's coastal region, a total amount of ₹ 223.32 Crore (comprising ₹ 188.69 Crore as ADB loan and ₹ 34.63 Crore from the Government of Karnataka) was sanctioned under Loan No. 2679. The works under this ADB Tranche-1 were implemented by the Project Management Unit for Sustainable Coastal Protection, Mangaluru, from August 2011 to June 2018.

The specific works undertaken in Dakshina Kannada District under Tranche-1 are detailed in the table below.

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Projects taken up under ADB fund by PMU in Tranche-I			
Sl. No	Name of Project	Technical Details	Amount (In Crores)
1	Rehabiloitation of Breakwater Ullal	South BW-480 m North BW-580m	58.320
2	Inshore Berms at Ullal	8 Nos of 65 m Length	36.250
3	Offshore Reefs at Ullala	N-259 m Length, 600 m S- 335 m Length, 700 m	107.630
		Total Tranche-I =	**202.200**

In 2016, under this project, to address sea erosion at Someshwara Uchila and Mukkacheri areas in Dakshina Kannada District, as well as selected sea erosion–affected areas in Udupi and Uttara Kannada Districts, **ADB Tranche-2** was sanctioned under Loan No. 3549 in the year 2016 for an amount of ₹ 640.75 Crore (₹ 448.68 Crore as ADB loan and ₹ 192.07 Crore from the Government of Karnataka). Under the ADB project, special model works were undertaken in the Ullal and Someshwara areas of Dakshina Kannada District and were completed in April 2021.

The details of the works implemented in Dakshina Kannada District under this ADB sub-project are given in the table below.

Projects taken up under ADB fund by PMU in Tranche-II			
1	Mukkachcheri Rock revetment	635 m Revetment, 115 m Burried Revetment.	24.72
2	Inshore Berms/Groyne at Someshwara	10 Nos of Berms, 68 m Length	23.58
3	Offshore Reefs at Someshwara	North-200 m Length, 600 m from Shore South- 200 m Length, 625 m from shore	104.69
		Total Tranche-II =	**152.99**

Shoreline Management Plan-Karnataka:

For any works undertaken in the coastal region, it is mandatory to obtain Coastal Regulation Zone (CRZ) clearance, and currently, the CRZ Notification, 2019 is in force. In connection with the Hon'ble National Green Tribunal's (NGT) Special Bench's Original Application No: 04/2013 and its related appeal dated 18.10.2018, an order dated 11.04.2022

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directs the Chief Secretaries of all coastal states of India to prepare Coastal Zone Management Plans (CZMPs) and obtain approval from the Ministry of Environment & Forests (MoEF). Furthermore, as per the Office Memorandum of the Government of India's MoEF dated 08.09.2022, it has been instructed to identify areas prone to severe, moderate, and low levels of sea erosion in the CZMPs thus prepared.

In Karnataka's coastal region, for the preparation of a **Shoreline Management Plan**, Government Order No: FEE 99 CRZ 2021, Bengaluru, dated 20.09.2023, has assigned the task to the **National Centre for Sustainable Coastal Management (NCSCM), Chennai**. Accordingly, as per letter No: APJI 99 CRZ 2023 dated 03.10.2023 from the Member Secretary, Karnataka State Coastal Zone Management Authority, Department of Forest, Ecology, and Environment, Bengaluru, the Karnataka Ports Department has been requested to take action to get the Shoreline Management Plan prepared through NCSCM, Chennai.

According to SPM-K Report following report,

The Methodology for preparation of SMP is obtained from discussion with the scientific team of NCSCM, KACZMA and external members of other esteemed institutes within the country. The approach of the assessment is as follows (KA-SMP, 2020):

a) Assessment of shoreline changes

- Delineation of historic shorelines (1990 to March 2024)
- Scenario based assessment of shoreline changes,
- Long Term – 30 yrs, 20 yrs
- Short Term – 10 yrs, 5 yrs
- Identification of highly eroding stretches

b) Shoreline Management Plan

- Analysis of coastal processes
- Primary data collection of beach profiles, nearshore bathymetry (upto 5m depth), wind, and wave data
- Modelling coastal processes
- Demarcation of coastal sediment cells
- Development of conceptual designs for shoreline protection measures

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- Cost benefit analysis of conceptual designs
- Site specific action plans and SMP's for eroding stretches
- Periodic monitoring and assessment of the performance of the implemented shoreline protection measures
- Appropriate alteration of protection designs (if required)

Regarding Karnataka's Shoreline Management Plan, the NCSCM team visited Dakshina Kannada District at the end of February 2024 and conducted a study. Accordingly SHORELINE MANAGEMENT PLAN ALONG KARNATAKA COAST has been prepared and Submitted to GoK in September 2024. Policy Recommendtions for eroding stretches of Dakshina Kannda as per SMP-K in shown in ***Annexure -II***

Karnataka Maritime Board has taken initiation to obtain detailed technical design reports from competent authority for the eroding stretches as per policy recommendation of SMP-K. Accordingly. Providing Consultancy service for ***Preperation of DPR's for the Shore protection works in Dakshina Kannda Dist as suggested by SMP-K prepared by NCSCM, Chennai.*** work has been approved by Chief Executive Officer, Karnataka Maritime Board, vide order Dated 23.01.2025 ***(Annexure-III)***

Assistant Executive Engineer,
Port & Fisheries Sub Division,
Mangalore

Annexure-I

The long-term sea erosion control works in Dakshina Kannada District

5	Chainage	Area	Length	Cordinates
1	3.700 to 3.880	Someshwara	180	12°47'19.87"N, 74°51'8.49"E and 12°47'24.62"N, 74°51'4.68"E
2	4.200 to 4.335	Someshwara	135	12°47'33.45"N, 74°50'58.29"E And 12°47'37.46"N, 74°50'56.45"E
3	6.200 to 6.900	Subhasnagar - Ullala	700	12°48'29.13"N, 74°50'32.83"E And 12°48'50.23"N, 74°50'24.07"E
4	12.440 to 12.665	Bengre Area	225	12°50'56.05"N, 74°49'25.14"E And 12°51'2.44"N, 74°49'21.43"E
5	22.775 to 22.955	Meenakaliya	180	12°56'27.99"N, 74°48'12.35"E And 12°56'33.61"N, 74°48'11.18"E
6	24.700 to 25.500	Chitrapura	800	12°57'29.85"N, 74°48'0.70"E And 12°57'54.96"N, 74°47'55.42"E
8	25.950 to 26.300	Hosabettu	350	12°58'9.76"N, 74°47'52.71"E And 12°58'20.52"N, 74°47'50.44"E
9	33.910 to 34.050	Sasihithlu	140	13° 2'19.92"N, 74°46'59.16"E And 13° 2'24.39"N, 74°46'58.26"E
10	34.530 to 35.425	Sasihithlu	885	13° 2'36.25"N, 74°46'56.10"E And 13° 3'2.22"N, 74°46'50.86"E
11	37.140 to 37.360	Sasihithlu	220	13° 3'50.64"N, 74°46'41.62"E And 13° 3'57.95"N, 74°46'39.98"E
Total of DK District			**3815**	

Assistant Executive Engineer,
Port & Fisheries Sub Division,
Mangalore

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Para wise remarks on suggestion of Mr. Capt Hugh Vas along with professional standings Mr. Aloysius Albquerque, BE Civil & Resident Proprietor, Summer Sands Beach Resort Ullal, Mangalore, Dr. K.S. Jayappa, MSc and PhD in Marine Geology & Former Professor of Marine Geology, Mangalore University, Mangalore and Dr. Ramachandra Bhatta, MA, MSc and PhD in Economics and Fisheries & Former Professor at the College of Fisheries, Mangalore during the joint inspection and discussion held on 10.03.2025 have communicated to this Office through email on 12.03.2025 to consider the following suggestions;

Sl.No.	Suggestion	Opinion/Comments
1.	It was strongly recommended to Critically Review the Shoreline Management Plan (SMP) prepared for Karnataka Coast by the National Centre for Sustainable Coastal Management (NCSCM), Ministry of Environment, Forest and Climate Change, Government of India.	Shoreline Management Plan- Karnataka has been prepared by National Centre for Sustainable Coastal Management (NCSCM), Chennai and Report has been submitted to Govt. of Karnataka in September 2024.
2.	There seems to be an absence of standard consultations and public engagement while preparing the SMP. Hence requested to access the Final Project Completion Report of the ADB funded offshore reef Project for review to understand a lesion (pros & causes) before implementation of a newly proposed, as there is no perceptible impact on shoreline stability visible even after 5 years of completion of this project.	According to SMP-K Report following report, The Methodology for preparation of SMP is obtained from discussion with the scientific team of NCSCM, KACZMA and external members of other esteemed institutes within the country. The approach of the assessment is as follows (KA-SMP, 2020): ***A) Assessment of shoreline changes*** ☐ *Delineation of historic shorelines (1990 to March 2024)* ☐ *Scenario based assessment of shoreline changes,* ☐ *Long Term – 30 yrs, 20 yrs* ☐ *Short Term – 10 yrs, 5 yrs* ☐ *Identification of highly eroding stretches* ***B) Shoreline Management Plan*** ☐ *Analysis of coastal processes* ☐ *Primary data collection of beach profiles, nearshore bathymetry (upto 5m depth), wind, and wave data*

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		□ *Modelling coastal processes* □ *Demarcation of coastal sediment cells* □ *Development of conceptual designs for shoreline protection measures* □ *Cost benefit analysis of conceptual designs* □ *Site specific action plans and SMP's for eroding stretches* □ *Periodic monitoring and assessment of the performance of the implemented shoreline protection measures* □ *Appropriate alteration of protection designs (if required)* ❖ As for has ADB funded Projects are concerned, Karnataka Maritime Board has taken initiation to conduct performance study and need for maintenance for the ADB components. ❖ Karnataka Maritime Board has taken initiation to obtain detailed technical design reports from competent authority for the eroding stretches as per policy recommendation of SMP-K. Accordingly. Providing Consultancy service for Preperation of DPR's for the Shore protection works in Dakshina Kannda Dist as suggested by SMP-K prepared by NCSCM, Chennai. work has been approved by Chief Executive Officer, Karnataka Maritime Board, vide order Dated 23.01.2025 (Annexure-III). Presently tender process is in progress.
3.	He requested for a Comprehensive Project Plan incorporating the impacts of cyclones and other coastal disasters. Instead of seawalls constructions (which are not long lasting and lead to	As per the CRZ 2019 Notification and NGT order any Shore Protection works needs to be implemented according to the Policy recommendations of Shoreline Management Plan

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	erosion of beaches in front of them, shifting the erosion problem to adjacent areas or they undergo destruction by the SW monsoon waves), the concerned authority may think of recommending an alternative structure i.e. groins.	Karnataka. Karnataka Maritime Board has taken initiation to obtain detailed technical design reports from competent authority for the eroding stretches as per policy recommendation of SMP-K. Accordingly.
4.	It was recommended to review the various factors responsible for severe erosion at Battapady coast after the construction of offshore reefs off Ullal, Summer Sands and Batapady (south of Someshwar) before undertaking the Proposed International Cruise Terminal Project.	❖ Karnataka Maritime Board has taken initiation to Conduct Performance Study and need for Maintenance for the ADB Components. ❖ As per Battappady Shore is concerned Karnataka Maritime Board approached Department Of Ocean Engineering National Institute of Technology, Karnataka and REPORT ON COASTAL PROTECTION WORKS AT UCHILA-BATTAPADI, ULLAL 2024 is obtained and Shore Protection and Road Restoration work of Battappadi using T Goynes and Sea wall in Someshwara-Uchila of D.K. Dist. (Ch. 0.500 Km to 1.100 Km) proposal submitted to Govt. for Rs. 88.00 Crores. ❖ Karnataka Maritime Board approached IIT Chennai for Technical Feasibility Report of Mangalore International Cruise and Tourist Port in Uchila area final report are awaited.
5.	It was also discussed that sand nourishment has not been done although it was a part and parcel of the ADB Project.	As per the study report, Karnataka Maritime Board planned to nourish the Ullal and Uchila Shore whenever the dredging work taken place Old Port premises.
6.	In the absence of availability of sand, and safer locations for sand mining for soft stabilization (sand nourishment), a feasibility study is necessary before undertaking the new project.	
7.	A large number of vented dams constructed across the rivers, tributaries and streams in DK and Udupi districts in order to store water for drinking, irrigation and industrial activities has led to the arrest of huge quantities of sand, which otherwise	-

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	would have reached nearshore and finally been brought to the shore by waves (details/statistics like: number of dams, locations and their impact with proofs /photos will be provided if needed). In addition to this, sand mining in the estuaries since 2-3 decades has led to the suffering of beaches and reduction of their width.	
8.	Submerged breakwaters and offshore reefs constructed off Ullal, Summer Sands and Batapady at about 600 to 700 mts away from the shoreline are NOT serving as barriers for waves and accumulation of sediment on the leeward side of them in the form of **tombolo** is not visible. Hence, we opine that they should have been built within 300 mts of the shoreline, thereby they would have served the purpose better, and the cost of construction also could have been reduced.	❖ Karnataka Maritime Board has taken initiation to Cond Performance Study and need for Maintenance for ADB Components.
9.	It was informed in the meeting that construction of seawall recommended in the SMP has become a legal document for CRZ / CZMA approval. However, we recommend an alternative location and specific long lasting solution such as construction of simple or T-groynes of about 100 mts length at 500 mts intervals.	National Centre for Sustainable Coastal Managem (NCSCM), Chennai conducted detailed scientific study coastal stretches in Dakshina Kannada District and gi Policy recommendation for low, moderate, high eroc reaches based on the sediment cell movement, w parameters, bathymetry shoreline changes in short and l term. Accordingly different stretches are suggested different nature of structures like Groynes, Nourishment, wall etc. (Annexure-II)
10.	Preservation of beaches as open spaces with aesthetic values is very much essential for the livelihood of fishermen / fisheries, tourism and recreational activities.	-

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11	It was also request the Old Mangalore Port Authority/Pollution Control Board to share the soft copies of the following documents as promised which would help us to prepare and submit a comprehensive report thereafter, as follows: a) SMP prepared by NCSCM, b) Final Closure Report on ADB Project, c) Project Plan / Proposal of the New International Cruise Terminal Project, and d) Copy of the Project Proposal for tackling sea erosion at Ullal submitted to the Govt. of Karnataka, prepared by the research team of NITK, Surathkal.	a) Report has been submitted to applicant on 13.03.2025 through mail. b) Final Closure Report is not found in this office. c) Preparation of Technical Feasibility Report has been awarded to IIT Chennai, final plan and feasibility report is not yet received. d) REPORT ON COASTAL PROTECTION WORKS AT UCHILA-BATTAPADI, ULLAL 2024 Department Of Ocean Engineering National Institute of Technology, Karnataka is attached herewith (Annexure-IV)

Assistant Executive Engineer,
Port & Fisheries Sub Division,
Mangalore

Key Findings based on shoreline change analysis and model simulations

Policy recommendations for eroding stretches of Dakshina Kannada

No.	Location	Taluk	Length (km)	Geographical Coordinates	Major land use	Shoreline change	Causes for erosion	CRZ category	Recommended Policy option	Recommended Technical Solution/ Nature of solution
1.	Batapady Beach	Ullala	1.54	12°46'20.99"N 74°51'34.30"E to 12°45'35.07"N 74°51'53.54"E	Habitation areas and tourism activities	Moderate to High erosion	Due to wave breaking on the coast during the monsoon season and heavy river runoff	CRZ II	Hold the line	Riverine revetments with training walls and seawalls with T-groins with sand nourishment or offshore detached reefs with sand nourishment **(Hybrid)**
2.	Uchila Beach	Ullala	0.62	12°46'49.15"N 74°51'24.25"E to 12°46'29.87"N 74°51'30.89"E	Habitation areas and tourism activities	Moderate erosion	Due to high waves and a low littoral drift	CRZ II	Limited intervention	Short groins with sand nourishment **(Hybrid)**
3.	Someshwara Beach	Ullala	1.14	12°47'39.26"N 74°50'55.49"E to 12°47'9.91"N 74°51'13.93"E	Habitation areas, tourism activities and Pilgrim site	Moderate to high erosion	Low littoral drift from the north	CRZ II	Limited intervention	Short groins with sand nourishment **(Hybrid)**
4.	Ullal Beach	Ullala	0.24	12°48'33.98"N 74°50'29.47"E to 12°48'27.79"N 74°50'33.65"E	Habitation areas , tourism and recreational activities	Low to Moderate erosion	Breaking of high waves on coast during monsoon season	CRZ II	Hold the line	Seawall with sand nourishment **(Hybrid)**
5.	Pannamburu Beach	Mangaluru	2.51	12°57'28.28"N 74°48'0.12"E to 12°56'8.21"N	Habitation areas , tourism activities and	Low to Moderate erosion	Low littoral drift due to the	CRZ II	Hold the line	Offshore detached reefs or seawall with sand

No.	Location	Taluk	Length (km)	Geographical Coordinates	Major land use	Shoreline change	Causes for erosion	CRZ category	Recommended Policy option	Recommended Technical Solution/ Nature of solution
				74°48'17.17"E	fish landing area		adjacent coastal infrastructures			nourishment along with training walls to regulate the estuary mouth **(Hybrid)**
6.	Surathkal Beach	Mangaluru	0.12	13° 0'7.44"N 74°47'24.93"E to 13° 0'3.84"N 74°47'26.07"E	Habitation areas and tourism activities	Low to Moderate erosion	High wave action during monsoon and a low littoral drift	CRZ IB	Limited intervention	Short T-type groins with sand nourishment **(Hybrid)**
7.	Surathkal Light House	Mangaluru	0.14	13° 0'23.51"N 74°47'20.69"E to 13° 0'19.02"N 74°47'21.37"E	Tourism activities	Low to Moderate erosion	High wave action during monsoon and a low littoral drift	CRZ II	Limited intervention	Sand nourishment or short groins with sand nourishment **(Soft/Hybrid)**
8.	Red Rock Beach	Mangaluru	0.19	13° 1'5.01"N 74°47'13.67"E to 13° 0'58.81"N 74°47'14.63"E	Habitation areas and tourism activities	Low to Moderate erosion	High wave action during monsoon	CRZ II	Hold the line	Short groins with sand nourishment **(Hybrid)**
9.	Mukka Beach	Mangaluru	0.31	13° 1'18.09"N 74°47'11.05"E to 13° 1'8.26"N 74°47'13.02"E	Habitation areas and tourism activities	Low to Moderate erosion	High wave action during monsoon	CRZ II	Hold the line	Seawall with sand nourishment **(Hybrid)**
10.	Haleyangadi	Mulki	0.27	13° 2'38.53"N 74°46'54.80"E to 13° 2'30.00"N 74°46'56.45"E	Habitation areas and tourism activities	Low to Moderate erosion	Sediments transport towards offshore due to High wave action during monsoon	CRZ II	Hold the line	Short groins with sand nourishment **(Hybrid)**
11.	Sasihitlu Beach	Mulki	0.44	13° 4'15.46"N 74°46'37.57"E to 13° 4'2.02"N 74°46'38.56"E	Habitation areas and tourism activities	Moderate erosion	High wave action and river runoff during monsoon cause to transport of sediments to offshore	CRZ II	Limited intervention	Short groins with sand nourishment after beach area **(Hybrid)**

ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಹಣಾಧಿಕಾರಿಗಳು, ಕರ್ನಾಟಕ ಜಲಸಾರಿಗೆ ಮಂಡಳಿ, ಕಾರವಾರ ರವರ ನಡವಳಿಗಳು

Annexure-III

ವಿಷಯ : Providing consultancy services for preparation of DPR for the Shore Protection Works in Dakshina Kannad District as suggested by Shoreline Management Plan Karnataka prepared by NCSCM Chennai.

ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನೀಯರು ಬಂದರು ಮತ್ತು ಮೀನುಗಾರಿಕೆ ಉಪ ವಿಭಾಗ ಮಂಗಳೂರು-575 001
ನಂ: 522 ದಿನಾಂಕ: 21/01/25

ಮುಖ್ಯ ಇಂಜಿನೀಯರ್ ಮತ್ತು ಸದಸ್ಯರು (ತಾಂತ್ರಿಕ), ಕಜಮಂ, ಕಾರವಾರ ರವರ ಪತ್ರ ಸಂ: ಕಜಮಂ/ ಮುಇಂ/ತಾಂತ್ರಿಕ/ ಅಂ.ಪ./ 2024-25/349 ದಿನಾಂಕ :22.01.2025

ಸ.ಕಾಇ	
ಪ್ರ.ವ.ಸ	24/1/2025
ವಿ.ನಿ.	

ಪ್ರಸ್ತಾವನೆ :

Shoreline Management Plan (SMP-2024) along Karnataka Coast of National Centre for Sustainable Coastal Protection (NCSCM) ರವರು ನೀಡಿರುವ ವರದಿಯನ್ನು ಗಮನಿಸಲಾಗಿ ದಕ್ಷಿಣ ಕನ್ನಡ ಮತ್ತು ಉಡುಪಿ ಜಿಲ್ಲೆಗಳಲ್ಲಿ ಸಮುದ್ರ ಕೊರೆತ ಭಾದಿತ ಪ್ರದೇಶಗಳನ್ನು ಗುರುತಿಸಿ ತಾಂತ್ರಿಕ ಪರಿಹಾರ ವಿಧಗಳ ಬಗ್ಗೆ ಶಿಫಾರಸ್ಸು ಮಾಡಲಾಗಿರುತ್ತದೆ. SMP-2024 ರಂತೆ ದಕ್ಷಿಣ ಕನ್ನಡ ಮತ್ತು ಉಡುಪಿ ಜಿಲ್ಲೆಗಳಲ್ಲಿ ಪ್ರಸ್ತಾಪಿಸಿರುವ ಸಮುದ್ರ ಕೊರೆತ ಸಂರಕ್ಷಣಾ ಪರಿಹಾರಗಳ ಬಗ್ಗೆ ರೇಖಾ ಅಂದಾಜುಪಟ್ಟಿಯಂತೆ ಕ್ರಿಯಾ ಯೋಜನೆಯನ್ನು ತಯಾರಿಸಿ ಜಿಲ್ಲಾಡಳಿತದಿಂದ ಸರ್ಕಾರಕ್ಕೆ ಸಲ್ಲಿಸುವಂತೆ ಹಾಗೂ ದಕ್ಷಿಣ ಕನ್ನಡ ಮತ್ತು ಉಡುಪಿ ಜಿಲ್ಲೆಗಳಲ್ಲಿ ಪ್ರಸ್ತಾಪಿಸಿರುವ ಸಮುದ್ರ ಕೊರೆತ ಸಂರಕ್ಷಣಾ ಪರಿಹಾರ ಕಾಮಗಾರಿಗಳ ವಿವರವಾದ ಅಧ್ಯಯನ ವರದಿಯನ್ನು ಪಡೆಯಲು ಕರ್ನಾಟಕ ಜಲಸಾರಿಗೆ ಮಂಡಳಿಯಿಂದ ಅನುದಾನವನ್ನು ಒದಗಿಸಿಕೊಂಡು, ವರದಿಗಳನ್ನು ಪಡೆದು. ತದನಂತರ DPR ನೊಂದಿಗೆ ಪ್ರಸ್ತಾವನೆಗಳನ್ನು ಸಲ್ಲಿಸುವಂತೆ ದಿನಾಂಕ 22.10.2024 ರಂದು ಜಿಲ್ಲಾಧಿಕಾರಿಗಳ ಕಛೇರಿಯಲ್ಲಿ ಮಿಟಿಗೇಷನ್ ಅನುದಾನದಲ್ಲಿ ಕೈಗೊಳ್ಳಬೇಕಾದ ಕಾಮಗಾರಿಗಳು ಹಾಗೂ Shoreline Management Plan ಕುರಿತು ಜರುಗಿದ ಸಭೆಯ ನಡವಳಿಯಲ್ಲಿ ಸೂಚಿಸಲಾಗಿರುತ್ತದೆ.

Shoreline Management Plan (SMP)-2024 ರಲ್ಲಿ ದಕ್ಷಿಣ ಕನ್ನಡ ಮತ್ತು ಉಡುಪಿ ಜಿಲ್ಲೆಗಳಲ್ಲಿ ಪ್ರಸ್ತಾಪಿಸಿರುವ ಸಮುದ್ರ ಕೊರೆತ ಸಂರಕ್ಷಣಾ ಪರಿಹಾರ ಕಾಮಗಾರಿಗಳ ಬಗ್ಗೆ DPR ತಯಾರಿಸಲು ಅಂದಾಜುಪಟ್ಟಿಗಳ ಟೆಂಡರ್ ಕರೆದು ಸಲಹೆಗಾರರನ್ನು ನಿಯುಕ್ತಿಗೊಳಿಸಿ ಸದರಿ ಯೋಜನೆಯ ವಿಸ್ತೃತ ಯೋಜನಾ ವರದಿ ಪಡೆಯುವುದು ತೀರಾ ಅನಿವಾರ್ಯವಾಗಿರುತ್ತದೆ.

ಅದರಂತೆ Providing consultancy services for preparation of DPR for the Shore Protection Works in Dakshina Kannad District as suggested by Shoreline Management Plan Karnataka prepared by NCSCM Chennai ಕಾಮಗಾರಿ ಕುರಿತು ₹100.00 ಲಕ್ಷಗಳಿಗೆ ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನೀಯರ್, ಮಂಗಳೂರು ರವರು ತಯಾರಿಸಿ ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನೀಯರ್ ರವರ ಮುಖಾಂತರ ಮುಖ್ಯ ಇಂಜಿನೀಯರ್ ರವರಿಗೆ ಸಲ್ಲಿಸಿದ್ದನ್ನು, ಸದರಿಯವರು ಒದಲಾದ ಪತ್ರದಲ್ಲಿ ಸದರಿ ಅಂದಾಜುಪಟ್ಟಿಗೆ ಆಡಳಿತಾತ್ಮಕ ಅನುಮೋದನೆ ಕೋರಿ ಈ ಕಚೇರಿಗೆ ಸಲ್ಲಿಸಿರುತ್ತಾರೆ.

ಆದುದರಿಂದ, ಸದರಿ ಅಂದಾಜುಪಟ್ಟಿಗೆ ಈ ಕಚೇರಿಯಿಂದ ಆಡಳಿತಾತ್ಮಕ ಅನುಮೋದನೆ ನೀಡಲು ಈ ಕೆಳಗಿನಂತೆ ಆದೇಶ ಹೊರಡಿಸಿದೆ.

ಕರ್ನಾಟಕ ಜಲಸಾರಿಗೆ ಮಂಡಳಿಯ ಆದೇಶ:

ಕಜಮಂ – ಮುಕಾ/ ತಾಂತ್ರಿಕ/ 2024-25 ದಿನಾಂಕ: 23/01/2025

ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿ ವಿವರಿಸಿರುವ ಅಂಶಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ, "Providing consultancy services for preparation of DPR for the Shore Protection Works in Dakshina Kannad District as suggested by Shoreline Management Plan Karnataka prepared by NCSCM Chennai" ಕಾಮಗಾರಿಯನ್ನು ನಿರ್ವಹಿಸಲು ತಯಾರಿಸಲಾದ ₹ 100,00,000.00/- (ರೂಪಾಯಿ ನೂರು ಲಕ್ಷ ರೂಪಾಯಿ ಮಾತ್ರ) ಮೊತ್ತದ ಅಂಡಾಜು ಪಟ್ಟಿಗೆ ಈ ಕೆಳಕಂಡ ಶರತ್ತುಗಳಿಗೊಳಪಟ್ಟು ಈ ಕಛೇರಿಯಿಂದ ಆಡಳಿತಾತ್ಮಕ ಅನುಮೋದನೆಯನ್ನು ನೀಡಲಾಗಿದೆ.

1. ಈ ಕಾಮಗಾರಿಗೆ ತಗಲುವ ವೆಚ್ಚಗಳನ್ನು 2024-25 ನೇ ಸಾಲಿನ ಅವಧಿಗೆ ಲೆಕ್ಕ ಶೀರ್ಷಿಕೆ 3051-02-102-0-05-103 ರ ಅಡಿಯಲ್ಲಿ ಒದಗಿಸಲಾದ ಅನುದಾನದಿಂದ ಭರಿಸತಕ್ಕದ್ದು.
2. ಕರ್ನಾಟಕ ಸಾರ್ವಜನಿಕ ಸಂಗ್ರಹಣೆಯಲ್ಲಿ ಪಾರದರ್ಶಿಕತೆ ಅಧಿನಿಯಮ 1999 ಹಾಗೂ ನಿಯಮ 2000 ಗಳ ಪಾಲನೆಯನ್ನಯ ಕಾಮಗಾರಿಯನ್ನು ಕೈಗೊಳ್ಳತಕ್ಕದ್ದು.
3. ಅಂದಾಜು ಪಟ್ಟಿಯಲ್ಲಿ ಅಳವಡಿಸಿರುವ ದರಪಟ್ಟಿಯಲ್ಲಿಲ್ಲದ ದರಗಳಿಗೆ ನಿಯಮಾನುಸಾರ ಸಕ್ಷಮ ಪ್ರಾಧಿಕಾರದ ಅನುಮೋದನೆ ಪಡೆದುಕೊಳ್ಳತಕ್ಕದ್ದು.
4. ಮಂಜೂರಾತಿ ನೀಡಲಾದ ಮೊತ್ತಕ್ಕಿಂತ ಹೆಚ್ಚಾಗಿ ವೆಚ್ಚಮಾಡತಕ್ಕದ್ದಲ್ಲ.

ಈ ಆದೇಶವನ್ನು ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಐಡಿಡಿ 44 ಪಿಎಸ್‌ಪಿ 2020 ದಿನಾಂಕ: 04.12.2020 ರ ಅನುಬಂಧದ ಕ್ರಮಸಂಖ್ಯೆ: 55 (ಎ) ರಲ್ಲಿ ಇಲಾಖಾ ಮುಖ್ಯಸ್ಥರಿಗೆ ಪ್ರತ್ಯಾಯೋಜಿಸಲಾದ ಆರ್ಥಿಕ ಅಧಿಕಾರದನ್ವಯ ಹೊರಡಿಸಲಾಗಿದೆ.

ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಹಣಾಧಿಕಾರಿಗಳು,
ಕರ್ನಾಟಕ ಜಲಸಾರಿಗೆ ಮಂಡಳಿ,
ಕಾರವಾರ

ಪ್ರತಿಯನ್ನು ಮಾಹಿತಿಗಾಗಿ ಹಾಗೂ ಮುಂದಿನ ಸೂಕ್ತ ಕ್ರಮಕ್ಕಾಗಿ ಕಳುಹಿಸಿದೆ.

1. ಮುಖ್ಯ ಇಂಜಿನೀಯರ್ ಮತ್ತು ಸದಸ್ಯರು (ತಾಂತ್ರಿಕ), ಕಜಮಂ ಕಾರವಾರ
2. ಮುಖ್ಯ ಲೆಕ್ಕ ನಿರ್ವಹಣಾಧಿಕಾರಿ ಹಾಗೂ ಮುಖ್ಯ ಲೆಕ್ಕಾಧಿಕಾರಿ ಮತ್ತು ಸದಸ್ಯರು (ಆರ್ಥಿಕ) (Finance & Business Development) ಕಜಮಂ, ಕಾರವಾರ
3. ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನೀಯರ್, ಬಂದರು ಮತ್ತು ಮೀನುಗಾರಿಕಾ ವಿಭಾಗ, ಉಡುಪಿ.

54 A (1)

Translated copy of Annexure-III

Proceedings of the Chief Executive Officer, Karnataka Maritime Board, Karwar.

Sub: Providing consultancy services for the preparation of DPR for the Shore Protection Works in Dakshina Kannada District, as suggested by the Shoreline Management Plan, Karnataka, prepared by NCSCM Chennai.

Ref: Letter of Chief Engineer and Member (Technical), KMB, Karwar vide no. KMB/CE/Tech/AP/2024-25/349, dated: 22.01.2025.

Preamble: -

Shoreline Management Plan (SMP-2024) along the Karnataka Coast of the National Centre for Sustainable Coastal Protection (NCSCM) has been taken into consideration, and recommendations have been made regarding the proposed sea erosion protection solutions in Dakshina Kannada and Udupi districts by identifying the areas affected by sea erosion. As per SMP-2024, an action plan as per the Dakshina Kannada arc estimate has been prepared and submitted to the government by the district administration, and a detailed study report of the proposed sea erosion protection relief works in Dakshina Kannada and Udupi districts has been prepared by providing a grant from the Karnataka Water Transport Board, receiving reports and then submitting proposals with the DPR. It has been suggested in the proceedings of the meeting held on 22.10.2024 at

54A(2)

the office of the District Collector regarding the works to be undertaken under the mitigation grant and Shoreline Management Plan.

It is imperative to invite tenders for the preparation of DPR for the proposed sea erosion protection and relief works in Dakshina Kannada and Udupi districts in the shoreline management plan (SMP)-2024 and appoint consultants to obtain the detailed project report of the said project.

It is imperative to call for tenders for the preparation of DPR for the Shore Protection Works in Dakshina Kannada District as suggested by Shoreline Management Plan Karnataka prepared by NCSCM Chennai for the work of ₹100.00 lakhs prepared by the Assistant Executive Engineer, Mangalore and submitted to the Chief Engineer through the Executive Engineer, seeking administrative approval for the said estimate in a letter read by the said officer.

Therefore, the following order has been issued to give administrative approval to the said estimate by this office.

Orders of Karnataka Maritime Board

KMB-CE/Tech/2024-25, dated: 23/01/2025

In view of the factors explained in the proposal, the estimate prepared for the work of "Providing consultancy services for preparation of DPR for the Shore Protection Works in Dakshina Kannada District as suggested by Shoreline Management Plan Karnataka prepared by NCSCM Chennai" for an amount of ₹

S4A(3)

100,00,000.00/- (Rupees One Hundred Lakh Rupees only) has been given administrative approval by this office subject to the following conditions.

1. The expenditure incurred for this work shall be borne from the grant provided for the period 2024-25 under the account head 3051-02-102-0-05-103.
2. The work shall be carried out in compliance with the Karnataka Transparency in Public Procurement Act, 1999 and Rules, 2000.
3. The rates not included in the rate schedule included in the estimate shall be subject to the approval of the competent authority as per the rules.
4. No expenditure shall be made in excess of the sanctioned amount.

This order is issued in exercise of the financial powers delegated to the Head of Department vide Government Order No.: IDD 44 PSP 2020 dated 04.12.2020, Annexure Serial No.: 55 (A).

Sd/-
Chief Executive Officer,
Karnataka Maritime Board,
Karwar

Copy for information and further suitable action.

1) Chief Engineer and Member (Technical) KMB, Karwar
2) Chief Accounts Manager, Chief Accounts Officer and Member (Finance) (Finance & Business Development) KMB, Karwar
3) Executive Engineer, Ports and Fisheries Division, Udupi

REPORT ON COASTAL PROTECTION WORKS AT UCHILA- BATTAPADI, ULLAL TALUK, D.K. DISTRICT

by

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Prof. Kiran G Shirlal

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NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
Srinivasnagar, Mangalore - 575 025
2024

Pruthviraj U

Dr. KIRAN G. SHIRLAL
Professor
Dept. of Water Resources & Ocean Engineering
National Institute of Technology Karnataka

REPORT ON COASTAL PROTECTION WORKS AT UCHILA- BATTAPADI, ULLAL TALUK, D.K. DISTRICT

1. Background

a. Details of the location

The Uchila-Battapadi beach in Ullal Taluk of D.K. District is situated just north of Karnataka's border with Kerala state (refer Fig. 1). The Nethravathi–Phalguni inlet, at the North of Battapadi with its of two barrier spits, migrated and oscillated in response to waves and river flows. However, the inlet was stabilised by two rubble mound breakwaters in 1994 and channels were dredged to provide boat access to Old Mangalore Port. The natural migration and shifting sand bars were fundamentally altered and the breakwaters interrupted the natural longshore transport of sand along the coast. Substantial sedimentation occurred at the northern breakwater, resulting in the development of a wide accreted beach north of the inlet at Bengre, but erosion quickly started in the south. However, this coast is eroding since 2010.

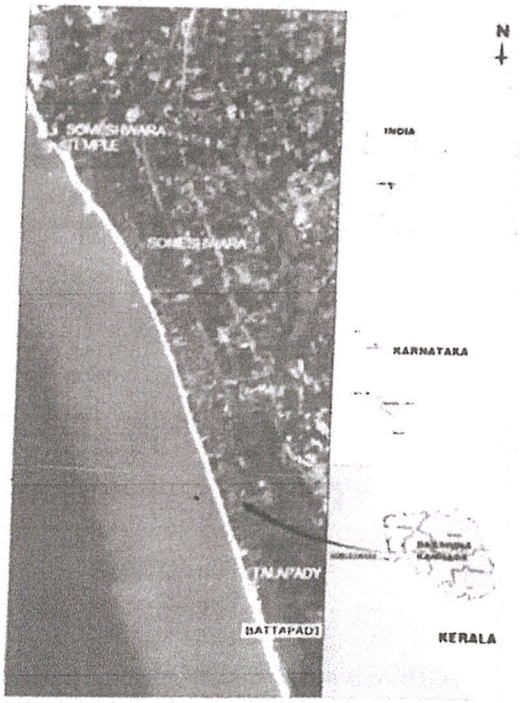


Fig. 1 The location of Uchila-Battapadi beach

The entire stretch of Uchila-Battapadi beach is continuously eroding since last 5 years. However, the protection works such as reefs constructed (ref: Sustainable Coastal Protection and Management Investment Program

Tranche-2 Sub-Project, Someshwara Coastal Protection Project, Public Works, Port & IWT Dept GoK, Oct 2018) has aggravated the erosion of Battapadi beach (Chainage 0.400 Km to 1.200 Km). This has resulted in severe threat to life and property behind the beach (refer Fig. 2).

Fig. 2 Severe erosion of Uchila-Battapadi beach

b. The request for protection measures at Uchila-Battapadi beach

The P&F division Mangaluru requested Dept of Water Recourses and Ocean Engg (hereafter referred as WROE), NITK, Surathkal to furnish cross-sectional details and drawing for proposed shore protection work at Battapadi (ref: No: AEE P&F: Sub Division: M'lore: SW: AE-II: 2023-24/477-478 Dated 28.11.2023).

The Dept of WROE, NITK, Surathkal accepted the request of P&F division Mangaluru and a two-member expert team (hereafter referred as team) from NITK, consisting of Dr. Pruthviraj U and Prof. Kiran G. Shirlal, of Dept of WROE (ref: No. NITK/WROE/23/2531 dated 22/12/2023) was formed. The team visited and inspected the eroding areas at Uchila-Battapadi of Ullal

Taluk on 01.12.2023 along with Mr. Manohar A.E. of P&F Sub Division, Mangaluru to visualise and ascertain the severity of the sea erosion.

2. Coastal problems of Uchila-Battapadi coast

Coastal erosion is the major problem which is mainly due to oceanographic geologic, geomorphological and topographical features. These factors together with human interventions also play an important role in aggravating the problem of coastal erosion and taking it to dangerous levels.

The Uchila-Battapadi coast is identified as a part of a sediment cell that extends from the Netravathi-Phalguni inlet at in the north to Manjeshwar river inlet in the south. Since the construction of the Ullal breakwaters, the northern beach has widened and the volume trapped to the north of the breakwaters is approximately 1.4 million m^3 over 10 years. The southerly sediment transport at Ullal was historically fed in part by sand supply from the Netravathi and Phalguni rivers in the north and the sediment transport is net south but stronger, with an average of around 190,000 m^3/year.

The building of several dams/check dams across these rivers, the sediment supply is nearly cut off. So, there is practically very little of sediment coming to the nearshore system of Uchila-Battapadi from the Netravathi-Phalguni rivers. However, with multiple dredging and sand mining operations in the river and around the entrance, plus the blocking of delivery from the north due to the breakwaters, the sand supply has dramatically reduced; thereby causing the onset of erosion. Erosion started at south of estuary at Ullal since 1990s has extended up to Uchila-Battapadi beach.

3. Desk work

The available literature was studied for reasons of coastal erosion, coastal processes and options of coastal protection works and design methodology to be adopted. The common forcing factors identified as responsible for erosion at the Uchila-Battapadi beach are listed and explained below:

a) Oceanographic parameters - 1. Bathymetry, 2. Winds, 3. Wave characteristics, 4. Currents, and 5. Tides.
b) Beach characteristics - 1. Width, 2. Erosion/accretion pattern, 3. Profiles 4. Sediment size and distribution.
c) The sediment transport -1. Direction, and 2. Quantity.
d) Human interventions –1.Breakwaters, 2.Reefs, 3.Seawalls and 3.Beach sand nourishment.

i. Seabed bathymetry of the Uchila-Battapadi coast points towards a steep beach profile with 5 m isobaths existing within about 200 m (refer Fig. 3). Bathymetry refracts waves resulting in energy concentration at the beach (refer Fig. 4) aiding dislodgment of beach material. Basically, the

beach is very narrow with a width varying from 0 to 28 m and very steep ranging from 0.4 to 0.1 between baseline and LTL. All this increases the backwash, encourages sediment outflow and renders the beach as erosion prone.

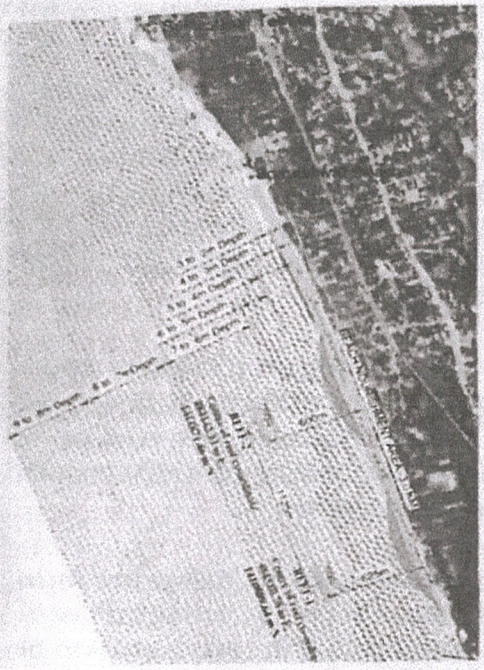


Fig. 3 Bathymetry

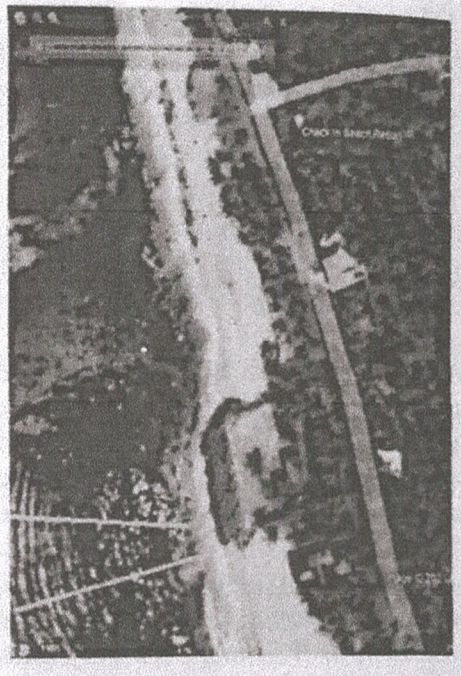


Fig. 4 Wave energy concentration

ii. Winds may vary from 5 m/s during pre-monsoon to about 20 m/s during monsoons, and its direction exhibits predominance of NW direction during this period. The data shows NW is the predominant direction irrespective of the season. The winds from W and WNW directions also make significant contributions.

iii. The wave characteristics are typical of monsoon period with the heights, periods and directions confining to a narrow range. The H_{max} in the range of 2.0-3.0 m while the highest observed H_{max} was 3.35 m. The distribution of $H_{1/10}$ was notable with the peak range of 1.5-2.0 m. The periods were mostly in the range of 7.5 -12.5 s. The significant wave height H_s of about 3.4 m with a wave period T of about 8 s may be assumed. The predominant wave directions are W, SW (during monsoon), and NW (during post monsoon). From the Fig 2b, it can be seen that the wave energy is concentrated on the Battapadi beach causing beach erosion.

iv. The surface currents are generally unidirectional with the predominant direction south of SE. The currents have maximum speed of about 90 cm/s at in the surface.

v. This is a micro-tidal coast with maximum tide not exceeding 1.6 m.

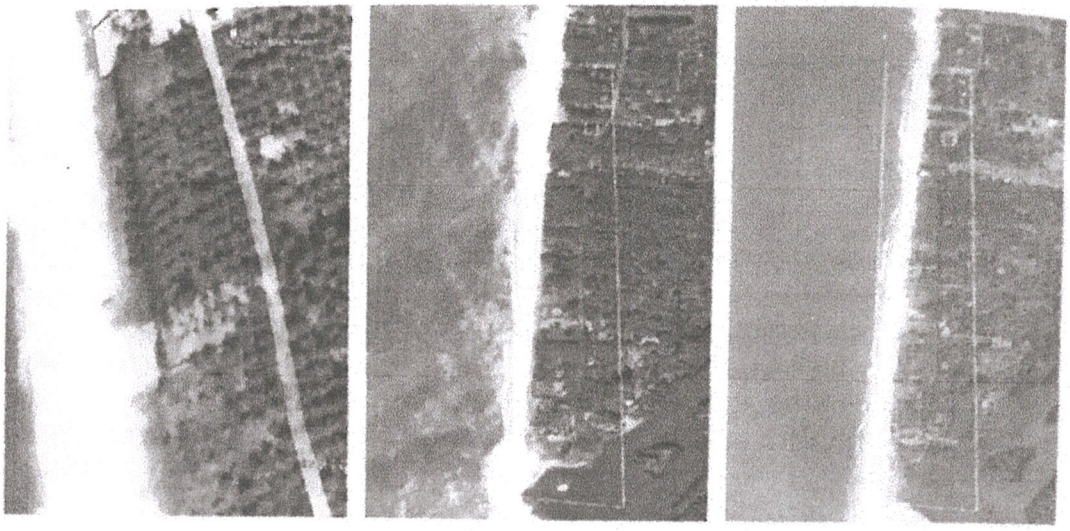
vi. The sediment texture varies from fine to coarse. Public works and IWT (2018) report has shown that the sediments at Someshwara are in the range of D_{10} of about 0.13 mm, D_{50} of about 0.32 mm, D_{90} of about to 0.47 mm with a mean sediment size of about 0.32 mm. While KERS (2022) reports a D_{15} of 0.48 mm, D_{50} of 0.95 mm, and D_{85} of 1.42 mm at Battapadi. Available studies have also shown that the D_{50} of sediments from the present dredging area in and around of Netravati-Phalguni estuary is in the range of 0.35 mm to 0.5 mm. As per available classification, the sediments constituted of fine to coarse sands. The data collected from the literature shows that the net sediment transport could be 2,00,000 m^3/year to the south along this coast during the year 2017.

vii. At Someshwara, the average sediment transport is towards south and is about 1,81,000 m^3/year. The results indicate that the beaches are connected and supply is coming from the north. However, interruption to the sand supplies means that the erosion has now migrated further south which caused approximately 3 m of beach retreat per year.

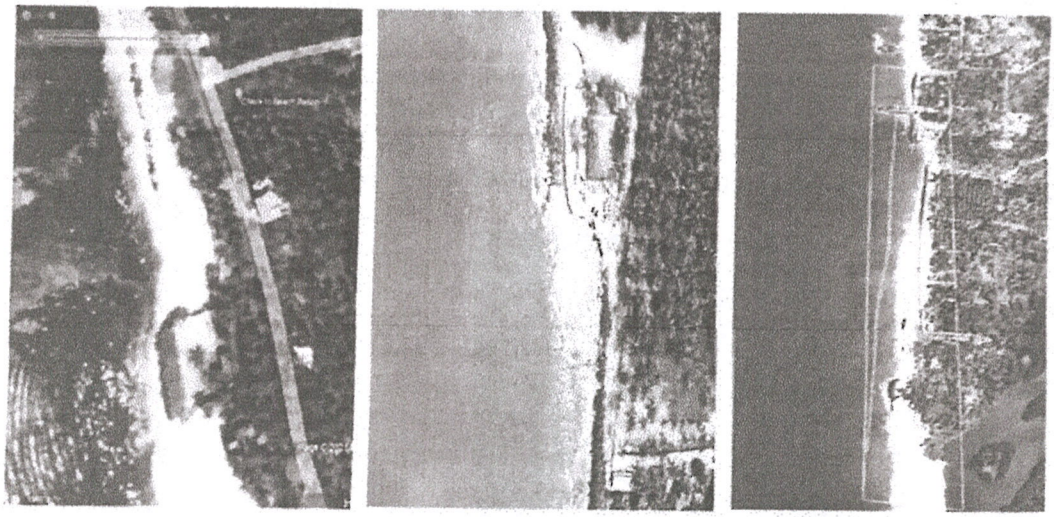
viii. It appears that protection measures undertaken in 2018 in the form of reefs off Someshwara coast has increased wave action and together with wave refraction and energy concentration has resulted in severe erosion of Uchila-Battapadi beach catastrophically damaging it (refer Fig. 5a, to 5f).

ix. According to another study, these reefs will collect sand from the north relatively slowly and may take a long time. During this period, the capture of sands at the reefs leads to a gross reduction in longshore drift to the southern beaches.

x. The erosion has destroyed even the beach road. This is a serious threat of sea erosion to not only to the beach but also to the very existence beach road and local fishermen's dwelling units in and around the site in the immediate future.



a. In 2006 b. In 2012 c. In 2016



d. In 2021 e. In 2022 f. In 2023

Fig. 5 Beach Erosion and width reduction at Uchila-Battapadi over the years

4. Identification of causes for beach erosion at Uchila-Battapadi

Reasons those responsible for erosion and retreat of beach at Uchila-Battapadi:

a. High wave exposure from W, SW and NW
b. Wave energy concentration
c. Steep beach profile

d. Reef construction off Someshwara coast
e. Reduced sediment supply

5. Options of coastal protection works

It is necessary to put in place an appropriate site specific protection measure at the earliest and secure the area else there will be an extreme situation of danger to life and property due to advancing sea erosion.

The solutions for severe beach erosion problems of micro-tidal coasts are:
a. regular beach nourishments,
b. submerged reefs plus initial beach nourishment;
c. emerged breakwater with initial beach nourishment),
d. bypassing of longshore transport,
e. groynes and regular beach nourishments, and
f. seawall to protect against flooding during storms.

6. Possible solutions for Uchila-Battapadi beach erosion

After careful study the following solutions appear to be feasible:

a. There is little beach with narrow width available for construction of a conventional seawall, else a strong vertical parapet wall, at the rear, near beach road with massive seawall (refer Fig. 6) in the front extending towards sea and a strong toe below the scour depth may be laid.

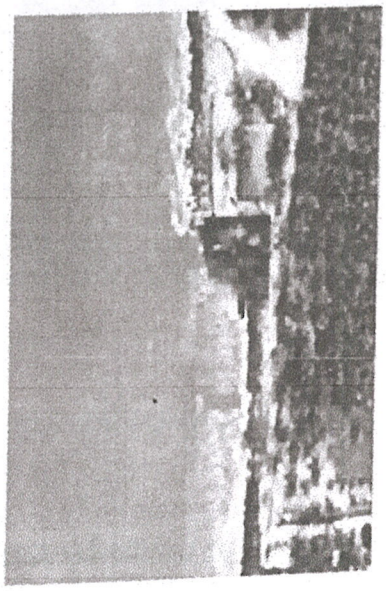


Fig. 6 Seawall construction throughout the beach length

b. A series of submerged reefs and initial beach nourishment (refer Fig. 7) can be a shore protective measure throughout the eroding length of the beach.

c. A T-head groynes field which works similar to that of a detached/offshore breakwater can be designed as a shore protective measure with relatively lighter seawall and nourishment throughout the eroding stretch of the beach (refer Fig. 8).

d. The source of sand for nourishment is the Netravathi-Phalguni estuary. The sand that is periodically dredged for maintenance of the navigational channel of the Old Mangaluru Port in and around the estuary is the beach sand deposited by the coastal processes. This sand can be brought back to the system by placing it on the eroding beaches of Battapadi. This is the perfect sand for beach nourishment as it would be of same or slightly coarser sand and match the grain size and distribution of sand size of the native beach.

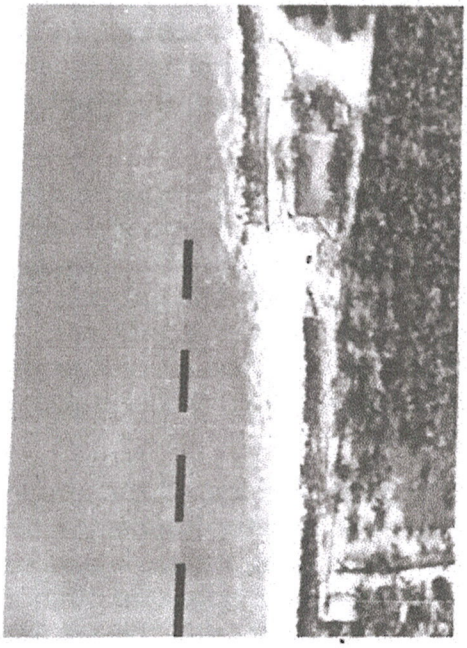


Fig. 7 Submerged reefs

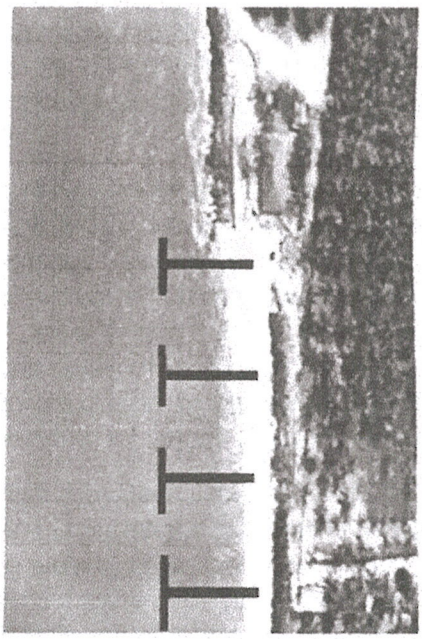


Fig. 8 T- groynes

7. Comparison of solutions for Uchila-Battapadi beach erosion

Among the site-specific beach protection measures listed above,

a. Construction of a massive conventional seawall, with a strong vertical wall, at the rear, near beach road seems to be a costly proposition.

b. A series of submerged reefs and initial beach nourishment too appears to be costly, from construction point of view, as it requires barges to transfer the materials and dump them at the offshore site.

c. A T-groynes field is comparatively easy to construct from the shore side using dump trucks, economical, and appears to be feasible.

8. Design of the coastal protection works

a. Physical processes

Waves breaking alongshore at an angle create a time-averaged, longshore current and longshore sediment transport. A key variable is the surf zone width for the theory cited which assumes sediment mobilized in proportion to the local rate of wave energy dissipation and transported alongshore by the local, wave-induced current. The groyne simply blocks a part of this normal transport of sand alongshore and causes it to accumulate in a fillet on the groyne's updrift side (the side from which the sediment is coming).

This accumulation reorients the shoreline and reduces the angle between the shoreline and the prevailing incident wave direction. The reorientation reduces the local rate of longshore sand transport to produce accumulation and/or redistribution of sand updrift of the groyne. The amount of sand transported past the groyne is greatly reduced (or eliminated) to significantly impact the downdrift area. The ratio of groyne length to some statistical measure of surf zone width (or water depth at the groyne tip) is a key factor in sand bypassing.

Wave diffraction causes reduced wave energy in the lee of the groyne relative to the mid compartment, mean water-level setup gradients, and setup induced currents behind the groyne. These contribute to complex, current circulation patterns that move sediment alongshore and offshore along the leeside of the groyne. Based on the study of facts the solution designed is a combination of different solutions.

b. The solution

Based on careful study and analysis of all the available information regarding coastal problem of Uchila-Battapadi coast and consideration of the possible solutions, it is opined that a comprehensive protection measure consisting of a combination of structural measures together with non-structural alternatives may be implemented for beach erosion management.

This decision gave birth to a structural combination of beach stabilization structures and beach nourishment. A T-groyne field with relatively lighter

seawall on the beach with initial nourishment throughout the eroding stretch of Uchila-Battapadi beach as an appropriate protective measure appears to be suitable. The combination may mitigate down drift impacts and/or increases the fill life of the renourished beach.

c. Data collection

The team collected as much the information that is available from the literature as the P&F Sub Division. Mangaluru expressed their inability to provide any data regarding the beach erosion at Uchila-Battapadi coast.

In this context, the team wants to make it clear that the entire data/information used for the planning and designing of the coastal protection works to arrest the erosion and secure the beach at Uchila-Battapadi is derived from the available literature and the team did not collected/measured/recorded at the site by the team.

d. The design philosophy

A shallow-water coastal structure exposed to a variety of water depths, especially a shore-perpendicular structure such as a groyne is investigated for wave conditions in each varying water depths to determine the highest breaking wave that might impact any part of the structure. the groyne.

The design of the entire beach protection work is accomplished as per the established procedure recommended in the standard literature like Shore Protection Manual (1984), Coastal Engg Manual (CEM, 2002), etc using Hudson's formula.

The geometry ratio of groyne spacing, S to length L is also the controlling factor for groyne field. The Shore Protection Manual (1984) suggests S/ L = 2 to 3 for the proper functioning of shore-normal groynes.

The Baseline may be located/identified/fixed at the seaward side of the beach road alignment. From this position the construction of the shore perpendicular groynes may be initiated and proceeded seawards.

Seaward limit of the shore section with intense wave and sediment activity is set relative to the surf zone, which is approximately about -6 m CD, to help retain the nourished beach. Seaward limit of the outer section of the groyne length, L, depends on the amount of longshore sediment transport to be bypassed.

e. Structural design

The solution is a T-groyne field with seawall and beach nourishment.

i. Rubble mound structures

Design parameters of the rubble mound structures are as follows:

Beach slope	1:20
Tide	1.6 m
Significant wave height	3.44 m
Wave period	8 sec
Siting of toe	-1 m to -2 m CD
Storm surge	0.3 m
Structure slope	1:5 and 1:2
Crest width	3 m
Armour layers	2
Stability coefficient	4
Design Formula	As given by Hudson

A typical T-groyne of length of 60 m is designed at a gap of 120 m C/C along with a shore parallel seawall with a parapet wall on the seaward edge of the beach road is designed and their critical cross sections with structural details are attached.

The flange (round head) of the T-groyne is located at -4 m CD. The first 1/3rd length (20 m) from the head towards shore is designed with primary armour of 3-ton quarry stones. The second 1/3rd stretch, of length of 20 m towards the shore, will have primary armour of 2-ton quarry stones. The last 1/3rd length of the T-groyne may be constructed with primary armour of 1-ton quarry stones.

The protection works consisting of T-groyne field, seawalls in between, and their critical cross sections are attached along with their positions identified on the Google map are attached for the convenience of construction.

The lengths of the groynes as given in the design and shown in the drawings are for a typical Structure and may vary from location to location along the beach stretch due to changes in the seabed profile and erosion and reduction in beach width with respect to baseline.

Seawall is designed with 1-Ton quarry stone for the armour with frontal slope of 1:5. Its toe is 3 m wide and is located at -1 m CD is to be constructed with 1-ton stones with a slope of 1:2.

When the primary armour layer is TWO quarry stone in thickness, the stones range from 0.75W to 1.25W (where, W is weight of the primary armour stone computed using Hudson's formula) with about 75% of the individual stones weighing more than W.

For the secondary layer, and with Two quarry stone thickness, each stone should weigh 1/10th of the primary armour weight i.e. W/10. The stones range from 0.7W to 1.2W (where, W is weight of the primary armour stone computed using Hudson's formula) with about 50% of the individual stones weighing more than W/10.

ii. Beach nourishment

The source of sand is one of the critical elements of beach nourishment design. The quality of the sand controls the aesthetics, cost, and physical and ecological performance. The perfect sand for beach nourishment would be sand that is exactly same or slightly coarser than the native beach sand. The match should include grain size and distribution.

Available studies have shown that the D_{50} of sediments from the present dredging area is in the range of 0.35 mm to 0.5 mm. Hence the sand for the in and around beach nourishment from Nethravathi–Phalguni River estuary appears to be suitable for the work.

9. Construction considerations

Rubble-mound structures depend on availability of large amounts of suitably sized stone at low cost. Source and availability of stones are investigated during design, and is tailored to the known output capability of the quarry.

Certain types of coastal projects can be constructed using either land-based or water-based construction techniques. Land-based equipment is almost always preferred to floating equipment, and barge dumping is often more expensive. Therefore, land-based construction should be used.

Groynes can be built out seaward from dry land equipment located on a road built on the structure's crest; generally, construction can proceed on only one front.

Groynes on the updrift side of inlets can benefit nearby beach nourishment projects by controlling (or gating) the amount entering (lost) to river mouth in the south near the Kerala border. They normally prevent sand from being carried through, over, or around them. Eventually, they will fill and sand bypassing around the end will be maintained. Terminal Groynes fill quickly and do not have major impacts on ebb-tidal shoals and normal, inlet, sand-passing processes.

The sequence in which a groyne field is constructed is a practical design consideration. To minimize downdrift impacts, beach nourishment and groyne construction should be concurrent.

Construction of the first groyne should be at the downdrift end of the project, preferably the terminal groyne adjacent to river mouth in the south near the Kerala border. Net drift will combine with the artificial beach nourishment to fill and stabilize the first compartment.

The second groyne is then constructed and the process repeated. Gradually working updrift side and the Groyne Field construction is completed. This process will help to minimize the impact to adjacent or downdrift beaches.

Construction of protection works described above, to arrest the beach erosion and secure the Uchila-Battapadi coast, unlike its land based counterpart of construction, is to be taken up comprehensively and completed in one go as a single project to be effective.

If the same solution is compartmentalised and implemented stage wise or in phases over a period of time, the problem of beach erosion may aggravate and designed protection works may fail to deliver the desired result.

The engineers should be aware of maintenance requirements for each project element and ensure necessary maintenance to take place. Accommodating maintenance is particularly important for coastal projects, such as beach nourishment and rubble-mound structures like groynes which are expected to suffer some degree of damage over the life of the project. Therefore, certain percentage of the construction coast say 3% to 5% may be separately accounted and sanctioned for the maintenance of the above protection works.

10. Maintenance

The engineers should be aware of maintenance requirements for each project element and ensure necessary maintenance to take place. Accommodating maintenance is particularly important for coastal projects, such as beach nourishment and rubble-mound structures like groynes which are expected to suffer some degree of damage over the life of the project. Therefore, certain percentage of the construction coast say 3% to 5% may be separately accounted and sanctioned for the annual maintenance of the above protection works.

Maintenance of the constructed rubble-mound structures should be carried out annually once, if required. In the event of any rectification, necessary arrangements for procuring stones/boulders should be made.

After a period of continuous monitoring and maintenance for a period of 5 years, monitoring and maintenance period may be gradually increased.

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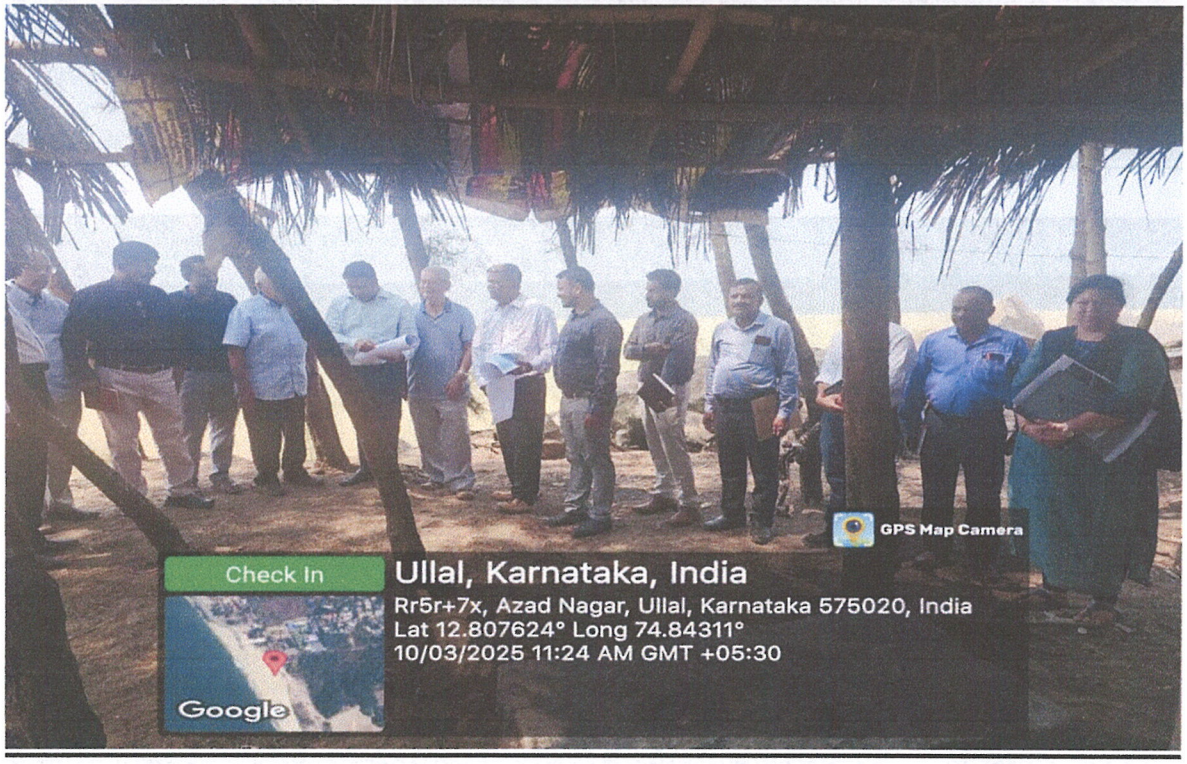
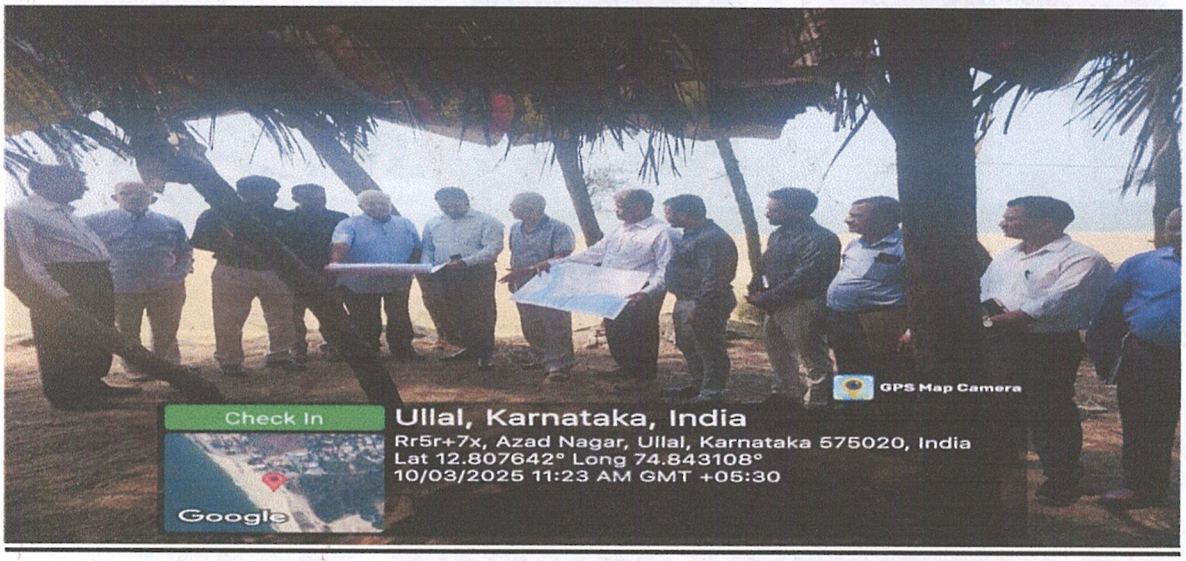
Photographs taken during the joint committee inspection on 10.03.2025 at Seaground beach, Ullala

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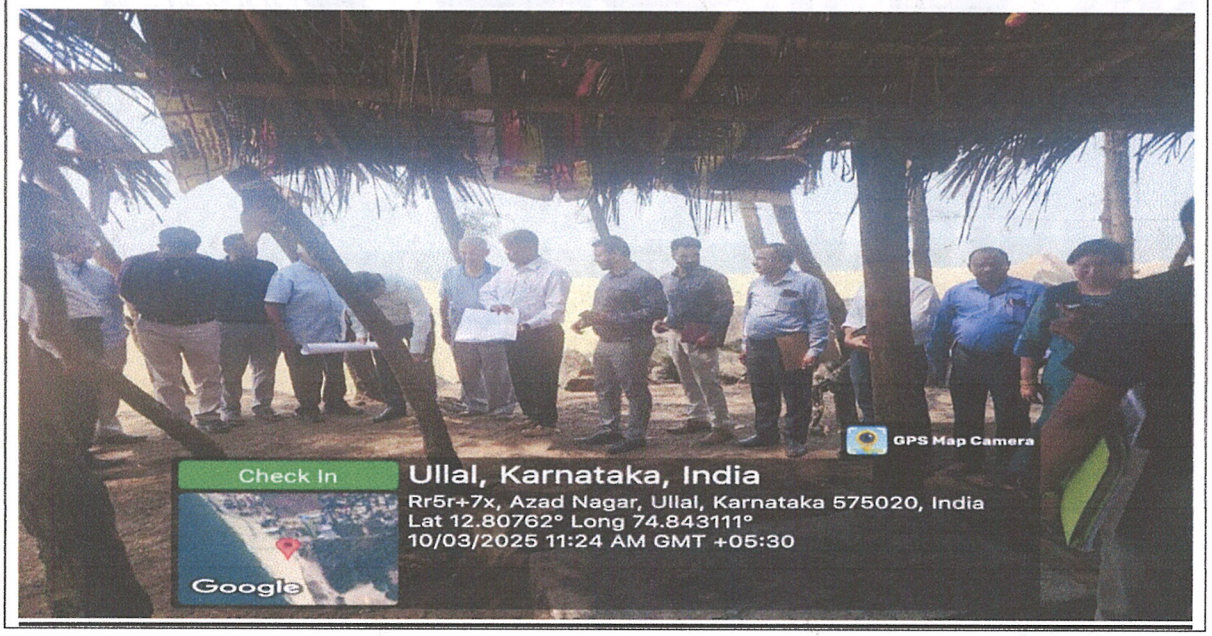
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