

430

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE, AT PUNE**

ORIGINAL APPLICATION NO. 33 OF 2015 (WZ)

IN THE MATTER OF:

GOA FOUNDATION

... APPLICANT

VERSUS

GOA STATE ENVIRONMENT IMPACT

ASSESSMENT AUTHORITY & ORS.

...RESPONDENTS

**ADDITIONAL COUNTER AFFIDAVIT
ON BEHALF OF RESPONDENT NO. 3
GOA STATE INFRASTRUCTURE DEVELOPMENT
CORPORATION (GSIDC)**

(KINDLY SEE INDEX INSIDE)

431

INDEX

Sr. No.	Particulars	Pages
1.	Additional Counter Affidavit on behalf of Respondent No. 3 Goa State Infrastructure Development Corporation	1-33
2.	<u>Annexure – 1</u> True copy of the judgement and final order dated 27.03.2015 passed by thus Hon'ble Tribunal in Appeal No. 31/2015	34-47
3.	<u>Annexure – 2</u> True copy of the letter dated 29.07.2013 issued by the Goa State Pollution Control Board	48
4.	<u>Annexure – 3</u> True copy of the comprehensive NOC dated 28.08.2013 issued by the Town and Country Planning Department	49
5.	<u>Annexure – 4</u> True copy of the GCZMA's letter dated 22.10.2013	50
6.	<u>Annexure – 5</u> True copy of the In-Principle Approval dated 30.12.2015 granted by the Conservator of Forests, Ministry of Environment, Forest and Climate Change (MoEF & CC)	51-52
7.	<u>Annexure – 6</u> True copy of GSIDC's letter dated 24.02.2016	53
8.	<u>Annexure – 7</u> True copy of GSIDC's letter dated 11.11.2019 to the Deputy	54-55

	Conservator of Forests for grant of Final Forest Clearance	
9.	<u>Annexure – 8</u> True copy of GSIDC's letter dated 03.08.2021	56-59
10.	<u>Annexure – 9</u> True copy of the Resolution dated 26.10.2014 passed by the Village Panchayat of Keri Tiracol	60
11.	<u>Annexure – 10</u> True copy of the Regional Plan of Goa, 2021 as adopted on 06.11.2020	61
12.	<u>Annexure – 11</u> True copy of Resolution No. 2800 dated 17.03.2012	62-63
13.	<u>Annexure – 12</u> True copy of the Letter of Commencement of Work / Work Order dated 21.03.2013	64
14.	<u>Annexure – 13</u> True copy of the order dated 17.04.2015 passed by this Hon'ble Tribunal	65-66
15.	<u>Annexure – 14</u> True copy of NIOT's interim report dated 26.11.2015	67-85
16.	<u>Annexure – 15</u> True copy of NIOT's final report dated 17.02.2016	86-119
17.	<u>Annexure – 16</u> True copy of the letter dated 24.02.2025	120-126

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BENCH

AT PUNE

ORIGINAL APPLICATION NO. 33 OF 2015



IN THE MATTER OF:

GOA FOUNDATION

...APPLICANT

VERSUS

GOA STATE ENVIRONMENT IMPACT

...RESPONDENTS

ASSESSMENT AUTHORITY & OTHERS

ADDITIONAL COUNTER AFFIDAVIT ON BEHALF OF
RESPONDENT NO. 3 GOA STATE INFRASTRUCTURE
DEVELOPMENT CORPORATION

I, Harish Adconkar, being the Managing Director of Respondent No. 3 Goa State Infrastructure Development Corporation, have my office at: 7th Floor, EDC Complex, Dr. Atmaram Bandekar Road, Altinho, Panaji, Goa 403001, do hereby state on solemn affirmation:

1. I am the Managing Director of Respondent No. 3 Goa State Infrastructure Development Corporation [hereinafter "*GSIDC*"] and as such am

authorised to affirm this Affidavit on its behalf. I have examined the relevant records available in my office with respect to the issue involved in the above-captioned Original Application and am able to depose thereto.

2. Respondent No. 3 GSIDC has already filed a detailed Affidavit dated 15.07.2016 and an Additional Affidavit dated 24.10.2016 to oppose the above-captioned O.A. I am refraining from reproducing the contents of the aforesaid Affidavits herein for brevity. The contents of the said Affidavits may be read as a part of this Affidavit.
3. The Applicant has filed the above-captioned O.A. and sought the following prayers:

Prayers:

- a. Direct the removal of the construction works of Tiracol bridge partly being erected on Querim beach.
- b. Direct the Respondent Nos. 1 – 4 to restore the beach of Querim to its original condition.
- c. Award appropriate costs for damage to the Querim beach and for its restoration.
- d. Pass such and further orders as this Hon'ble Tribunal may deem fit to grant.

Interim reliefs:

- e. Pending hearing of this application, stay the construction of the impugned bridge on Querim beach, North Goa.

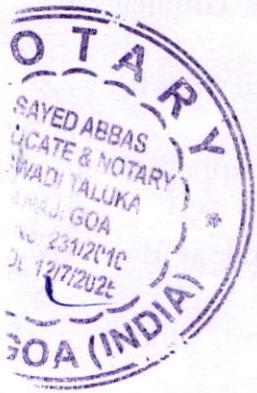
an



- f. Pending hearing of this application, restrain the Respondents from construction of the impugned bridge on Tiracol forested land (Sy. Nos. 14 & 15).”

4. PRELIMINARY OBJECTION:

- 4.1. At the outset, the answering Respondent submits that the above-captioned Original Application is barred by limitation and suffers from severe delay and laches for the reasons mentioned hereinafter.
- 4.2. Before filing the above-captioned O.A., the Applicant had filed Appeal No. 31/2014 before this Hon'ble Tribunal against the permission/approval dated 22.10.2013 granted by Respondent No. 2 Goa Coastal Zone Management Authority. The Applicant also prayed for restoration of the Keri beach to its original condition in the aforementioned Appeal.
- 4.3. Respondent No. 2 GCZMA, Respondent No. 4 State of Goa, and the answering Respondent had all filed their respective Counter-Affidavits in Appeal No. 31/2014 *inter alia* raising a preliminary objection about the Appeal being barred by limitation *vide* Section 16 of the National Green Tribunal Act, 2010.



[Handwritten signature]

4.4. This Hon'ble Tribunal passed a judgment and final order dated 27.03.2015 dismissing the Applicant's Appeal No. 31/2014 as being barred by limitation. Pertinently, the Applicant above-named had specifically requested this Hon'ble Tribunal to treat the Appeal as an Application. The Applicant's submissions are recorded by this Hon'ble Tribunal *vide* its judgment and final order dated 27.03.2015 as under:

“11. According to Advocate Norma Alvares, technical issue of limitation should not detain the Tribunal from considering of the appeal, which can be termed as an application, because the Appellant has also sought restoration of the land at the beach of Querim to its original condition, which is a relief, that falls within the provisions of Section 14(1) r/w Section 14 & 18 of NGT Act. The contentions of Learned Advocate Norma Alvares is that, the limitation of six (6) months is applicable in case of Application filed U/Sc. 14(1) r/w Section 14(3) of NGT Act from date of knowledge, even if the present Application is considered as an application, instead of an appeal. So, it is argued that the application/appeal

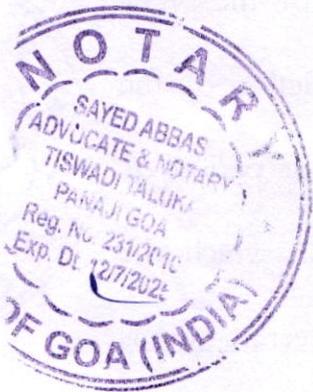


is not barred by limitation.”

- 4.1. The aforementioned contention of the Applicant’s counsel was addressed by this Hon’ble Tribunal *vide its vide its* judgment and final order dated 27.03.2015 as under:

“21. Alternative contentions of Learned Advocate Norma Alvares is that, the Application also seeks restoration of land and therefore, it would come within the ambit of Section 14 (1) of the NGT Act, 2010. We find it difficult to contingent the argument in as much as basically the subject matter is appeal against CRZ clearance granted to the Respondent No. 2 by GCZMA authority. The Appellant did not raise any “Substantial question” relating to environment as contemplated under Sub-Section (1) of Section 15 in the appeal-memo.

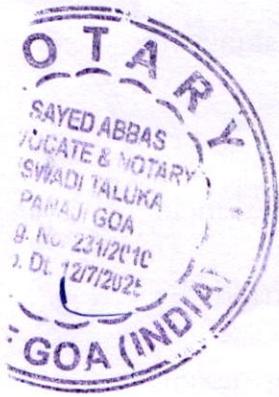
The wording of Section 14 of the NGT Act clearly indicate that, the Tribunal shall have jurisdiction over all civil cases, where substantial question relating to environment is involved. In the present case, assuming that this Tribunal has jurisdiction to decide the civil cases, where the



dispute arises, in regard to implementation of enactment specified in Schedule – I, then also the period of limitation is of six (6) months from the case of action for such dispute first arose. The distinguishing features of Section 14(3) and Section 16(1)(a)(j) may be understood with due reference to the word implied by the Legislature, while drafting both these provisions. It is pertinent to note that, Section 16 of the NGT Act, deals with the appellate jurisdiction of the Tribunal, especially that provides for period of Thirty (30) days from the date on which the order or decision or direction or determination is communicated to him, to prefer an appeal. Whereas, Section 14(3) states that no application for adjudication of dispute under this section shall be entertained by the Tribunal, unless it is made within the period of six (6) months from the date on which the case of action for such dispute first arose. In other words, the Legislature intended to make difference between expression “Case of action”



for such dispute and the date on which the order or decision was communicated. Secondly, the dispute can be filed only when it relates to a substantial question in respect of enforcement of any "Legal rights relating to environment". Whereas an appeal would lie against an order or direction or determination of any question. In the appeal-memo, the Appellant has not described that, he raises any particular dispute relating to environment of legal right, and the Application falls within the ambit of Section 14(1) and therefore, the limitation under Section 14(3) of the NGT Act is applicable. The simple case of the applicant is that, the impugned order passed by the GCZMA is illegal, incorrect and improper. The Appellant alleges that, the decision making authority is MOEF and not the GCZMA and therefore, the impugned order is illegal, which is therefore impugned on ground of basic legality. It is for such reasons, including violation of EIA notification and conditions of CRZ that the impugned work of the bridge in question is



under challenge in the appeal. As stated before, even if, the response to the RTI Application is considered as triggering point and then also the appeal under Section 16 of the NGT Act is barred by limitation.”

[Emphasis supplied]

4.5. In the aforesaid facts and circumstances, this Hon'ble Tribunal dismissed the Applicant's aforementioned Appeal *vide* its judgment and final order dated 27.03.2015 by making the following pertinent observations:

“22 In the result, the preliminary objection is upheld and hence the appeal is held as barred by limitation. The appeal is accordingly dismissed.

No costs.

23. Considering the fact that *prima facie* there appears certain material, which indicate violation of CRZ, we grant liberty to the Applicant to file Application or any petition as may be permissible under the Law to challenge the impugned project/CRZ order non-compliance and for that two (2) weeks the Status quo is continued, as per the statement

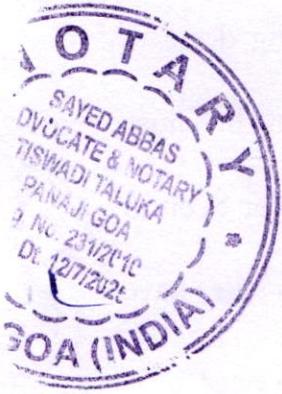


made by the learned Advocate General.”

[Emphasis supplied]

Thus, the liberty granted by this Hon'ble Tribunal was for the Applicant to file an application or any petition “as may be permissible under the law” to challenge the impugned project.

A true copy of the judgment and final order dated 27.03.2015 passed by this Hon'ble Tribunal in Appeal No. 31/2015 is annexed and is marked as **ANNEXURE R – 1**.



4.2. Section 14(3) of the NGT Act provides that No application for adjudication of a dispute under Section 14 section shall be entertained by the Tribunal unless it is made within a period of six months from the date on which the cause of action for such dispute first arose. The proviso to Section 14(3) further provides that the Tribunal may, if satisfied that the applicant was prevented by sufficient cause from filing the application within the said period, allow it to be filed within a further period not exceeding sixty days.

4.3. The Applicant above-named has pleaded as under on the aspect of limitation:

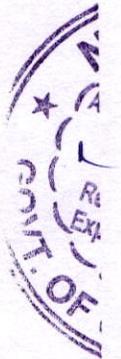
“Limitation:

30. This application is filed in time. As per the order of this Hon'ble Tribunal dated 27/3/2015, two

weeks' time was granted for filing of this application in the said order. Therefore the application is filed in time."

Pertinently, the Applicant made a complaint dated 14.07.2014 to Respondent No. 2 GCZMA in respect of the construction of the bridge in question. The Applicant stated in the complaint that no permission can be given for such development in NDZ. Thus, the Applicant was well aware that the area was within NDZ and the work was being done in such area before 13.07.2014. Thus, qua the Applicant, the cause of action first arose on 14.07.2014, if not earlier. Per Section 14(3) of the NGT Act, the Applicant ought to have approached this Hon'ble Tribunal within six months.

- 4.4. The language of Section 14(3) is clear and unambiguous. The expression "cause of action first arose" is also used in Article 58 of the Limitation Act, 1963, which has been the subject matter of interpretation by the Hon'ble Supreme Court. In *Khatri Hotels (P) Ltd. v. Union of India* reported in (2011) 9 SCC 126 the Hon'ble Supreme Court of India observed that use of the word 'first' between the words 'sue' and 'accrued' in Article 58 of the Limitation Act would mean that if a suit is based on multiple cases of action, the period of limitation will

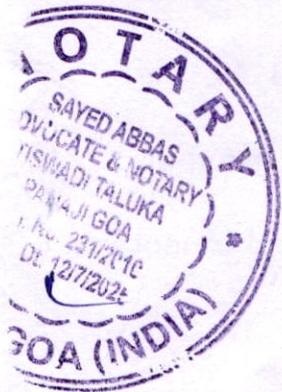


M

begin to run from the date when the right to sue first accrues. In other words, successive violation of the right will not give rise to the fresh cause, and the suit will be liable to be dismissed if it is beyond the period of limitation counted from the date when the right to sue first accrued. The principle laid down in *Khatri Hotels* (supra) applies to the facts of the present case. Per Section 14(3) of the NGT Act, the Applicant ought to have filed the above-captioned O.A. within six months from date on which the cause of action first arose.

- 4.5. In *Windsor Realty (P) Ltd. v. Ministry of Environment and Forest* reported in 2016 SCC OnLine Bom 5613, the Hon'ble Hon'ble Bombay High Court rejected the argument that Section 14 of the NGT Act envisioned a continuous cause of action. It held that the cause of action cannot be deemed to have arisen as late as when a particular individual becomes aware of the environmental violation in question. This is in view of the use of the expression "first arose", and therefore, once the cause of action arises, it continues to run.

- 4.6. The cause of action in the present case first arose when Respondent No. 2 GCZMA granted permission/approval to the project *vide* its order dated 22.10.2013. The said order was uploaded on the website of Respondent No. 2 GCZMA. Thus,



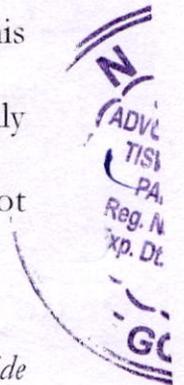
B

there is a presumption *de jure* that the Applicant had constructive notice of the said approval/permission.

4.7. As demonstrated hereinabove, the Applicant was aware of the construction of the bridge in question and purported environmental damage at least on the date it submitted a complaint to Respondent No. 2 GCZMA, i.e. 14.07.2014. The Applicant filed the above-captioned O.A. only in April 2015. Thus, the Applicant ought to be deprived of the right to approach this Hon'ble Tribunal belatedly.

4.8. In *Nikunj Developers & Others v. State of Maharashtra & Others* reported in 2013 ALL (I) NGT (1) PB 40, this Hon'ble Tribunal has taken the view that the statutorily prescribed limitation has to be strictly adhered to and cannot be relaxed merely on equitable grounds.

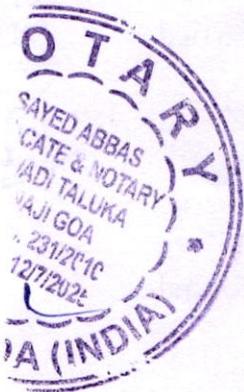
4.9. In so far as the liberty granted by this Hon'ble Tribunal *vide* Para 23 of its judgment and final order dated 27.03.2015 in Appeal No. 31/2015 is concerned, the said liberty was to file an Application or any Petition as may be permissible under the law to challenge the impugned project. This Hon'ble Tribunal consciously used the phrase "as may be permissible under the law". An O.A. under Section 14 of the NGT Act filed beyond the period of limitation prescribed *vide* sub-section (3) thereof



is not permissible under the law. Hence, the Applicant cannot rely on the liberty granted in the aforementioned judgment to overcome the fact that the above-captioned O.A. is barred by limitation.

SUBMISSIONS ON MERITS:

5. Without prejudice to the answering Respondent's contention that the above-captioned O.A. is barred by limitation, the answering Respondent submits that the proposed bridge project holds immense potential to bolster tourism, which stands as a crucial source of revenue for the State of Goa. It is imperative to emphasize that all requisite No Objection Certificates (NOCs) and permissions have been diligently obtained from the relevant authorities, including but not limited to the Goa Coastal Zone Management Authority (GCZMA), Goa State Pollution Control Board, Town and Country Planning Department, Captain of Ports, and Local Authorities. To elucidate further, the Town and Country Planning Department issued a comprehensive NOC dated 28.08.2013, demonstrating their approval for the project. In pursuance of regulatory compliance, permission was sought from the Goa State Pollution Control Board. The Board, in its wisdom, responded via a letter dated 29.07.2013, elucidating that the construction activity pertaining to the aforementioned bridge does not fall within the purview of the Air and Water Act. Consequently, the Board clarified that the issuance of an NOC for such a purpose was not warranted. Furthermore, it



is noteworthy that an in-principal NOC was granted by the Captain of Ports, subsequent to a meticulous joint inspection conducted by the Hydrographic surveyor of Ports on 02.08.2013, thereby affirming the project's adherence to maritime regulations.

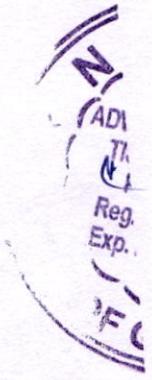
A true copy of the letter dated 29.07.2013 issued by the Goa State Pollution Control Board is annexed and is marked as **ANNEXURE R – 2**.

A true copy of the comprehensive NOC dated 28.08.2013 issued by the Town and Country Planning Department is annexed and is marked as **ANNEXURE R – 3**.

6. With regard to the Respondent No. 2 GCZMA, it is pertinent to mention that a thorough site inspection of the proposed bridge location was carried out on 25.09.2013. Following this comprehensive assessment, the GCZMA, in its considered judgment, granted approval for the said project *vide* its letter dated 22.10.2013, thus validating the project's compliance with coastal zone regulations.

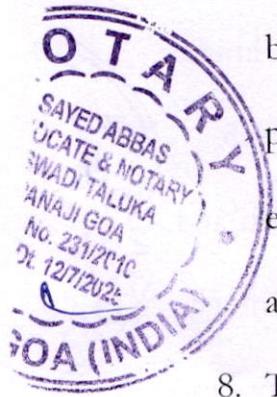
A true copy of the GCZMA's letter dated 22.10.2013 is annexed and is marked as **ANNEXURE R – 4**.

7. Given that all the requisite approvals have been duly granted by the concerned statutory bodies after careful deliberation and inspection, it is unequivocally clear that there is no violation of the Coastal Regulation Zone (CRZ) regulations. The contention of irreversible and permanent damage, as posited by the applicant based solely on a cursory examination of Google



images, is vehemently denied and lacks substantive merit. On the contrary, the bridge will serve as a catalyst for promoting tourism in and around the historically significant Tiracol fort and the picturesque Querim beach area. Moreover, the project will provide much-needed enhanced road connectivity to this region, which has hitherto remained underdeveloped due to the paucity of adequate infrastructural facilities. This infrastructural enhancement is poised to unlock the latent potential of the area, fostering economic growth and improving the quality of life for local residents. The bridge project not only adheres to all statutory requirements but also promises to be a transformative development for the region, balancing environmental considerations with the imperative of sustainable progress and tourism promotion.

8. The answering Respondent has consistently maintained a steadfast commitment to adhering to all legal and regulatory requirements pertaining to the project in question. In this regard, it has been previously elucidated and is hereby reiterated that no work whatsoever relating to the aforementioned project shall be undertaken on any forest land towards the Tiracol side without first obtaining the requisite permissions in strict accordance with the prevailing laws and regulations. In furtherance of this commitment, it is categorically affirmed that GSIDC has, to date, refrained from initiating any construction activities in the area designated as forest land. In pursuance of the necessary approvals, GSIDC had diligently



submitted an application to the office of the Principal Conservator of Forests, seeking forest clearance for Survey Numbers 14 and 15 situated in village Tiracol. Subsequently, after due consideration and thorough evaluation, the Conservator of Forests, Ministry of Environment, Forest and Climate Change (MoEF & CC), granted In-Principle Approval, also known as Stage I clearance, for the diversion of 0.2884 hectares of forest land for the project's purposes.

A true copy of the In-Principle Approval dated 30/12/2015 granted by Conservator of Forests, Ministry of Environment, Forest and Climate Change (MoEF & CC) is annexed and is marked as **ANNEXURE R – 5**.

9. As a demonstration of its commitment to environmental conservation and in compliance with regulatory requirements, GSIDC has conscientiously deposited a sum of Rs. 3,61,807.60 (Rupees Three Lakh Sixty-One Thousand Eight Hundred Seven and Sixty Paise only) towards the compensatory afforestation funds. This payment was duly made and communicated *vide* GSIDC's letter dated 24/02/2016, underscoring the corporation's dedication to mitigating the project's environmental impact.

A true copy of GSIDC's letter dated 24/02/2016 is annexed and is marked as **ANNEXURE R – 6**.

10. Following the receipt of the Stage I Clearance, GSIDC undertook meticulous efforts to execute all the necessary compliances as stipulated in the said clearance. Upon successful completion of these compliances,



GSIDC promptly submitted a formal request to the MoEF & CC *vide* its letter dated 11/11/2019 for the grant of Final Forest Clearance, also referred to as Stage II Clearance. However, it is pertinent to note that the MoEF & CC has, thus far, not granted the Stage II Forest Clearance. The Ministry has cited the pendency of Writ Petition No. 121 of 2017 (Salvador Rodrigues and Another Vs Chief Conservator of Forest and others) before the Hon'ble High Court of Bombay at Goa as the reason for withholding the final clearance. This development has temporarily impeded the progress of obtaining the requisite forest clearances for the project.

A true copy of the GSIDC's letter dated 11/11/2019 to Deputy Conservator of Forest for grant of Final Forest Clearance is annexed and is marked as **ANNEXURE R – 7**.



11. In response to this situation, GSIDC, demonstrating its proactive approach and commitment to resolving any legal impediments, sought the expert opinion of the Learned Advocate General of the State Government. Based on the counsel received, GSIDC duly informed the MoEF & CC by its letter dated 03/08/2021 that the aforementioned Writ Petition should not be construed as a bar for the Ministry to consider the request to proceed with the Final Forest Clearance. This communication was made with the intention of facilitating the expeditious processing of the clearance application while respecting the ongoing judicial process.

A true copy of GSIDC's letter dated 03/08/2021 to Deputy Conservator of Forest is annexed and is marked as **ANNEXURE R – 8**.

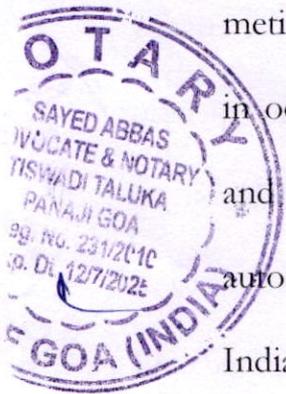
12. Thus, the answering Respondent GSIDC has demonstrated unwavering commitment to legal compliance, environmental stewardship, and procedural diligence throughout the process of obtaining the necessary forest clearances for the project. The answering Respondent stands ready to proceed with the project in full compliance with all legal and regulatory requirements, pending the resolution of the ongoing legal proceedings and the receipt of the Final Forest Clearance from the MoEF & CC.

13. With respect to the paramount concern of preserving and safeguarding the delicate coastal ecology, the answering Respondent submits that comprehensive and meticulous studies pertaining to the potential environmental impacts on the estuarine areas have been diligently conducted. These exhaustive studies were undertaken in strict adherence to the explicit directions issued by the Hon'ble National Green Tribunal, and were executed with the highest standards of scientific rigor by the esteemed National Institute of Ocean Technology (NIOT). The scope of these studies was notably expansive and thorough, encompassing a wide array of potential environmental consequences. Of particular significance, the studies meticulously examined and evaluated any conceivable alterations to the tidal water activity that might arise as a direct or indirect consequence of the construction activities associated with the project in question.



Furthermore, the research endeavour extended to a detailed analysis of potential changes to the estuarine areas that could potentially stem from any adverse impacts of the construction process, with specific emphasis on factors that could potentially influence or alter the natural tidal movements of the river system. It is imperative to underscore that these studies were not conducted in isolation or without proper oversight. On the contrary, they were carried out in strict conformity with the orders passed by the Hon'ble Tribunal, ensuring full compliance with legal and regulatory requirements. Moreover, the terms of reference for these studies were meticulously crafted and issued by NIOT, a body renowned for its expertise in oceanic and coastal research, guaranteeing the highest scientific inquiry and methodological rigour standards. The engagement of NIOT, a premier autonomous institute under the Ministry of Earth Sciences, Government of India, further attests to the credibility and reliability of the studies conducted. NIOT's involvement ensures that the research was conducted using state-of-the-art technology and methodologies, adhering to international best practices in environmental impact assessment. These comprehensive studies have yielded invaluable insights into the potential environmental ramifications of the project, particularly with regard to the sensitive estuarine ecosystem.

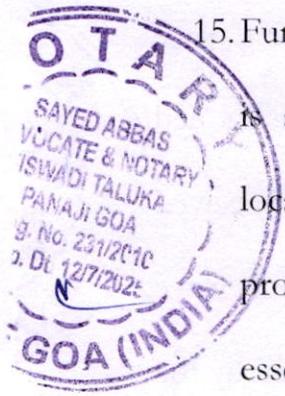
14. It is imperative to address and unequivocally refute the applicant's assertion regarding the purported cost of Rs. 1,00,00,000/- [Rupees One Crore Only]



per family for the project in question. Such a calculation is not only fundamentally flawed but also demonstrates a profound misunderstanding of the complex factors that influence infrastructure project costs. The suggestion of such an arbitrary figure is, in the most respectful terms, both illogical and absurd, as it fails to take into account the multifaceted nature of large-scale infrastructure development. It is a well-established principle in civil engineering and project management that the cost of any construction project, particularly one of this magnitude and significance, is contingent upon a myriad of intricate factors. These factors include, but are not limited to, the intricacies of the project design, the specific geological characteristics of the soil strata at the construction site, and a host of other site-specific conditions that can significantly impact both the methodology and cost of construction. To reduce the complex calculus of project costing to a simplistic per-family figure is to grossly misrepresent the economic and engineering realities of infrastructure development. The decision by the State Government to undertake this project was made after careful deliberation and with a clear vision of its potential to catalyze socio-economic development in the region. The primary objectives of this project are twofold: firstly, to provide substantially improved road connectivity, and secondly, to serve as a catalyst for promoting tourism in this hitherto underdeveloped area. It is pertinent to note that a significant number of Goan residents reside across the Tiracol river, in an area that has long



suffered from a lack of basic infrastructure, with inadequate road connectivity being a particularly pressing concern. The proposed bridge, upon its completion, is poised to dramatically reduce both the travel distance and time for local residents. This improvement in connectivity is not merely a matter of convenience but one of critical importance, especially in scenarios involving medical emergencies where every minute saved in transit can be the difference between life and death. The potential of this bridge to enhance the quality of life for residents, particularly in times of urgent need, cannot be overstated.



15. Furthermore, it is crucial to emphasize that the construction of this bridge is a matter of immense public importance, transcending individual or localized benefits to serve the greater good of the entire region. The project's potential to unlock economic opportunities, improve access to essential services, and foster overall development in an area that has long been neglected due to infrastructural deficiencies is substantial and far-reaching.

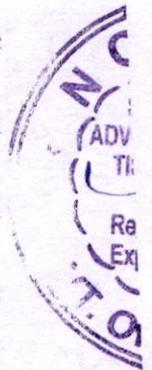
16. The pressing need for this infrastructure development is not merely a top-down assessment but one that is echoed by the local community itself. In a clear demonstration of grassroots support for the project, the Village Panchayat of Keri Tiracol, representing the interests and aspirations of the local populace, passed a resolution dated 26.10.2014 expressly articulating the urgent need for the construction of this bridge. This resolution stands

as a testament to the project's alignment with the desires and requirements of the very people it aims to serve.

A true copy of the Resolution dated 26.10.2014 passed by the Village Panchayat of Keri Tiracol is annexed and is marked as **ANNEXURE R – 9**.

17. The answering Respondent categorically refutes the baseless allegation put forth by the Applicant that the bridge in question is proposed to be constructed using public funds for the benefit of a private entity. Such a contention is not only entirely unfounded but also demonstrates a profound misunderstanding of the project's genesis, purpose, and long-standing place in the State's development plans. The construction of the aforementioned bridge has been a long-standing vision of the State Government, conceived and nurtured over an extended period as part of a comprehensive infrastructure development strategy. This fact is irrefutably evidenced by the inclusion of the proposed bridge in the Regional Plan of Goa, 2021, a meticulously crafted document that was finalised and adopted on 06.11.2010. Incorporating this bridge project in such a pivotal planning document underscores its significance to the overall development trajectory of the region and its alignment with the State's long-term infrastructure goals.

A true copy of the Regional Plan of Goa 2021 as adopted on 06.11.2020 is annexed and is marked as **ANNEXURE R – 10**.



18. Furthermore, it is imperative to bring to the attention of this Hon'ble Tribunal that the Keri-Tiracol bridge project has been an integral component of the Goa State Infrastructure Development Corporation's (GSIDC) agenda for a considerable duration. This project, along with eight other bridge projects across the State of Goa, was explicitly enumerated in the agenda presented to the GSIDC Board during its 107th meeting, convened on 17.03.2012. The GSIDC Board, in its collective wisdom and foresight, passed Resolution No. 2800, thereby resolving to undertake the construction of the Keri-Tiracol bridge, alongside several other bridge projects, in a phased and systematic manner. This resolution stands as incontrovertible evidence of the project's legitimacy and its place within the State's broader infrastructure development framework.



A true copy of the Resolution No. 2800 dated 17.03.2012 is annexed and is marked as **ANNEXURE R – 11**.

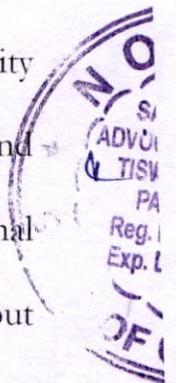
19. In the interest of transparency and to dispel any misconceptions, it is crucial to emphasize that all communications, minutes of meetings, and subsequent Board agendas that make reference to Leading Hotels have never been concealed from public scrutiny. These documents remain readily accessible within the records of GSIDC and have been made available to the applicant through the provisions of the Right to Information Act. This openness and accessibility of information pertaining to the project's development process

serve to underscore the State's commitment to transparency and public accountability.

20. A fact of paramount importance that must be highlighted is that while Leading Hotels did indeed offer their design through an agency known as Web Structures, GSIDC, in its commitment to ensuring the highest standards of project execution and impartiality, made the judicious decision to appoint a full-fledged empanelled consultant. This appointment was conducted through a rigorous competitive bidding process, meticulously adhering to the prescribed procedures. This decision unequivocally demonstrates GSIDC's unwavering commitment to maintaining the integrity of the project development process and ensuring that the design and execution of the bridge are guided solely by public interest and professional expertise. In light of the aforementioned facts, it is not only relevant but crucial to emphatically state that consultants associated with any private party were never involved in the design phase of this project. The design and planning processes were conducted entirely under the aegis of GSIDC, utilizing the expertise of professionally appointed consultants selected through a transparent and competitive process.

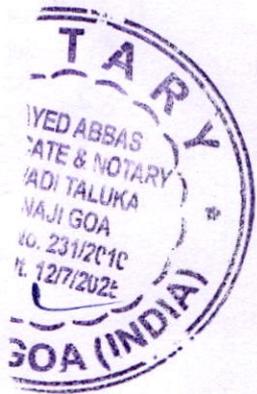
A true copy of the Letter of Commencement of Work / Work Order dated 21/03/2013 is annexed and is marked as **ANNEXURE R – 12**.

21. Thus, the allegation that this bridge project is being undertaken for the benefit of a private entity is not only baseless but also stands in stark



contrast to the documented history of the project's conception, its inclusion in state-wide development plans, and the transparent processes through which it has been developed. The Keri-Tiracol bridge project represents a vital public infrastructure initiative, conceived and executed with the sole aim of fostering regional development and enhancing connectivity for the benefit of the wider populace.

22. The answering Respondent categorically and unequivocally deny the allegation that the alignment of the bridge in question was altered to accommodate or benefit any private entity whatsoever. Such an assertion is not only entirely unfounded but also grossly misrepresents the meticulous and professional process through which the bridge's design and alignment were determined. In the pursuit of engineering excellence and fiscal responsibility, a multitude of options were rigorously explored and exhaustively analysed during the project's conceptualisation and design phases. This comprehensive evaluation process was undertaken to identify the most optimal solution that would best serve the public interest while adhering to the highest standards of technical feasibility and financial viability. The final design and alignment of the bridge, as it stands today, represent the culmination of this thorough and impartial assessment. It is the product of extensive deliberations, expert consultations, and rigorous technical and financial analyses. The chosen design emerged as the most viable option, excelling in technical sophistication and cost-effectiveness.



This decision was made with the utmost consideration for public welfare, environmental impact, and long-term sustainability, without any undue influence from external parties or private interests.

23. It is crucial to address the Applicant's attempt to draw a connection between this bridge project and a private entity mentioned in their application. The answering Respondent, in no uncertain terms, states that the private entity alluded to by the applicant is associated with an entirely separate project, the current status of which is beyond the purview and knowledge of the Goa State Infrastructure Development Corporation (GSIDC). The apparent linkage between these distinct projects exists solely in the applicant's perspective and does not reflect the factual reality or the decision-making processes of GSIDC.

24. Furthermore, it is of significant legal and procedural importance to bring to the attention of this Hon'ble Tribunal that the applicant, despite their allegations, has consistently failed to implead the aforementioned private entity as a party respondent in the proceedings before the Hon'ble Tribunal. This glaring omission on the Applicant's part undermines the credibility of their claims and raises questions about the veracity and intent behind their allegations. The absence of this purportedly involved private entity from the legal proceedings thus far is a matter of considerable significance.

25. Thus, the design and alignment of the bridge project in question have been determined solely based on technical merit, financial prudence, and public



benefit. Any insinuation of impropriety or undue influence in this process is vehemently rejected. The project is a testament to our commitment to transparent, efficient, and responsible infrastructure development for the betterment of the region and its inhabitants.

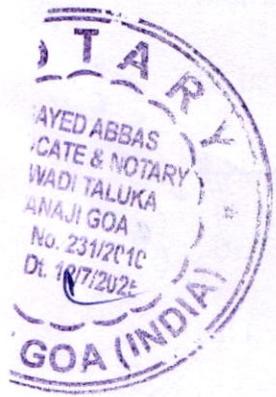
SUBMISSIONS ON THE NIOT STUDY

26. The answering Respondent reiterates that all requisite approvals and No Objection Certificates (NOCs) for the bridge project were meticulously obtained and duly presented before this Hon'ble Tribunal. After careful consideration of these documents and in full compliance with legal requirements, particularly taking into account all observations and recommendations put forth by the esteemed National Institute of Ocean Technology (NIOT), the Learned Tribunal, vide its order dated 22.01.2020, granted approval for the project to proceed. The NIOT study was conducted in strict adherence to the terms of reference and in full compliance with the order passed by the Hon'ble NGT. The order dated 17.04.2015 specifically addressed concerns related to Pillar No. 6 of the proposed bridge structure.

A true copy of the order dated 17.04.2015 passed by this Hon'ble Tribunal in the above-captioned O.A. is annexed and is marked as **ANNEXURE R**

- 13.

27. NIOT unequivocally clarified that the study was conducted in accordance with the terms of reference that were not only accepted by the applicant but

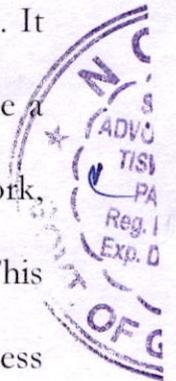


also approved by this Hon'ble Tribunal. The orders of this Hon'ble Tribunal were explicitly focused on assessing the environmental impact on the estuarine area, with particular emphasis on the spit of Keri (P6). The primary concern was to evaluate any potential changes in the estuarine areas that might arise due to the adverse impact of constructing Pillar P6, which could potentially influence the tidal movement of the river water. In compliance with these directives, NIOT conducted exhaustive studies and subsequently submitted a comprehensive report to the Hon'ble Tribunal. It is pertinent to note that while an interim report was prepared to provide a descriptive overview of the site and to inform about the progress of work, the final report presented a far more detailed and in-depth analysis. This final report highlighted the significant amount of work undertaken to assess all possible impacts of the bridge construction.

A true copy of NIOT's interim report dated 26/11/2015 is annexed and is marked as **ANNEXURE R – 14**.

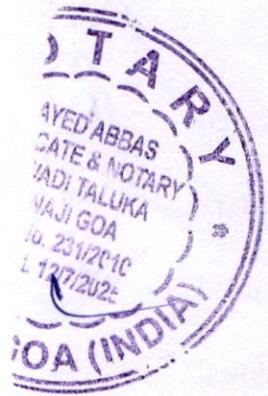
A true copy of NIOT's final report dated 17/02/2016 is annexed and is marked as **ANNEXURE R – 15**.

28. Contrary to the applicant's assertion, there has been no reduction in the scope of the study conducted by NIOT. The applicant's claims that the report shows an incomplete study in a diluted version and that NIOT lacks confidence in its own conclusions are categorically refuted. It is imperative to question whether the applicant has conducted any scientific study of their



own through a qualified and eligible agency and whether their queries regarding the NIOT report are based on concrete, analysed data. The impact study conducted by NIOT was carried out by a specialist team of experts, utilising available data supplemented by a rapid data collection program. The morphological changes at the Keri spit due to the bridge pier were predicted based on this comprehensive analysis. The report meticulously detailed the modelling and methodologies employed. A thorough analysis was conducted, encompassing tidal characteristics, spring currents, and wave characteristics observed across seasons. Long-term data analysis using satellite imagery was performed, along with shoreline mapping on both sides of the river bank around pile locations, incorporating ground control points for rectification of Google imagery. Hydrodynamic, wave, and sediment transport models were employed to evaluate flow conditions both with and without the presence of bridge pillars. Simulation studies, conducted by field experts, indicated no significant accretion during the monsoon season. However, during fair weather from October to April, an accretion of 10 to 20 meters was observed around the pillar location. Flow simulations under these conditions indicated no significant changes in water exchange between the estuary and the open ocean.

29. Following this exhaustive study, NIOT provided recommendations in their report, which were duly considered by this Hon'ble Tribunal. It is crucial to emphasise that NIOT, being an expert body undertaking such studies,



maintains full confidence in its conclusions. The monitoring suggested in the NIOI report should be viewed as a long-term measure for environmental management. This is necessary because the behaviour of natural phenomena, such as morphological changes of sand spits and shoreline alterations, cannot be predicted with absolute certainty due to numerous influencing factors. Thus, monitoring remains the most viable measure and should be considered an integral part of the Environmental Management Plan.

30. Regarding the second pillar, P7, it is important to note that it is not located near the beach and has no effect on the sand dunes, which was the primary concern addressed in the NIOI report for Pillar P6. The issues raised concerning Pillar P7, such as erosion of the Tiracol cliff and the potential dislodging of boulders during drilling activities, appear to be speculative in nature. The applicant has not provided any concrete data or study to substantiate these claims regarding Pillar P7.

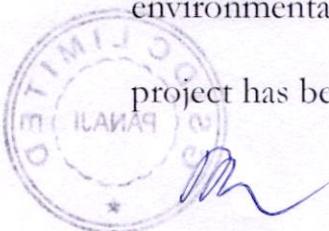
31. Thus, the objections raised by the applicant concerning the report submitted by NIOI are entirely baseless and devoid of substance. It is reiterated that the applicant has not produced any alternative expert report or scientific data to counter the final report submitted by NIOI. Therefore, it is evident that the construction of the bridge can be managed in accordance with NIOI's recommendations, ensuring that there is no adverse damage to the environment.



32. Without prejudice to the foregoing paragraphs, it is also pertinent to note that the Tiracol side of the land in question no longer forms a part of forest land. The Working Plan Division of the Respondent No. 4 State's Forest Department has concluded that Survey Nos. 14/1 (P), 15/1 (P) and 15/1-A (P) of Tiracol village does not form part of a Government Forest, Proposed Reserved Forest, Reserved Forest, Unclassed Forest, Compartment of Working Plan, Wildlife Sanctuary, National Park, or Protected Area. Furthermore, Survey Nos. 14 and 15 were earlier provisionally identified as Privat Forests, but after review, Survey Nos. 14/1 (P), 15/1 (P) and 15/1-A (P) have been found to not fulfil the criteria of Private Forests as well. Hence, the Respondent No. 4 State has, by its letter dated 24.02.2025, conveyed its approval for withdrawal of the diversion proposal, and requested the MoEF & CC to revoke Stage – I clearance already granted by its letter dated 30.12.2015.

A true copy of Letter dated 24.02.2025 is annexed and is marked as **ANNEXURE R – 16.**

33. In light of the foregoing submissions, it is respectfully prayed that this Hon'ble Tribunal may be pleased to dismiss the Original Application in its entirety. The answering Respondent has demonstrated beyond doubt that all necessary approvals and clearances have been diligently obtained, environmental impact studies have been meticulously conducted, and the project has been conceived and designed with the sole aim of public benefit.



The allegations of environmental degradation and undue private benefit are unfounded and unsupported by any credible evidence.

34. Furthermore, it is humbly submitted that the Applicant's contentions are not only baseless but also appear to be motivated by considerations other than genuine environmental concerns. The project in question is of immense public importance, aimed at enhancing connectivity, fostering economic development, and improving the quality of life for a significant population. The Applicant's actions have resulted in unwarranted delays to a critical infrastructure project, causing inconvenience to the public and financial implications for the State.

35. Given these circumstances, it is respectfully prayed that this Hon'ble Tribunal may be pleased to impose exemplary costs on the Applicant. Such a measure would not only discourage frivolous litigation but also serve as a deterrent to those who seek to obstruct projects of public importance under the guise of environmental protection without substantial grounds. The imposition of costs would underscore the importance of responsible litigation and ensure that the judicial process is not misused to the detriment of public interest.



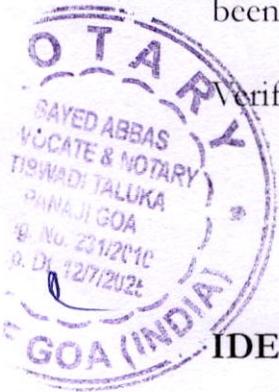
DEPONENT



VERIFICATION

I, the abovenamed Deponent, do hereby state on solemn oath and affirmation that the facts stated hereinabove in this Affidavit are true and correct to the best of knowledge, information and belief, and nothing has been concealed.

Verified at Panaji on this 21st day of April, 2025.



IDENTIFIED BY:

DEPONENT



SOLEMNLY AFFIRMED AND VERIFIED
BEFORE ME BY Mr. Harish Adconkar
son D.
WHO IS IDENTIFIED BEFORE ME BY
pan card, WHOM I KNOW
SR. NO: 2663/2025
DATED: 21/04/2025

SAYED ABBAS
Advocate & Notary
Tiswadi Taluka
Panaji-Goa 403001
Reg. No. 231/2010

210

BEFORE THE NATIONAL GREEN TRIBUNAL
(WESTERN ZONE) BENCH, PUNE
APPEAL NO.31 OF 2014

CORAM:

Hon'ble Shri Justice V.R. Kingaonkar
(Judicial Member)
Hon'ble Dr. Ajay A.Deshpande
(Expert Member)

In the Matter of:

THE GOA FOUNDATION,
Through its Secretary,
G-8, St.Britto's Apts.
Feria Alta, Mapusa-Goa, 403505

...APPELLANT

Versus

1. **GOA COASTAL ZONE MANAGEMENT AUTHORITY**
through its Member Secretary,
3rd Floor, Dempo Towers,
Patto, Panaji,Goa -403 001.
2. **GOA STATE INFRASTRUCTURE DEVELOPMENT CORPORATION,**
through is Managing Director,
EDC Building, Panaji, Goa 403 001.
New Delhi-110001.
3. **The GOA STATE OF ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY,**
Demo Towers, Patto, Panaji Goa 403 001.
4. **STATE of Goa through Chief Secretary,**
Secretariat, Parvorim, Goa.
5. **The Chief Conservator of Forest,**
Forest Department, Panaji-Goa.

.....RESPONDENTS

Counsel for Appellant(s):

Norma Alvares, a/w Supriya Dangare for Appellant.

Counsel for Respondent(s):

Mr.Dattaprasad Lawande for Respondent No.1.

Ms.F.M.Mesquita, For Respondent No.2.

Mrs. Shewta Busar, for Respondent No.3

Date: March 27th, 2015

J U D G M E N T

1. By this order, preliminary objection raised in respect of limitation for filing of the appeal, is being considered and disposed of, in as much as , it is germen to further decision making, if we have to deal with the matter on merits. The Appellant has challenged impugned order of GCZMA (Respondent No.1) issued on 22nd Oct.,2013 and also urged for restoration of beach at Querim to its original condition by Respondent No.2, Viz.Goa State Infrastructure Development Corporation.

2. Undisputedly, there is river at Tiracoal,Goa. There is embankment of river on one side and opposite to other side, there is beach of Keri, which is abutting inward part of Sea. In between Keri beach, Tiracoal River beach and Keri water flows in confluence.

3. There is no dispute about the fact that the village Tiracoal is at a short distance from border of State of Maharashtra, particularly Vengurla Taluka (District Sindhudurg). Respondent No.2 is dealing in construction activities and development within the State of Goa. Respondent No.2 decided to construct a bridge across

208

Tiracoal and Keri, costing about Rs.77 Crores. Respondent No.2, in fact, has constructed a small part of the bridge towards Tiracoal river side. However, no work has been yet commenced from Keri side. The work done from Tiracoal village side is also up to about 7 to 10 % within the estuary.

4. Briefly stated, the Appellant's case is that, the work of bridge in question falls within the CRZ-I as per the approved Coastal Zone Management Plan and CRZ Notification. Respondent No.2 has not obtained approval of the MoEF as required under the CRZ notification, 2011. The permission granted by Respondent No.1 for construction work is illegal, because the construction work falls within the CRZ-I area and in violation of procedure laid down in CRZ Notification. The bridge on the southern side is being constructed in the No Development Zone (NDZ) zone, immediately on the eastern side of Querim beach which is demarcated at CRZ-I, as per the approved CZMP and CRZ notification. The bridge is being constructed without prescribed study of Environmental impact and that too, in the No Development Zone (NDZ) Querim across the river which is eco sensitive area. The northern side access in Tiracoal village is Forest land, for which there is no F.C. diversion order sought from Forest Conservative authority as per the Forest Conservation Act, 1980.

5. The Appellant alleges that, copies of the minutes of the GCZMA and NOC dated 22-10-2013 were obtained by him on 11-8-2014. The Appellant further alleges that, when he received knowledge of the construction on 13-7-2014, he filed complaint to the GCZMA and thereafter filed Application under RTI. The Appellant further alleges that, though the Application is not strictly within the time, set out in the NGT Act, it is still within time, from

the knowledge of the work, which had commenced at the spot. So, the Appellant has sought condonation of delay in filing of the appeal.

6. Respondent No.1 (GCZMA) and Respondent No.2 raised preliminary objections, on the ground that, the appeal is barred by limitation and is liable to be dismissed, because, it is filed after 30 days and therefore, does not come within the ambit of Section 16 of NGT Act.

7. Before considering the issue of limitation, we shall first have a look at approved plan of Goa State Coastal Zone Management (Annexure A). The plan of GCZMA dated October 22nd , 1996, reveals that, general conditions added in “ **Clause-A**” to the extent, they are relevant and thus:

- (i) x x x x
- (ii) No activity that has been declared as prohibited under Section 2 of CRZ Notification, 1991 shall be carried out within the Coastal Regulation Zone.
- (ii) The permissible activities shall be regulated in accordance with Section 3 and follow the norms for regulation as indicated in Section 6(2) of CRZ Notification, 1991 as amended in 1994.

8. The Appellant made a complaint dated July 14th, 2014 to GCZMA which shows that, on July 13th 2014, the construction of bridge across the Tiracoal River was noticed by him. He, also stated in the complaint that, no permission can be given for such development in NDZ, thus, the Appellant was well aware that the area was within NDZ and the work was being done in such area before July 13th, 2014.

9. The documents placed on record, prima-facie show that, there are trees and there may be encroachment on forest on Tiracoal side. In other words, there could be requirement to obtain permission from



Forest Conservation Authority if the project is to be completed. What the Appellant is challenging in the present appeal is, however, CRZ permission dated 22nd Oct.2013. The impugned permission of the CRZ shows that, the GSIDC will be required to obtain all other permissions/approval, for the construction of the bridge, as required by law. In other words, without obtaining permissions of the competent authorities, the CRZ clearance cannot be effected. So also, reclamation of river in Goa is banned and therefore, Captain of Port will have to consider the proposal of NOC.

10. It is argued on behalf of the Appellant that, first date of knowledge shall be the date where from the knowledge of illegal order be considered and therefore, it is well within time. According to the Learned Advocate Norma Alvares, the Appellant came to know, only on 13th June 2014, that the construction was started without approval of the competent authority, and therefore, the complaint was lodged on next day. Thus, July 14th 2014 is the date which triggered limitation and as such, the appeal is within limitation, since it is filed on October 13th 2014. From the record, it appears that the Appellant submitted an Application of NOC issued by GCZMA, NOC issued by Captain of Port and Site Inspection under the RTI Act, 2005. This Application was submitted on August 6th 2014. The applicant was directed to collect the copies on payment of required fees. It appears that, all the information was received by him on 11-8-2014, after collecting the copies. Obviously, the Appellant came to know about the impugned order on 11-8-2014, even assuming that, the copy was received somewhat late, though he came to know about earlier, yet date of knowledge of the Appellant is, somewhere in midst of August,2014. Filing of the appeal in the 2nd week of

October, 2014, i.e. about one year after the knowledge, is outside the limitation, provided Under Section 16 of the NGT Act.

11. According to Advocate Norma Alvares, technical issue of limitation should not detain the Tribunal from considering of the appeal, which can be termed as an application, because the Appellant has also sought restoration of the land at the beach of Querim to its original condition, which is a relief, that falls within the provision of Section 14(1) r/w Section 15 & 18 of NGT Act. The contentions of Learned Advocate Norma Alvares is that, the limitation of six (6) months is applicable in case of Application filed U/Sc.14(1) r/w Section 14(3) of NGT Act from date of knowledge, even if the present Application is considered as an application, instead of an appeal. So, it is argued that the application/appeal is not barred by limitation.

12. At this juncture, it may be noted that the Appellant is well aware of the fact that, the appeal is not well within the time, prescribed under the NGT Act. For such a reason, in Para-27 of the Appeal-memo, it is stated as below.

“ Though the Application is therefore strictly not within the time set out in the NGT Act, it is still within the time stipulated once the Appellant came to know. Therefore, Appellant seeks condonation of delay in filing this appeal.”

The Appellant mainly seeks setting aside, the order of GCZMA passed on October 22nd 2013. Therefore, the main purpose of the appeal is to challenge the said order. The impugned order, in fact, came within knowledge of the Appellant when copies of the relevant communication was received by him after the Application filed under

R.T.I. Obviously, the Appellant ought to have made it clear, as to when did he file Application under the R.T.I. He states that, he filed such Application on 25th Sept.2014 after conducting due research. He further states that, he has pleaded for condonation of delay, if any, in the appeal. The information received by him, in any case, was said to be after said application. The record shows that the documents were furnished to him on 11-8-2014. The GCZMA issued NOC dated 22-10-2013. The GCZMA has filed affidavit that minutes of GCZMA had been up loaded on the website, in the month of November, 2013 itself.

13. So far as the starting point of limitation for the purpose of appeal is concerned, U/Sc.16 of NGT Act, 2010, the limitation triggers when the Appellant can be attributed knowledge in relation to the impugned order, at first time. The Appellant has come up with a case that for the first time the activity of the construction was noted on 19-8-2014. He received reply from GSPCB on 28th Aug.2014. He received reply dated 16th Sept.2014 from GSIDC.

Chief bone of contention advanced by learned Advocate General appearing for the State of Goa is that, the Appellant had knowledge of the project in question since very beginning when the issue of Tiracoal Bridge and other bridges were discussed during a meeting held on 2-1-2012 between the Hon'ble Chief Minister and other officials. He pointed out that, the construction of Tiracoal Bridge finds mention in the Chief Minister's speech of May of 2012. Thus, the project was in contemplation of State of Goa since 2012 and this was known fact to the Appellant and all the concerned members of nearby area. The Appellant, however, submitted that in the Writ Petition filed before Hon'ble

High Court of Bombay at Goa (W.P. No.362 of 2010, Civil Application No.155 of 2010) was filed in respect of similar matter. It is pointed out that, in his additional affidavit dated 7th Oct.2010 the Executive Engineer (PWD) stated that “ The work of the construction of that bridge would not come be recommenced until the CRZ clearance is obtained from the Ministry of Environment & Forest (MOEF).” The Hon’ble High Court accepted the said statement. On the basis of such statement the Hon’ble High Court directed that, the construction of said bridge shall not be recommenced until the CRZ clearance is obtained from the MOEF, and for a period of 7 days thereafter. That was altogether different matter pertaining to Benaulim-Sinquetim in South Goa.

14. The Affidavit of Member Secretary of GCZMA shows that, permission of GCZMA was granted to the project of bridge in question I.e Bridge between river Tiracol and Keri as per communication dated 22nd May, 2011. His affidavit shows that, the proposed bridge from Keri to Tiracol is of 13 Mtrs and comprises of 10 (Ten) Piers. Out of them, 2(Two) Piers will be erected in the NDZ area towards Keri side and 2 (Two) Piers will be erected within in the NDZ area towards Tiracol side. The total area of land occupied on Keri side will be only of 21 Sq.Mtrs under the Piers and rest of the bridge will be suspended in the air above NDZ area, which would not involve any environmental degradation at all.

His affidavit further purports to show that, the construction of bridge is exempted under the EIA Notification from procedure to seek permission. Moreover, the CRZ Notification gives authority to the GCZMA and the Notification itself exempts the construction activities of the bridge from the CRZ Clearance.

15. The "exemption" is applicable to project in question, if it is so looked from the stand point of view of CRZ Notification. The CRZ Notification is issued with an object to regulate certain activities in the area between HTL & LTL and to protect the interest of fishermen, Sea water, islands, to conserve and protect the coastal status so on and so forth. The word "To Regulate" implies power to grant or reject any permission sought for. The regularity authority prima-facie has the powers to deny the permission if the Application does not satisfy parameters required for a particular regulations, in the present case CRZ norms or the EIA norms. It has also legal authority to grant such permission, if the norms are fulfilled. The very fact that MOEF referred the matter to the CRZ authority in similar case, in spite of directions of the Hon'ble High Court to consider the application, is indicative of the fact that the authority already with the GCZMA. The expression "Regulate" is clear from the dictums in "**Maharashtra State Board of Secondary and Higher Secondary Education Vs. Paritosh Bhupesh kumar Sheth, (1984) 4 Supreme Court Cases 27, K.Ramanathan Vs. State of Tamilnadu & Another, (1985) 2 Supreme Court Cases 116, Asa Ram Vs. District Board, AIR 1959 Supreme Court 480.**

16. A question may arise, as to why we are inclined to discuss the above legal position. This is because the Appellant has come up with a case that, the respondent No.2 ought to have approach MOEF and mere CRZ Clearance could not be sufficient. According to the Appellant, the Respondent No.2 by-passed the important stages of scoping, public consultation, Screening and appraisal, which are essential for decision making by the MOEF. The Appellant alleges that, the Respondent No.2 purposefully avoided the public hearing, in order to

deprive the Appellant and public members to raise objections to the project, in order to avoid grievances by way of conducting public hearing. This being the main thrust of the contention in the appeal, we have taken prima facie review of the CRZ notification, in order to show that there may not be such ill-intention of the respondent No.2 to avoid public hearing while applying to the CRZ authority, for grant of permission to seek Clearance for the project of the bridge in question. The Appellant had knowledge that construction activities was going on when he visited the site, allegedly on 13th July, 2014. Thirty (30) days period from 13-7-2014 elapsed on 13th August, 2014. Even assuming that, the Appellant received knowledge of the EC after getting the relevant documents on 11-8-2014, yet, the appeal filed on 13th Oct.2014, is surely after the period of 30 days, from the date of such knowledge. The averment made in Para-14 of the appeal-memo goes to show that, the copy of the minutes of GCZMA meeting held on 15-10-2013 were down loaded from the web site of the authority as Annexure-I.

17. Reply to the complaint filed by the Appellant was received from the GCZMA on 26-8-2014, merely annexing approval. Even considering all these documents, the appeal filed on 10th Oct.2014, is barred by limitation, because it is filed, after 30 days, as prescribed period under Section 16 of NGT Act, 2010.

18. There can be no doubt that, the delay can be condoned as provided under Section 16, if "Sufficient Cause" is shown by the Appellant and the extension of such period can be up to 60 days further." Thus, there is outer limit of 90 days provided by Section 16 of NGT Act, for filing of the appeal. Unfortunately, in the present appeal, the Appellant has not filed any separate

Application for delay condonation. The Appellant has not given any "Sufficient cause" for the delay. The delay is not explained at all. The Appellant has not shown as to why the delay is caused after the initial prescribed period of thirty (30) days and why explanation of such delay under proviso appended to Section 16, is required to be granted, as an exemption or by way of special reason. In the absence of such special case made out, the Tribunal cannot assume that, there existed some "Special Reasons" "Special cause" for the Appellant to file appeal after a period of 30 days, which is prescribed under Section 16 of the NGT Act, 2010.

19. By now, it is well settled that, the period of limitation cannot be extended beyond the prescribed period under special enactment. The NGT Act is special enactment and therefore, the period of limitation prescribed under a particular provision, cannot be extended by applying general provisions of the other enactment. In case of "Medha Patkar Vs. MOEF & Ors" (Appeal No.1 of 2013) Hon'ble Principal Bench of NGT, Delhi held that the period of limitation is not extendable beyond the period provided under Section 16 of the NGT Act, 2010.

20. So also, in *Raza Ahmad Vs. State of Chhattisgarh & Ors.*, it is held that:

"The Tribunal must adopt a pragmatic and practical approach that would also be in consonance with the provisions of the Act providing limitation. Firstly, the limitation would never begin to run and no act would determine when such limitation would stop running as anyone of the stakeholders may not satisfy or comply with all its obligations prescribed under the Act. To conclude that it is only when all the stakeholders had completed in entirety their respective obligations under the respective provisions, read with the notification of 2006, then alone

the period of limitation shall begin to run, would be an interpretation which will frustrate the very object of the Act and would also cause serious prejudice to all concerned. Firstly, the completely frustrates the purpose of prescription of limitation. Secondly, a project proponent who has obtained environmental clearance and thereafter spent crores of rupees on establishment and operation of the project, would be exposed to uncertainty, dander of unnecessary litigation and even the possibility of jeopardizing the interest of his project after years have lapsed. This cannot be the intent of law."

From the above observations, it is quite clear that, the limitation available under Section 16 (1) cannot be extended, nor any sufficient cause is shown to grant such extension and therefore, appeal is barred by limitation. Therefore, objection raised by the respondents is legal and valid.

21. Alternative contentions of Learned Advocate Norma Alvares is that, the Application also seeks restoration of land and therefore, it would come within the ambit of Section 14 (1) of the NGT Act, 2010. We find it difficult to contingent the argument in as much as basically the subject matter is appeal against CRZ Clearance granted to the Respondent No.2 by GCZMA authority. The Appellant did not raise any "Substantial question" relating to enforcement of any legal right relating to environment as contemplated under Sub Section (1) of Section 14 in the appeal-memo. The wording of Section 14 of the NGT Act clearly indicate that, the Tribunal shall have jurisdiction over all civil cases, where substantial question relating to environment is involved. In the present case, assuming that this Tribunal has jurisdiction to decide the civil cases, where the dispute arises, in regard to implementation of enactment specified in Schedule-I, then also the period of limitation is of six (6) months from the date on which the cause of

action for such dispute first arose. The distinguishing features of Section 14 (3) and Section 16 (1)(a)(j) may be understood with due reference to the words implied by the Legislature, while drafting both these provisions. It is pertinent to note that, Section 16 of the NGT Act, deals with the appellate jurisdiction of the Tribunal, especially that provides for period of Thirty (30) days from the date on which the order or decision or direction or determination is communicated to him, to prefer an appeal. Whereas, Section 14(3) states that, no Application for adjudication of dispute under this section shall be entertained by the Tribunal, unless it is made within the period of six (6) months from the date on which the cause of action for such dispute first arose. In other words, the Legislature intended to make difference between expression "Cause of action" for such dispute and the date on which the order or decision was communicated. Secondly, the dispute can be filed only when it relates to a substantial question in respect of enforcement of any "Legal rights relating to environment". Whereas an appeal would lie against an order or directions or determination of any question. In the appeal-memo, the Appellant has not described that, he raises any particular dispute relating to environment of legal right, and the Application falls within the ambit of Section 14(1) and therefore, the limitation under Section 14(3) of the NGT Act is applicable. The simple case of the applicant is that, the impugned order passed by the GCZMA is illegal, incorrect and improper. The Appellant alleges that, the decision making authority is MOEF and not the GCZMA and therefore, the impugned order is illegal, which is therefore impugned on ground of basic legality. It is for such reasons, including violations of EIA notification and conditions of CRZ that the impugned work of the bridge

in question is under challenge in the appeal. As stated before, even if, the response to the RTI Application is considered as triggering point and then also the appeal under Section 16 of the NGT Act is barred by limitation.

22. In the result, the preliminary objection is upheld and hence the appeal is held as barred by limitation. The appeal is accordingly dismissed. No costs.

23. Considering the fact that *prima facie* there appears certain material, which indicate violation of CRZ, we grant liberty to the Applicant to file Application or any petition as may be permissible under the Law to challenge the impugned project/ CRZ order non-compliance and for that two (2) weeks the Status quo is continued, as per the statement made by the learned Advocate General.

....., JM
(Justice V. R. Kingaonkar)

....., EM
(Dr.Ajay A. Deshpande)

Date March 27th, 2015.

GOA STATE POLLUTION CONTROL BOARD

गोंय राज्य प्रदूशन नियंत्रण मंडळ

(An ISO 9001-2008 Certified Board)

ANNEXURE-2

Phone Nos : 91-832-2438567, 2438528
2438563, 2438550

Tel / Fax No. 832-2438528



Email id's :

Member Secretary, GSPCB - ms-gspcb.goa@nic.in
Environment Engineer, GSPCB - ee-gspcb.goa@nic.in
Scientist, GSPCB - scientist-gspcb.goa@nic.in
Asst. Env Engineer, GSPCB - aee-gspcb.goa@nic.in
Asst. Law Officer, GSPCB - alo-gspcb.goa@nic.in

No.1/20/12-PCB/ 3 816

Date:-29/07/2013

To,
The Managing Director,
Goa State Infrastructure Development Corporation Limited,
7th Floor, EDC House,
Dr. Atmaram Borkar Road,
Panaji Goa 403 001.

Inward No	5786
Date	30/7/13
GSIDC LIMITED	

Sub:- Construction of Bridge connecting Keri to Tiracol over river Tiracol.
Issue of No Objection Certificate.

Ref:- Your letter No.GSIDC/Engg/Works/854/2185 dated 16th July, 2013.

Sir,

With reference to your letter cited above, I am directed to inform you that the activity of construction of bridge does not come within the purview of the Water Act & Air Act. Hence this Board cannot issue any NOC for such purpose. You are also required to obtain requisite permissions/ NOC's from competent authorities before commencement of the proposed construction activity.

Yours faithfully,

(Sanjeev Joglekar)
Asst. Env. Engineer



Ref.: 33/1/TCP/TIRACOL/2013/F-1/34
 Town & Country Planning Dept. C/A
 Pernem Taluka Office
 Government of Goa,
 Pernem - Goa.
 Date: 28/8/2013 (1/9)

To,
 The Manager (Engg),
 Goa State Infrastructure Development Corporation Ltd.
 7th floor, EDC House,
 Dr, Atma Bhandarkar Road,
 Panaji, Goa - 403001.

Sub.: Proposed land acquisition for construction of bridge connecting Querim to Tiracol over river Tiracol.

Ref.: GISIDC/Engg/works/854/2530 dated 30.07.2013.

Sir,

With reference to the above mentioned subject, it is to inform you that there is No Objection from Planning Point of View to acquire land for construction of bridge at village Querim and Tiracol of Pernem Taluka admeasuring an area of 6390 m² (Querim village acquisition area = 4490 m² & Tiracol village acquisition area = 1900 m²) as per the Sy. Plan and survey description submitted to this office.

Further, As per the Regional Plan for Goa 2001 the Sy. No. under reference falls under following zones:

Village/ Taluka	Sy. No./sub division no.	Zoning as per Regional Plan for Goa 2001
Querim/ Pernem	110(P);112/1(P)	Orchard zone
	11/2 (P)	Partly Orchard Partly Settlement
Tiracol/ Pernem	14/1 (P), 2(P)	Orchard Zone
	15/1(P), 7(P)	

This NOC is issued subject to the following conditions:

1. Prior NOC for Cutting of sloping land or filling of low lying land shall be obtained under section 17A of the Town and Country Planning Act.
2. NOC of forest department shall be obtained, if required for the said purpose.
3. Natural drain/ Nallaha shall not be blocked.
4. NOC required from any other authority/ department under any other law shall be obtained for the said purpose by the acquiring dept.
5. Any other development in the proposed acquired area shall be carries out as per rules and regulation in force.

o/c

Yours faithfully

V
 (Vinod Kumar Chand/a) 28/08/2013
 Town Planner

ANNEXURE-4

A. Sathyan
Manager
c/KK
From Secretary 25/10/13

GOA COASTAL ZONE MANAGEMENT AUTHORITY

C/o Department of Science, Technology & Environment, (Govt. of Goa)
Opp. Saligao Seminary, P.O. Saligao, Bardez, Goa - 403 511
Phone: (0832) 2407580, 2407187, 2407189 Fax: (0832) 2407176
e-mail: dir-sts.goa@nic.in

Ref. No. GCZMA/N/13-14/42/R/H

Dated: 2/10/2013

To,

Managing Director,
Goa State Infrastructure Development Copm. Ltd.,
7th Floor, EDC House, Dr. Atmaram Borkar Road,
Panaji-Goa.

9208
24/10/13

Sub: NOC for proposed Construction of bridge connecting Keri to Tiracol over river Tiracol

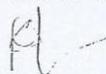
Ref: Your Letter No. GSIDC/Engg/Works/R54/2184 dated 16/07/2013

Sir,

With reference to the above-mentioned subject, it is hereby conveyed that this Office has examined your proposal in the 94th GCZMA Meeting held on 15/10/2013 and the same was approved subject to the condition that there shall be no filling of land / no cutting of trees etc.. This approval is further, subject to the issue of consent to establish NOC from the Goa State Pollution Control Board (GSPCB) and further condition listed below.

1. All the provisions of the CRZ Notification, 2011 should be strictly complied with.
2. Prior to the commencement of the development work on the ground, it will be incumbent upon the project proponent to obtain all other permission as required under law.
 - i "Consent to Establish/NOC from the Goa State Pollution Control board (GSPCB).
 - ii, Approval from Town and Country Planning Department from the planning angle
 - iii Approval from Captain of Ports, Government of Goa , Panaji-Goa.
3. Due care should be taken to prevent and mitigate adverse environmental impacts such as erosion of earth material into the river, dust pollution, noise pollution etc.
4. This permission is liable to be revoked, if it is found, at any stage, that the application contained false information/wrong plans/calculation/documents.

Yours faithfully,



(Levinson J. Martins)

Member Secretary (GCZMA) &
Director/Ex-Officio, Joint Secretary (STE)

Copy to

1. P. S to Principal Chief Secretary (Environment)/Chairman (GCZMA), Secretariat, Alto-Porvorim.



सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE
Regional Office (Southern Zone),
Kendriya Sadan, IVth Floor, E& F Wings, 17th Main Road,
IIInd Block, Koramangala, Bangalore – 560 034,
Tel.No.080-25635909, E.Mail: rosz.bng-mef@nic.in

**BY SPEED POST**F.No.4-GOB 1053/2015-BAN/
Dated the 30th December, 2015

7826

To

The Secretary (Forests),
Government of Goa,
Secretariat Annexe, Junta House, 3rd Floor,
Panaji (Goa)

Subject: Diversion of 0.2884 ha. of forest land in South Goa Forest Division/District for design and construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol village of Pendem Taluka.

Sir,

Please refer to Dy. Conservator of Forests, Monitoring & Evaluation, Forest Department, Government of Goa's letter No.6-829-2014-15-FD/218 dated 04/12/2015 seeking prior approval of the Central Government in accordance with Section '2' of Forest (Conservation) Act, 1980 in respect of the above project.

After careful consideration of the proposal, I am directed to convey Central Government's approval in-principle (**Stage-I**) under Section '2' of Forest (Conservation) Act, 1980 for diversion of 0.2884 ha. of forest land in South Goa Forest Division/District for design and construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol village of Pendem Taluka, for a period of 20 years, subject to the following conditions:-

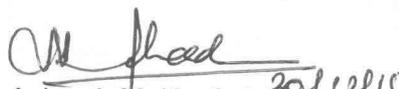
1. The legal status of forest land shall remain unchanged.
2. Demarcation of the proposed forest area shall be carried out by erecting 4 feet high cement concrete pillars duly numbered at an interval of 20 meters at the cost of user agency, before issue of Stage-II clearance.
3. The cost of raising plantation of ten times the number of trees to be felled shall be realised from the user agency.
4. The State Government shall charge the Net Present Value of the diverted forest land measuring 0.2884 ha. from User Agency as per the orders of the Hon'ble Supreme Court dated 28.03.2008 and 09.05.2008 in IA Nos.826 in 566 with related IA's in Writ Petition (Civil) No.202/1995.
5. Additional amount of the Net Present Value (NPV) of the diverted forest land if any, becoming due after revision of the same by the Hon'ble Supreme Court of India in future, shall be charged by the State Government from User Agency. User Agency shall furnish an undertaking to this effect.

F.No.4-GOB 1053/2015-BAN/

6. The User Agency shall make online payment of cost of Net Present Value with Adhoc-CAMPA through e-payment module of Forest Clearance portal- forestclearance.nic.in.
7. The total forest area utilized for the project shall not exceed 0.2884 ha.
8. All other approvals required, if any, under different Acts shall be obtained before commencement of work.
9. Any other condition that the Additional Principal Chief Conservator of Forests (Central), Regional Office, Bangalore may impose from time to time for protection, improvement of flora and fauna in the forest area and public convenience, shall also be applicable.
10. Violation of any of the conditions shall invite penal action, as deemed fit by the Additional Principal Chief Conservator of Forests (Central), Regional Office, Bangalore.

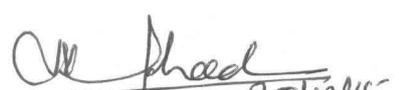
After receipt of the compliance report on the above conditions, the proposal will be considered for final approval. Transfer of forest land to User Agency shall not be effected prior to the issue of final approval. This in-principle approval shall be valid for a period of 5 years. In the event of noncompliance of the above conditions, this in-principle approval shall automatically stand revoked after 5 years.

Yours faithfully,


 (Dr. Avinash M. Kanfode) 30/12/15
 Conservator of Forests (Central)

Copy to:-

1. The Director General of Forests & Special Secretary to Govt. of India, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, Agni Wing, Aliganj, Jor Bagh Road, New Delhi – 110 003.
2. The Principal Chief Conservator of Forests, Forest Department, Government of Goa, Panaji (GOA), PIN- 403001.
3. The Deputy Conservator of Forests (Monitoring & Evaluation)/Nodal Officer (FCA), Office of the Principal Chief Conservator of Forests, Forest Department, Government of Goa, Panaji (GOA), PIN- 403001.
4. The Managing Director, Goa State Infrastructure Development Corporation Limited (A Govt. of Goa Undertaking), Panaji (Goa).
5. Guard file.


 (Dr. Avinash M. Kanfode) 30/12/15
 Conservator of Forests (Central)

% 
 30/12/15

485

०७८

ANNEXURE-6

GSIDC/BOI/263



24th February, 2016

To,
The Assistant General Manager
Bank of India,
Campal Branch,
Panaji - Goa

Sub: Transfer of Funds

Ref: O/D A/c No. 10202510000221

Dear Sir,

With reference to the above, you are requested to kindly transfer an amount of **Rs. 3,61,808/-** (Rupees Three Lakhs Sixty One Thousand Eight Hundred Eight Only) through RTGS from above referred O/D A/c to the below mentioned bank A/c. Detail of A/c is as follows:

Bank Name : Union Bank of India
Branch : 52,Sunder Nagar, New Delhi - 110003
Address : 52,Sunder Nagar, New Delhi - 110003
Beneficiary name : GOA CAMPA
Beneficiary A/c No. : CAMPAGAROAD140992015532
RTGS/IFSC Code No. : UBIN0534498
Rupees : **3,61,808/-**

Thanking you,

Yours faithfully,


(Kirti Bhat)
Asst. Manager (Finance)


(Sanjit Rodrigues)
Managing Director



सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय

MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE

Regional Office (Southern Zone),

Kendriya Sadan, IVth Floor, E& F Wings, 17th Main Road,

IIInd Block, Koramangala, Bangalore – 560 034,

Tel.No.080-25635909, E.Mail: rosz.bng-mef@nic.in**BY SPEED POST**F.No.4-GOB 1053/2015-BAN/
Dated the 30th December, 2015

7826

To

The Secretary (Forests),
Government of Goa,
Secretariat Annexe, Junta House, 3rd Floor,
Panaji (Goa)

Subject: Diversion of 0.2884 ha. of forest land in South Goa Forest Division/District for design and construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol village of Pendem Taluka.

Sir,

Please refer to Dy. Conservator of Forests, Monitoring & Evaluation, Forest Department, Government of Goa's letter No.6-829-2014-15-FD/218 dated 04/12/2015 seeking prior approval of the Central Government in accordance with Section '2' of Forest (Conservation) Act, 1980 in respect of the above project.

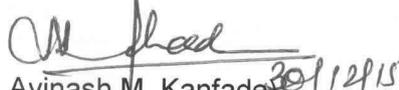
After careful consideration of the proposal, I am directed to convey Central Government's approval in-principle (**Stage-I**) under Section '2' of Forest (Conservation) Act, 1980 for diversion of 0.2884 ha. of forest land in South Goa Forest Division/District for design and construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol village of Pendem Taluka, for a period of 20 years, subject to the following conditions:-

1. The legal status of forest land shall remain unchanged.
2. Demarcation of the proposed forest area shall be carried out by erecting 4 feet high cement concrete pillars duly numbered at an interval of 20 meters at the cost of user agency, before issue of Stage-II clearance.
3. The cost of raising plantation of ten times the number of trees to be felled shall be realised from the user agency.
4. The State Government shall charge the Net Present Value of the diverted forest land measuring 0.2884 ha. from User Agency as per the orders of the Hon'ble Supreme Court dated 28.03.2008 and 09.05.2008 in IA Nos.826 in 566 with related IA's in Writ Petition (Civil) No.202/1995.
5. Additional amount of the Net Present Value (NPV) of the diverted forest land if any, becoming due after revision of the same by the Hon'ble Supreme Court of India in future, shall be charged by the State Government from User Agency. User Agency shall furnish an undertaking to this effect.

6. The User Agency shall make online payment of cost of Net Present Value with Adhoc-CAMPA through e-payment module of Forest Clearance portal- forestclearance.nic.in.
7. The total forest area utilized for the project shall not exceed 0.2884 ha.
8. All other approvals required, if any, under different Acts shall be obtained before commencement of work.
9. Any other condition that the Additional Principal Chief Conservator of Forests (Central), Regional Office, Bangalore may impose from time to time for protection, improvement of flora and fauna in the forest area and public convenience, shall also be applicable.
10. Violation of any of the conditions shall invite penal action, as deemed fit by the Additional Principal Chief Conservator of Forests (Central), Regional Office, Bangalore.

After receipt of the compliance report on the above conditions, the proposal will be considered for final approval. Transfer of forest land to User Agency shall not be effected prior to the issue of final approval. This in-principle approval shall be valid for a period of 5 years. In the event of noncompliance of the above conditions, this in-principle approval shall automatically stand revoked after 5 years.

Yours faithfully,

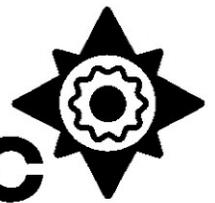

(Dr. Avinash M. Kanfode) 30/12/15
Conservator of Forests (Central)

Copy to:-

1. The Director General of Forests & Special Secretary to Govt. of India, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, Agni Wing, Aliganj, Jor Bagh Road, New Delhi – 110 003.
2. The Principal Chief Conservator of Forests, Forest Department, Government of Goa, Panaji (GOA), PIN- 403001.
3. The Deputy Conservator of Forests (Monitoring & Evaluation)/Nodal Officer (FCA), Office of the Principal Chief Conservator of Forests, Forest Department, Government of Goa, Panaji (GOA), PIN- 403001.
4. The Managing Director, Goa State Infrastructure Development Corporation Limited (A Govt. of Goa Undertaking), Panaji (Goa).
5. Guard file.


(Dr. Avinash M. Kanfode) 30/12/15
Conservator of Forests (Central)

% 
30/12/15

**MOST URGENT / TOP PRIORITY**

Ref: GSIDC/Engg/Works/854/2544

3rd August 2021

To

The Dy. Conservator of Forest,
Monitoring & Evaluation,
Office of the Principal Chief Conservator of Forests.
"Goa Van Bhawan", Forest Department,
Altinho, Panaji - Goa.

Sir,

Sub : "Request for grant of Final Approval (Stage-II) Clearance for diversion of Forest Land for "Design and Construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol Village of Pernem Taluka."

Ref.: 1) Letter No.F.No.4-GOB 1053/2015-BAN/7826 dated 30th December 2015
2) Letter bearing No.6-829-2020-21-FD/5475 dated 11th February 2021
3) Letter No.GSIDC/Engg/Works/854/6387 dated 22nd February 2021
4) Letter bearing No.4-GOB 1053/2015-BAN/1368 dated 12th March 2021

1. This has reference to the above subject. The Ministry of Environment, Forest & Climate Change (MoEF&CC) vide letter dated 30/12/2015, referred at Sr.No.(1) granted stage I Forest Clearance for 0.2884 Ha land on Tiracol side for the project under reference. Upon stage I Clearance, GSIDC initiated the process of demarcation and other procedures stipulated in the conditions specified in grant of stage I Clearance. The compliance report was forwarded to your office for onward submission to the Regional Office of the MoEF&CC at Bangalore for obtaining final Forest Clearance.
2. The MoEF&CC vide its letter dated 1st February 2021 sought details of the matter pending before the Hon'ble National Green Tribunal (NGT) and W/P No.121 of 2017 pending before the Hon'ble High Court. The request of the MoEF&CC was duly complied by GSIDC vide its letter dated 22/02/2021 referred at Sr.No.(3) above.

3. The MoEF&CC vide letter dated 12/03/2020 has conveyed that the Final FC (Stage-II) cannot be granted at present, since the ownership of land and Stage-I approval issued by them is challenged before the Hon`ble High Court of Bombay at Goa.
4. The project in question was undertaken by GSIDC in the year 2013. The Government of Goa has availed loan for the project from NABARD under their RIDF Scheme. However, due to stay from the Hon`ble NGT, Government was unable to reap benefit of the project.
5. The Hon`ble NGT, thereafter, vide its judgment dated 22/01/2020 dismissed the challenge to the Construction of Tiracol Bridge subject to fulfillment of the conditions recommended by the NIOT and the relevant provisions of the applicable law. The Hon`ble High Court was also pleased to dispose the Writ Petition No.183/2021 filed by M/s. Goa Foundation, challenging the Order dated 22/01/2020 passed by the Hon`ble NGT.
6. The conditions levied vide grant of stage-I. Forest Clearance (F.C). stood complied by GSIDC. In addition, there is no stay operating on the procurement of sanctions/permissions under the Forest (Conservation) Act, 1980 from the Central Ministry as per order of the Hon`ble High Court of Bombay at Goa, in Writ Petition No.121 of 2017. The Hon`ble High Court while hearing Writ Petition No:121 of 2017 had only recorded that "***No activity going on at the site and the work of the bridge has already been stopped in view of the orders of the National Green Tribunal***".
7. Taking into consideration the compliance of the conditions levied in terms of Stage-I Forest Clearance and the disposal of the O.A.33/2015 (WZ) by the Hon`ble NGT, there is no prohibition and / or restrain on the Ministry of Environment, Forest and Climate Change. to proceed ahead with the grant of Stage-II Forest Clearance for diversion of 0.2884 h.a. of forest land in South Goa Forest Division / District for design and construction of bridge connecting Keri to Tiracol.

8. Considering that the completion of the project has been long delayed for reasons enumerated above, any further delay would only incur additional financial burden on the State Exchequer. Till date, GSIDC has incurred expenditure of Rs.29,34,23,158.00. and approximately additional amount of Rs.13 Crores is required to be incurred to complete the balance work . Nearly 40% of the project is completed. The balance work is pending for want of final Forest Clearance form MoEF&CC.
9. The Hon'ble NGT vide its order dated 22nd January,2020 had interalia observed that " having regard to the fact that Tiracol Bridge may be a matter of public utility and the same can be constructed without any adverse damage to the environment, there is no justification to stop the same in absence of any illegality being shown".
10. As regards Writ Petition no. 121/2017. pending before the Hon'ble High Court challenging the Stage -I Forest Clearance granted to the GSIDC, under Section 2 of the Forest (Conservation) Act, the same would not be maintainable before the Hon'ble High Court, as in terms of Section 2A of the Forest (Conservation) Act R/w Section 16(e) of the NGT Act, 2010, the challenge to the same would lie before the NGT.
11. Considering the above position, it is once again requested to take up the issue with the MoEF&CC for reconsideration of grant of stage-II Forest Clearance in public interest.

Thanking You,

Yours faithfully



(Harish Adconkar)
Managing Director

Copy To:

- 1) **The Principal Secretary (Forests),**
Government of Goa.
Secretariat Annexe.
Secretariat, Porvorim-Goa 403 521.

- 2) **The Principal Chief Conservator of Forests (HoFF),**
Forest Department.
Government of Goa.
Panaji-Goa 403 001.

TRUE COPY OF SPECIAL GRAMSABHA RESOLUTION NO. 03 DATED 26/10/2014

विषय :- केरी - तेरेखोल पुलाचे काम लवकरात लवकर होण्याबाबत सरकारकडे मागणी करणेबाबत .

ठराव :- आजच्या ग्रामसभेमध्ये केरी - तेरेखोल दरम्यान होणाऱ्या पुलासंबंधी सविस्तर चर्चा करण्यात आली. एकूण अनेक वर्षे तेरेखोल व केरी ग्रामस्थ ही मागणी करित होते. तेरेखोल गाव हा गोव्याचा अविभाज्य भाग असून त्याला गोव्याशी जोडण्यासाठी पुलाची अत्यंत आवश्यकता आहे. तेरेखोल नदी ही समुद्रास लागून असल्यामुळे फेरी सेवा धोकादायक आहे. लाटांमुळे अनेक वेळा फेरी वाहत गेल्याचेही प्रसंग घडले आहेत. ऐतिहासिक तेरेखोल किल्ला आणि संबंधित पर्यटनालाही या पुलामुळे महत्व लाभेल. उच्च दर्जाचे व पर्यावरणाशी समतोल साधणारे शाश्वत पर्यटन य पुलामुळे आकर्षित होईल. गोवा मुक्तिनंतरच्या काळात मागास राहिलेल्या या भागाचा सर्वांथाने विकास होण्यास मदत होईल. तसेच या पुलामुळे लोकांच्या व्यावसायाला चालना मिलेल.

त्यामुळेच या नदीवर होणारा केरी - तेरेखोल पुल, सर्व सोपस्कार पूर्ण करून लवकरात लवकर म्हणजेच एक ते दिड वर्षात स्थानिक प्रवाशांच्या सोयीसाठी उपलब्ध व्हावा असा ठराव संमत करण्यात आला. सदर ठरावाची प्रत मा. वायतराज मंत्री - गोवा राज्य व मा. मुख्यमंत्री - गोवा राज्य यांना पाठविण्याचे ठरले.

या चर्चेत श्री डायगो राँडीगीस , श्री मिलींद केरकर , श्री तातोबा तळकर, श्री आनंद शिरगांवकर व श्री मिलींद तळकर यांनी भाग घेतला व ठराव सर्वानुमते पास झाला.

सुचक:- श्री मिलींद तळकर

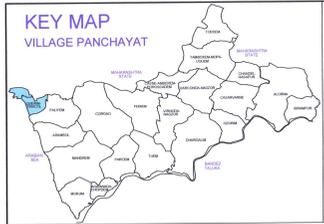
अनु.:- श्री तातोबा तळकर

ठराव सर्वानुमते पास.

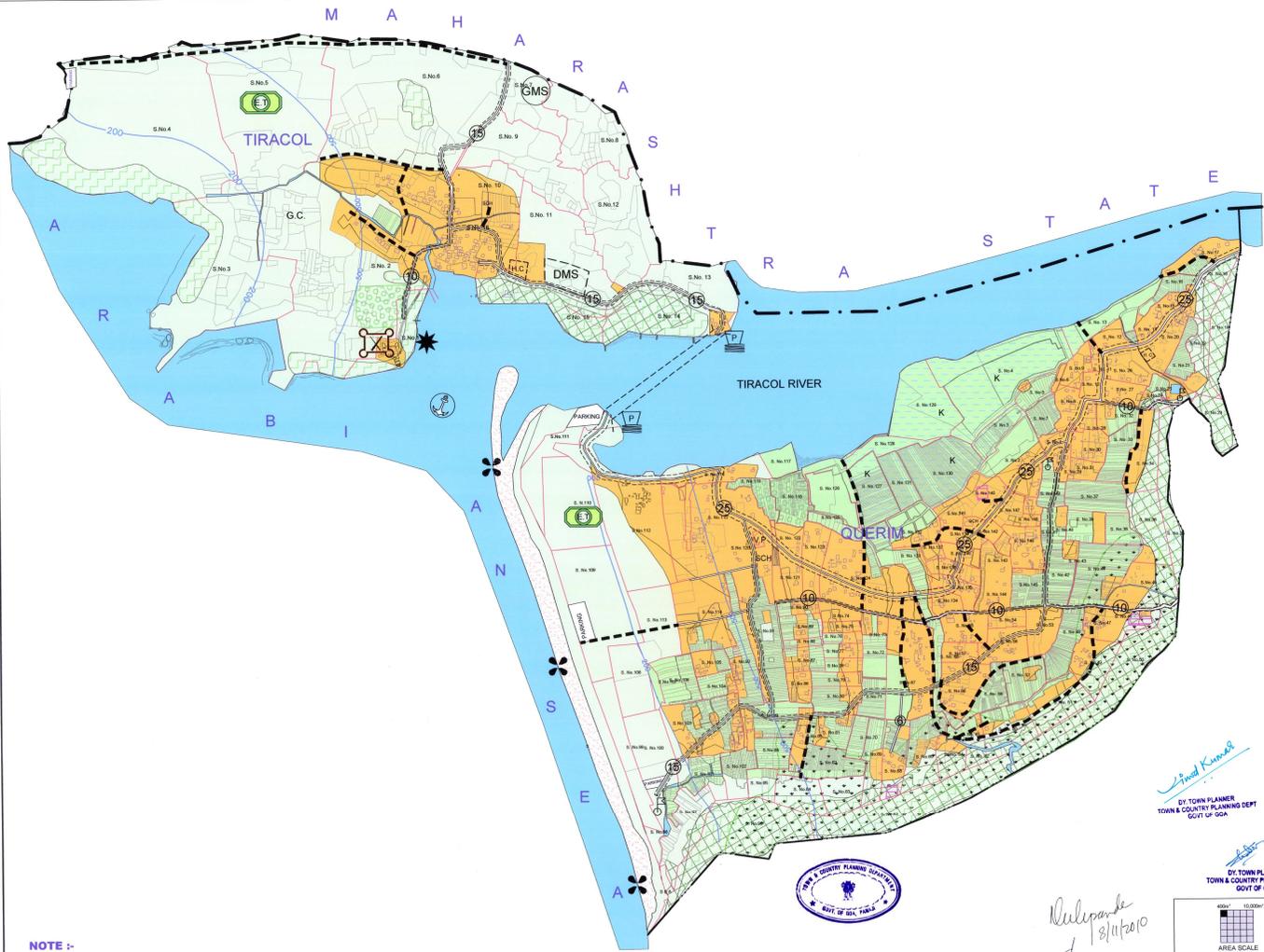
SECRETARY
Village Panchayat Querim - Tiracol
Tal.: Pernem - Goa



SARPANCH
Village Panchayat Querim - Tiracol
Tal.: Pernem - Goa



QUERIM-TIRACOL PANCHAYAT PERNEM TALUKA SCALE - 1:5000



- LAND USES**
- ECOLOGICALLY SENSITIVE AREAS (ECO-1)**
- NO DEVELOPMENT SLOPES
 - PADDY FIELDS / KHAZANS
 - RIVER / NALLAS / PONDS
 - SAND DUNES / SANDY AREAS
- OTHER ECOLOGICALLY SENSITIVE AREAS (ECO-2)**
- CULTIVABLE LAND
 - ORCHARD
 - NATURAL COVER
 - IRRIGATION COMMAND AREAS
- SETTLEMENTS**
- SETTLEMENT AREA
- TRANSPORTATION**
- EXISTING**
- MAJOR DISTRICT ROADS (25m)
 - MAIN PANCHAYAT ROADS (15m)
 - OTHER PANCHAYAT ROADS (10m)
 - OTHER ROADS
 - PROPOSED ROADS
 - MINOR PORTS
- ADMINISTRATIVE BOUNDARIES**
- STATE BOUNDARY
 - PANCHAYAT BOUNDARY
 - SURVEY BOUNDARY
 - SUB DIVISION BOUNDARY
- OTHERS**
- CREMATORIUM / CEMETERY
 - PLAY GROUND
 - ECO - TOURISM SITE
 - 200 MTR. LINE FROM HTL
 - 500 MTR. LINE FROM HTL
 - DMS - DISASTER MANAGEMENT SITE
 - GMS - GARBAGE MANAGEMENT SITE
 - G.C - GOLF COURSE
 - H. C. - HEALTH CENTER
 - SCH - SCHOOL
 - V. P. - VILLAGE PANCHAYAT OFFICE
 - TEMPLE
 - CHURCH / CHAPEL
 - PROPOSED BRIDGE
 - PASSENGER JETTY
 - FORTS
 - TOURIST BEACH HEAD/TOURIST PLACES

NOTE :-

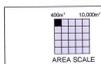
- This plan showing proposed Surface Utilization of QUERIM - TIRACOL V.P forms part of the Regional Plan for GOA-2021 of PERNEM Taluka which has been approved by the T.C.P. Board in its 137th meeting held on 08/11/2010 & approved by Govt. vide note no. 208/CP/2010/08-21 dated 08/11/2010.
- All the O.D.P.s & Zoning Plans (ZPs) prepared in the past by P.D.A./T.C.P.D. as the case may be and are in force (both in P.D.A areas & non P.D.A areas) have been incorporated in to the RPPG-2021. Respective O.D.P.s/Zoning Plans shall be referred for details and development control of developable areas only as per RPPG-2021. In case of any variations, the matter shall be referred to the T.C.P. Board for its opinion/interpretation.
- Private Forest areas indicated in this plan are subject to the final confirmation & demarcation by the competent Authorities.
- Surface Utilization Plans shall be read with the report of RPPG-2021 (Release of Fra) for interpretation.
- This Surface Utilization Plan shows broad land uses which are to be read along with guidelines for interpretation of permissible land uses.
- All past commitments/developments like sub-division approvals by competent Authorities, conversion sanad under LRC, building approvals/NOC's granted, shall be honoured for specific uses, if not reflected in this plan.
- All NOCs for Land Acquisition for specific purposes under the L.A. Act 1984 issued by TCP Dept for specific uses activities shall be treated as confirming to the said use for which NOC was issued. The same shall not hold good, in case where acquisition proceedings are stopped by the Govt. and shall be treated as per uses indicated in the Surface Utilization Plan.
- Notwithstanding anything contained in this Plan, the developments shall be subject to the provisions of Tenancy Act, Land Use Regulation Act, Forest Conservation Act, Highways Act, Ancient Monuments and Archaeological Sites and Remains Act (State and Central) EIA notifications issued by the MOEF or any other Act/Rule as applicable.

S.T. Planning
Delepende 8/11/2010
08/11/2010
5/11/10



61

By Road Knowledge
 BY TOWN PLANNER
 TOWN & COUNTRY PLANNING DEPT
 GOVT OF GOA



POPULATION:-
 2001 - 3066
 2021 - 3089
 DPR STATUS
 VP2
 MAX. FAR PROPOSED
 BLOW 4000 m² 60
 4000m² & ABOVE 50

Original or Approved Sub-Division Plans upto 350 m² will be allowed upto 80 FAR irrespective of the V.P. Status of Settlement Category.

QUERIM - TIRACOL PANCHAYAT PERNEM TALUKA		N
REGIONAL PLAN FOR GOA-2021 (RPG-21)	FINAL / 06.11.2010	
REGIONAL PLAN DIVISION TOWN AND COUNTRY PLANNING DEPT. GOVT. OF GOA		



EXTRACT OF MINUTES OF THE 107TH BOARD MEETING OF GOA STATE
INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (GSIDC) HELD ON
17TH MARCH 2012

Item No.24(iii) : Construction of Bridges in the State of Goa- Approval for taking up of work:

- 1. Bridge at Zuari**
- 2. Bridge connecting Camurlim & Tuem**
- 3. Bridge connecting Chodan & Pomburpa**
- 4. Bridge connecting Keri & Terakhol**
- 5. Bridge connecting Chorao & Ribandar**
- 6. Bridge connecting Panaji & Betim**
- 7. Bridge at Talpona**
- 8. Bridge at Galjibag**
- 9. Bridge at Borim**

The Board perused the agenda note. During discussion, it was brought to the notice of the Board that projects at Sr. No.1, 7, 8, 9, namely, Bridge at Zuari, Bridge at Talpona, Bridge at Galjibag and Bridge at Borim fall on National Highway 17 and 4A (Bridge at Borim). So NOC from Ministry of Road Transport & Highways, Government of India will be necessary. The Hon'ble Chairman stated that these bridges will be constructed by the State Government by utilizing GSIDC funds and later on, they can be merged with National Highways as alignment for all these bridges (except bridge at Talpona and Galjibag) will be different from the existing alignments of National Highways. It was also brought to the notice of the Board that the complete design for four lane cable stayed

bridge at Zuari is already available with PWD. Besides, feasibility studies for Talpona and Galjibag bridges including structural design are also available with PWD. However, since the preliminary estimate for these bridges was carried out in the year 2004 – 05, it may require revision. Besides, the decision for Zuari bridge will be of six lane bridge instead of four lane bridge for which designs are ready. After detailed deliberations, the Board decided to take up these bridges in phases. The Board thereafter passed the following resolution unanimously :-

RESOLUTION NO.2800

RESOLVED THAT *the proposal to take up the work of “Construction of bridges in the State of Goa - Bridge at Zuari, bridge connecting Camurlim & Tuem, bridge connecting Chodan & Pomburpa, bridge connecting Keri& Terakhol, bridge connecting Chorao & Ribandar, bridge connecting Panaji & Betim, bridges at Talpona, Galjibag & Borim”, subject to Government approval and signing of Memorandum of Understanding with the Client Department, i.e. Public Works Department and to avail data already available with Public Works Department, Government of Goa be and is hereby approved.*

RESOLVED FURTHER THAT *the decision to utilize GSIDC funds for constructing the aforementioned bridges be and is hereby approved.*

RESOLVED FURTHER THAT *the proposal to appoint a consultant empanelled in the category of “Major Infrastructure Works : Bridges” / prequalifying the consultants, as the case may be, for preparing detail estimate and project management works be and is hereby approved.*

RESOLVED FURTHER THAT *the Managing Director be and is hereby authorized to take further necessary action in this regard.*

(BY REGISTERED A.D. / SPEED POST)

Ref.: GSIDC/Engg/Works/854/ 6180

21st March 2013**LETTER OF COMMENCEMENT OF WORK / WORK ORDER**

To

M/s. S.N.BHOBE & ASSOCIATES PVT.LTD,
Banking Complex No II,
Unit No 10, Plot No 9 and 10
Section 19-A, Vashi
Navi Mumbai - 400 705.

Sir (s),

Sub: *Consultancy Services for the work of "Construction of Bridge connecting Keri to Tiracol over river Tiracol".*

Ref. : 1. *Letter of Acceptance No. GSIDC/Engg/Works/854/5400 dated 14/02/2013.*

2. *Performance Guarantee submitted vide letter No. SNBAPL/GSIDC/Keri Teracol bridge/230-41-1/3009 dated 28/02/2013.*

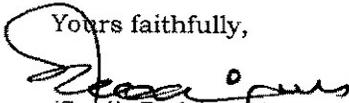
1. You are requested to mobilize your team for the said work to begin carrying out the services at once.
2. In continuation to the letters referred to above, you are requested to attend this office to complete the formal agreement within fifteen days from the date of this letter.
3. The personnel proposed by you in your tender shall be deployed on the work without substitution.

Stipulated date of commencement of pre-tender activity : 31st March 2013

Stipulated date of completion of pre-tender activity : 30th June 2013

Thanking you,

Yours faithfully,


(Sanjit Rodrigues)
Managing Director

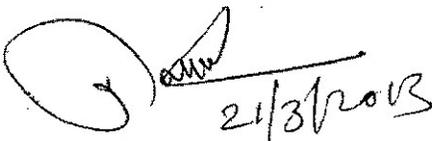
Copy to: 1. **The Principle Chief Engineer**
Public Works Department,
Altinho Panaji- Goa ,

: For information

2. Dy. Manager (Accts).

3. Office File - Shri. Sachin S. Wadji

Received
for
for S N B A P L
21/3/2013


21/3/2013

**BEFORE THE NATIONAL GREEN TRIBUNAL, WESTERN ZONE
BENCH, PUNE**

APPLICATION NO.33/2015 (WZ)
Goa Foundation V/s. GEIAA & Ors

**CORAM: HON'BLE MR JUSTICE V.R. KINGAONKAR, JUDICIAL MEMBER
HON'BLE DR. AJAY A. DESHPANDE, EXPERT MEMBER**

Present: Appellant : Norma Alvares Adv a/w
Supriya Dangare Adv.
Respondent Nos.3,4 : Mr. Dattaprasad Lawande Adv

Date and Remarks	Orders of the Tribunal
<p>Item No. 16 April 17, 2015 Order No.2</p>	<p>Heard.</p> <p>The Applicant has placed on record affidavit along with the photograph.</p> <p>Learned Advocate for the Applicant would submit that now the changes are being made on account of proposed construction of bridge on spit at Querim. The spit is, therefore, elongated. The factual position is disputed by learned Advocate Mr. Dattaprasad Lawande, appearing for the State.</p> <p>By applying the 'Precautionary Principle' and in order to avoid any further changes in the status of the area on spit at Querim, particularly, which may cause changes in tidal waves/currents and the status of estuarine area, which allegedly may narrow down mouth of the river, no further work be carried out at the said place (i.e. Pillar No.6). The previous order regarding '<i>status quo</i>' to continue, as regards construction on Teracol side in respect of bridge.</p> <p>We direct the State to seek report of the Central Water Power Research Station (CWPRS), Pune, or NIO, Goa or NIOT, Chennai, regarding environmental impacts on the estuarine area, particularly, on the spit of Keri (Pillar No.6) and particularly regarding changes, if any, caused as a result of construction activity in the tidal water activity, or changes of estuarine areas, due to adverse impact of construction put in or that construction of Pillar No.6, is likely to influence the tidal movements of water of river whatsoever it may be. We make it clear that the said Institute shall assess the fact position and consider all aspects required to be covered in the study considering the points raised by the Applicant. The report shall be prepared and called at the cost of GSIDC-Respondent No.3, and copy of this order be immediately served on the Director of CWPRS, Pune, or NIO or NIOT, by the Applicant and learned Advocate appearing for the State. Choice of getting work done is with the Respondent No.3. The report shall be expedited and not</p>

128

<p>Item No. 16 April 17, 2015 Order No.2</p>	<p>delayed due to non-payment of required cost estimates by the Institute. The report shall be made available within four (4) weeks and shall be directly sent to the Registrar, NGT (WZ) Bench Pune in sealed envelope.</p> <p>All the issues are kept open.</p> <p>S.O. to 25th May, 2015.</p> <p>..... JM (Justice V. R. Kingaonkar)</p> <p>..... EM (Dr.Ajay A. Deshpande)</p>
---	---

Studies on morphological impact by planned bridge
piers on *Tiracol* river mouth, GOA

A preliminary report submitted by:

Coastal and Environmental Engineering
National Institute of Ocean Technology
(*ESSO – Ministry of Earth Sciences*)
Chennai – 100

//TRUE TYPED COPY//



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

This page is intentionally left blank



Report Summary

Title: Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

Client: Goa State Infrastructure Development Corporation Limited (GSIDCL), Goa.	Project Reference: GSIDC/Engg/Works/854/2501	Pages 17
Keywords: <i>Tiracol mouth, Banda river, Sand spit, Littoral drift, Anthropogenic disturbances, Arabian Sea</i>		

Revision	Date	Author	Initials	Review	Initials	Approval	Initials
Preliminary <i>Introductory report on site and measurements</i>	26 Nov 2015.	Mr. Karunakar Mr. Aruna Kumar		Dr. Basanta Kumar Jena		Dr. M. V. Ramana murthy	

Classification:	
<input type="checkbox"/>	<input type="checkbox"/>
Open	Internal
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proprietary	Confidential
Distribution State: Draft	No of copies: 01 – digital format



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

Table of Contents

Report Summary 3

Table of figures 5

List of Tables 5

Introduction..... 6

Objective..... 7

Methods 7

Deliverables..... 7

Existing information 8

General observation 9

Measurements 12

Vertical Datum..... 14

Physical oceanographic features observed..... 14

Numerical Model 16

Conclusions..... 18



Table of figures

Figure 1 - Bird view of the site, Courtesy: Google earth.....	6
Figure 2 - Wind rose, offshore Goa coast - NCEP data set.....	8
Figure 3 - Climate chart of Goa.....	9
Figure 4 - View of spit and fort from the estuary.....	10
Figure 5 - Beach on the west with oblique waves battering the coast and tetrapod wall.....	10
Figure 6 - Broken jetty on the southern bank at the mouth.....	11
Figure 7 - Play cards showing local agitation.....	11
Figure 8 - Tea stall near approach slope at northern jetty.....	12
Figure 9 - Board displaying platform level at Pernem railway station.....	14
Figure 10 - Sample of measured diurnal tide inside the creek.....	15
Figure 11 - Sample of measured current in the channel towards northern bank.....	15
Figure 12 - Spatial view of velocity magnitude and direction for a monsoon scenario.....	16
Figure 13 - Salinity circulation in the vicinity of the mouth.....	17
Figure 14 - Estimated morphology and predominant transport direction for monsoon.....	18

List of Tables

Table 1 - Deployment locations and period.....	13
--	----

Introduction

The Tiracol River is one of the west flowing minor rivers, located at the border of the States of Goa and Maharashtra. It is called Banda River in the upper reaches according to the Ratnagiri district gazetteer. A major portion of the river mouth is in the jurisdiction of Querem village and Goan Government runs a ferry service across the channel for passengers and visitors of Tiracol Fort. The site is identified as seasonally varying wide sandy beaches with spit at the mouth of the river. The beaches were subject to heavy monsoon wave climate from Arabian Sea and are prone to severe erosion. GSIDCL upon the advice of CWPRS has initiated coastal protection measures at the site.

[Figure 1]

A bridge is planned across the river as an alternative to the ferry transport in the mouth of the river. The proposed suspension bridge will have 2 main columns into the bed, near shore, on either banks of the mouth. There is huge public outcry, demanding the preservation of natural beauty of the Tiracol and surroundings. In this connection, GSIDC has asked NIOT, Chennai to undertake studies on the impact of man-made obstruction into the mouth sediment dynamics, through letter: "GSIDC/Engg/Works/854/2501".

//TRUE TYPED COPY//



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

Objective

The impact study will be conducted based on available data, supplemented with rapid data collection programme. The morphological changes at Keri spit due to bridge pier will be predicted accordingly.

Methods

Numerical modelling will be carried out using MIKE 21 Model of Danish Hydraulic Laboratory (DHI) or its equivalent at NIOT using observed and secondary data. Calibration and validation of the model will be done using field data. The details of the measurement and modelling methodologies are described below.

1. Tide: Tide measurements will be carried out at two locations using Veleport / Radar Level Sensor automatic tide recorders for the period of 15 days.
2. Current: Current measurements will be carried out simultaneously with tide observation.
3. Wave: Deep water wave data will be extracted from the NIOT wave atlas, validation with one site wave measurement will be carried out near river mouth by Wave recorder (Veleport or other ADV/ADP) to access the wave condition at the outer boundary.
4. Discharge: The river discharge is planned to be carried out near the river mouth during spring and neap tide one day each for 10 hours each during day time covering flood and ebb tide conditions.
5. Bathymetry: Sounding survey up to 5km upstream of the river Tiracol with 100-200m line spacing and 10m water depth w.r.t CD offshore (200-500m line spacing) will be carried out using single beam echo sounder with DGPS. Deeper water bathymetry data will be extracted from the C-MAP, both measured and C-MAP bathymetry data will be used for model setup.
6. Shoreline Mapping: Shoreline mapping will be carried out at both side of the river bank in and around Pile locations and ground control points for rectification of the Google imageries
7. Hydrodynamic, wave and sediment transport model will be carried out to evaluate the flow condition with and without the presence of bridge pillars.

Deliverables

NIOT will submit a consolidated report including field measurement and modelling results as per the objective of the study within 2 months on completion of the filed measurements.



Existing information

Longshore drift is a transport of sand parallel to the coast in the beaches, when waves attack them at an oblique angle. Spits are bars formed by deposition of longshore drift by destabilized carrying capacity, when an opening inland or similar feature is encountered.

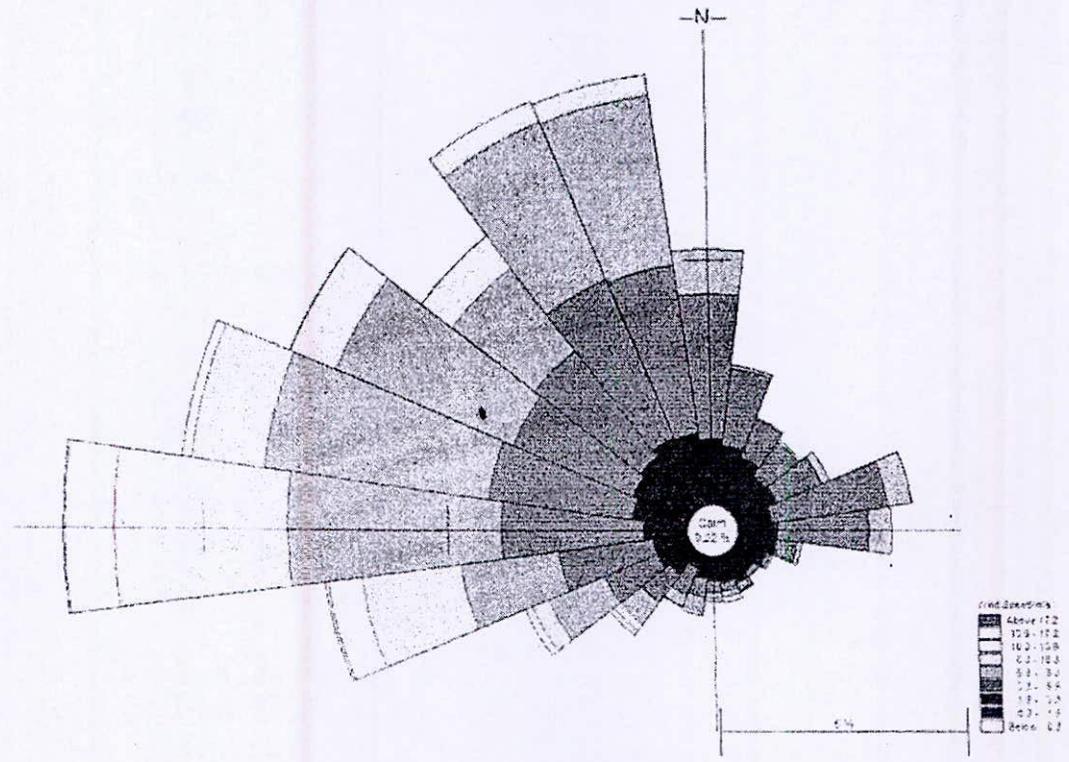


Figure 2 - Wind rose, offshore Goa coast - NCEP data set

Jayakumar *et.al*, 2014, were already involved in long term observation of the spit dynamics at the site and have concluded that the spit is unstable by ensuing wave climate on west coast. The Goan climate is predominant with south western monsoon with a maximum of 900 mm rainfall and a total of almost 3m a year. The drainage details are not available in the public domain, except for micro water shed atlas in soil and land use survey of India. The coast receives long period waves from South west and steep waves from west and North West directions (Sanil kumar *et.al* and Vethamony *et.al*). Wind is highly seasonal and can be 25 kmph in general during monsoons.



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

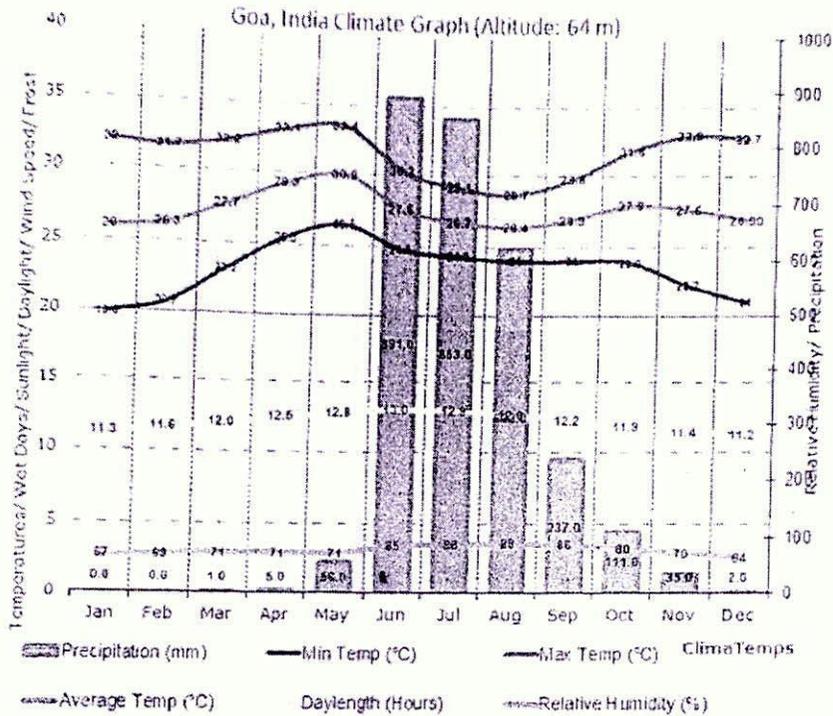


Figure 3 - Climate chart of Goa

General observation

A specialist team comprising experts from NIOT, Chennai and NIO, Goa has visited the site for preliminary visual inspection in the month of September and later in November. The sea was a little choppy to initiate measurements. Sea wall with Tetrapod structures is being erected on the western beach adjoining the mouth on the southern side of the river. A set of pillars is already in place approximately in the center of the spit. There exists a platform on the northern bank of the river for engineering related works. Shoals are found inside the creek and the northern bank is totally rocky. Diurnal tides are observed and wave breaking on the bar is significant. A jetty in the mouth lies broken on the south bank and ferry is operated between two concrete slopes on either side. Although there was some local trouble from the public; the team overcame the difficulties with support from GSIDC team. It is also observed that protection with rock groins is attempted on the northern bank.



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

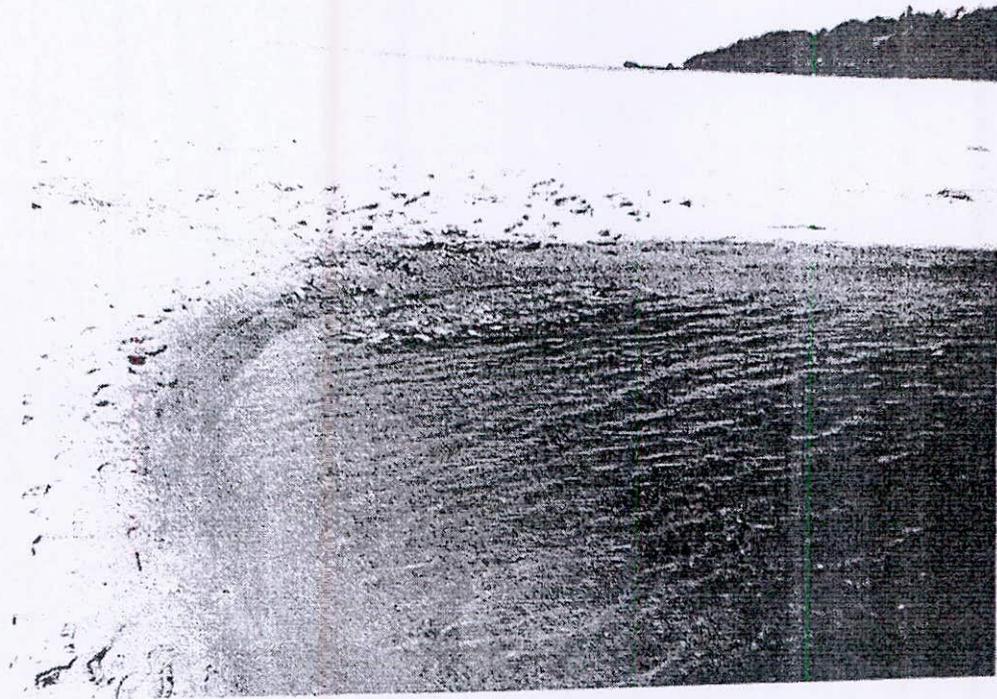


Figure 4 - View of spit and fort from the estuary

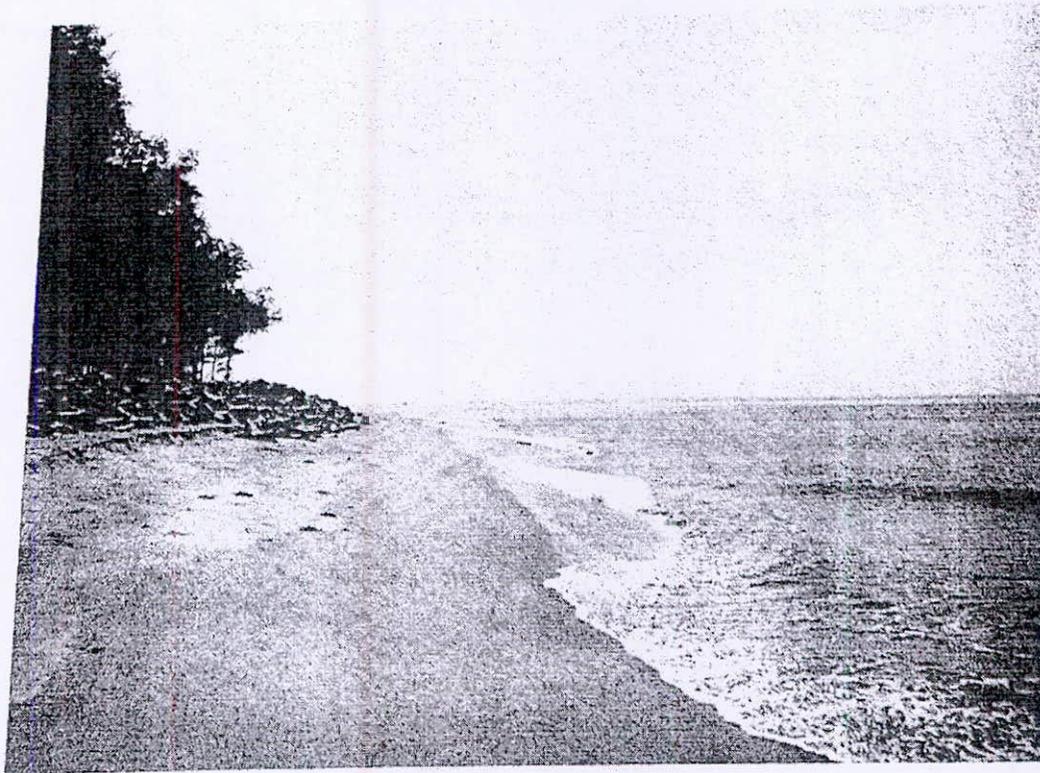


Figure 5 - Beach on the west with oblique waves battering the coast and tetrapod wall

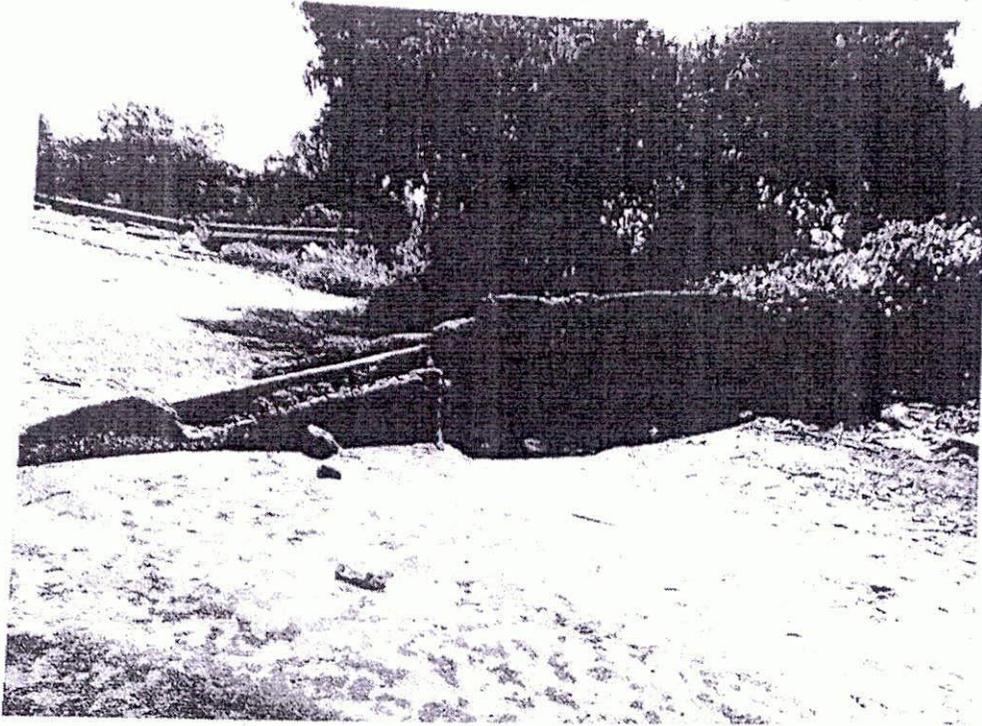


Figure 6 - Broken jetty on the southern bank at the mouth

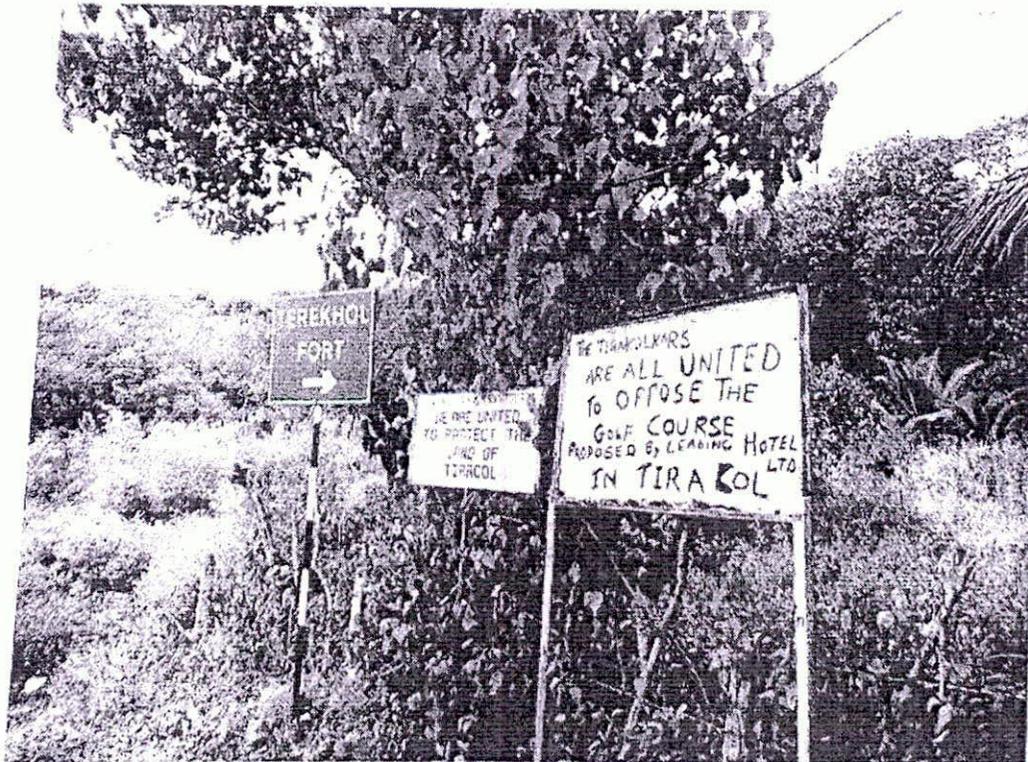


Figure 7 - Play cards showing local agitation



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

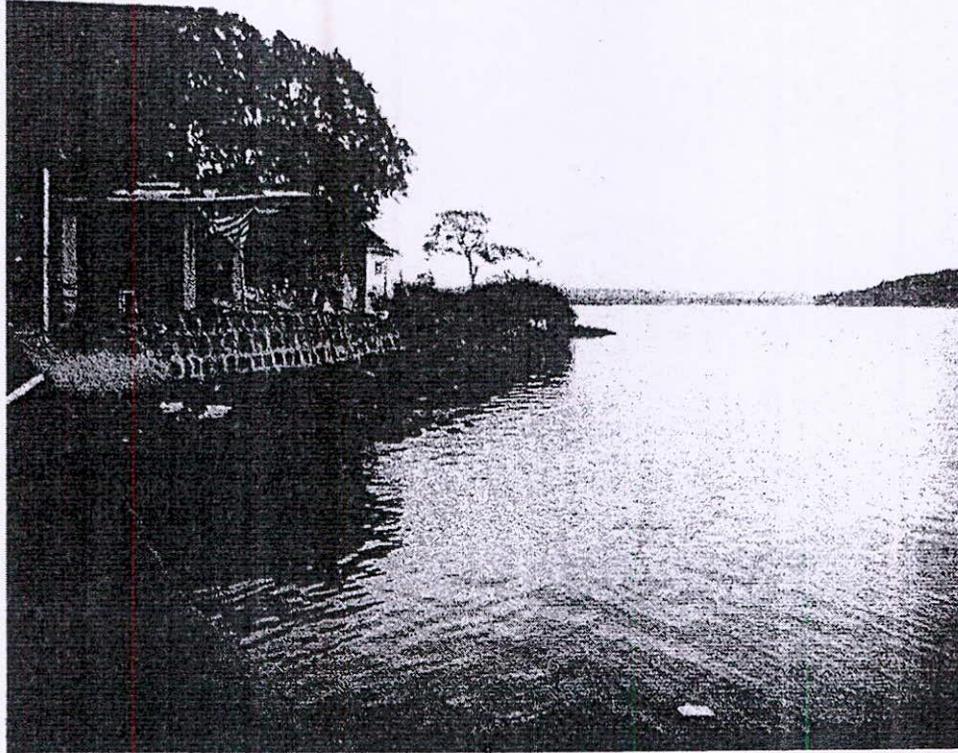


Figure 8 - Tea stall near approach slope at northern jetty

Measurements

Although information exist in open public domain on various physical oceanographic data, ground validation of shallow water characteristics is very important in an impact assessment study. Hence, NIOT has proposed a schematized measurement of various characteristics in the mouth and vicinity. This is essential to understand the local physics and validate a numerical model.

As per the proposal NIOT has conducted bathymetry survey and physical oceanographic (Tide and Current) observations in Tiracol estuary and Topographic survey along the Querem beach during October second week and November third week and are summarized in the following table.



Table 1 - Deployment locations and period

Sl. No	Instrument type	Deployment type	Location	Deployment starting date	Deployment ending date	Remarks
1	Tide (WTR)	Bottom Mount	15° 43.458' N	11/11/2015	27/11/2015	didn't work after 2 days
	Current (RCM)	U-Mooring	73° 43.188' E	11/11/2015	27/11/2015	
2	Tide (RLS)	Bridge Mount	15° 43.272' N	10/11/2015	27/11/2015	
	Current (RLS)	Bridge Mount	73° 41.539' E	13/11/2015	27/11/2015	
3	Current (ADCP)	Boat Hanging	15° 43.253' N 73° 41.533' E	15/11/2015	17/11/2015	
4	Discharge (Rio-Grande)	Boat	15° 43.272' N 73° 41.539' E	13/11/2015 & 18/11/2015	13/11/2015 & 18/11/2015	
		Boat	15° 43.458' N 73° 43.188' E	14/11/2015 & 19/11/2015	14/11/2015 & 19/11/2015	
5	Bathymetry (1 km)		River mouth to 6 km upstream	15/11/2015	16/11/2015	
6	RTK		2km on Querim beach from the river mouth	10/11/2015	12/11/2015	
7	Wave & Current (WRB & ADCP)	Mooring	15° 41' 58.83" N 73° 38' 59.39" E	13/10/2015	12/11/2015	Data to be extracted from NIOT long term projects for validation
8	Current	Mooring	15° 42' 25.17" N 73° 41' 26.51" E	13/10/2015	12/11/2015	
9	Current	Mooring	15° 42' 11.85" N 73° 40' 42.39" E	13/10/2015	12/11/2015	Lost equipment
12	Off shore Bathymetry					To be carried out during this week

Littoral Environment Observations were also carried out covering the beach region at half-hourly intervals over day time during the measurements.

It may be noted that reaching the anticipated measurement duration is not possible by limited deployment owing to total costs involved, vandalism, lost to sea - hazards. Some equipment was unable to log data due to disturbances, unavoidable. All the offshore deployed equipment, except the S4 current meter at 10m depth was retrieved. The S4 current meter at 10 m depth is missing due to the marker float being cut off. This S4 current meter is being searched with the help of divers. Near shore bathymetry on the sea side remains pending; by



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

the time this report is being prepared, along with seabed sediments. Flow measurements are planned in the river if the climate permits.

Vertical Datum

Since the tidal measurements are for a short duration, the level information of the site is established by bringing the reference from the Railway reference network. Pernem station is available at a distance of 13 km aerial. GPS static observations were carried out and a reference level is established on a pillar on the west side of ferry approach slope on the southern bank. It reads 2.384m above MSL, after correcting the same for geoid affect, with an RMS error of 15 mm.



Figure 9 - Board displaying platform level at Pernem railway station

Physical oceanographic features observed

A maximum of 2 knots is observed at the platform on the north side of the creek and is tidally driven for the period of observation. The angle oscillates between 105° and 270° . The tide is semi diurnal influenced by local topography and spit of the creek. A max of 0.97 m and a min of -0.69m were observed with an average drift of 0.125 m.



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

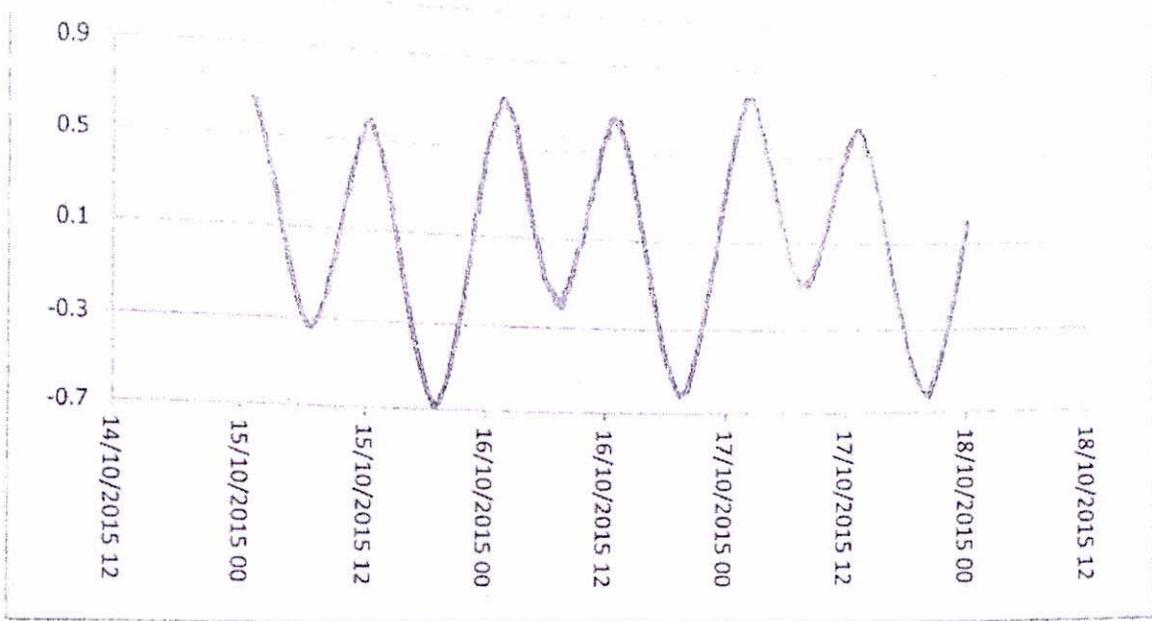


Figure 10 - Sample of measured diurnal tide inside the creek

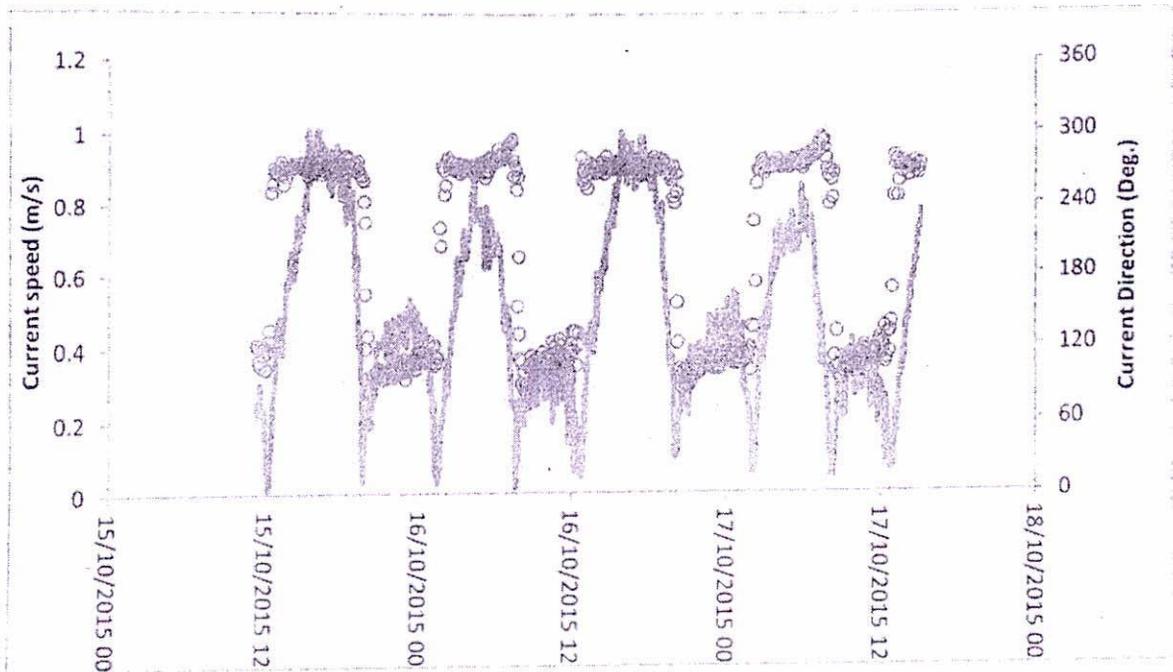


Figure 11 - Sample of measured current in the channel towards northern bank



Numerical Model

A preliminary model has been setup for the site with data sets from C-Map bathymetry, NIOT creek surveys and WWII wave climate. The model is based out of delft3d code and curvilinear grids are adopted with a constant Manning friction and topex poisedon corrected tides. Major features are accounted for their influences in the setup. The wave model is based out of SWAN with enhanced treatment of Triads to account spectral changes over varying sea bed topography and reflections by rock out crops.

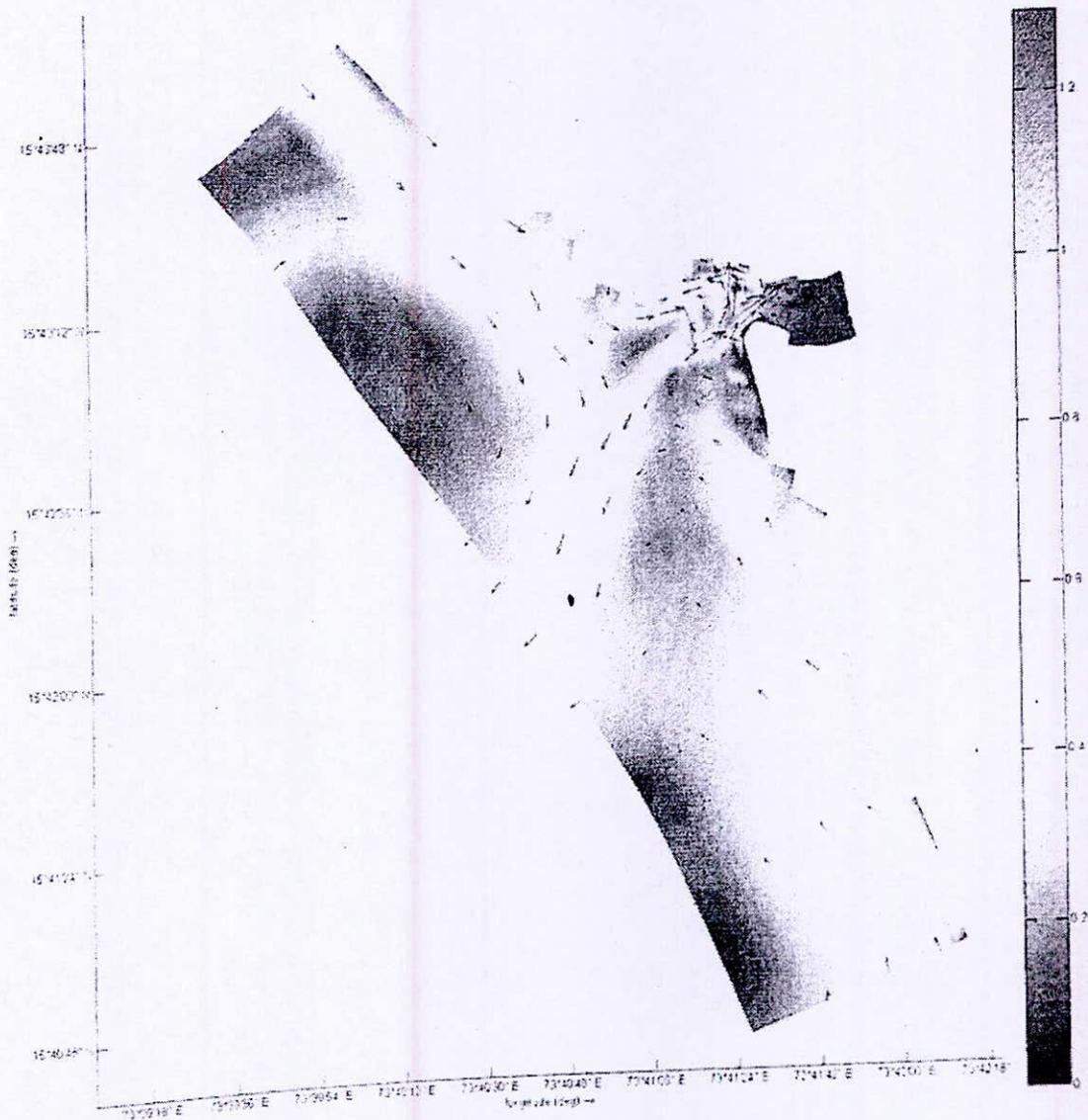


Figure 12 - Spatial view of velocity magnitude and direction for a monsoon scenario.



Status Report on Studies on morphological impact by planned bridge piers on Tiracol river mouth, GOA

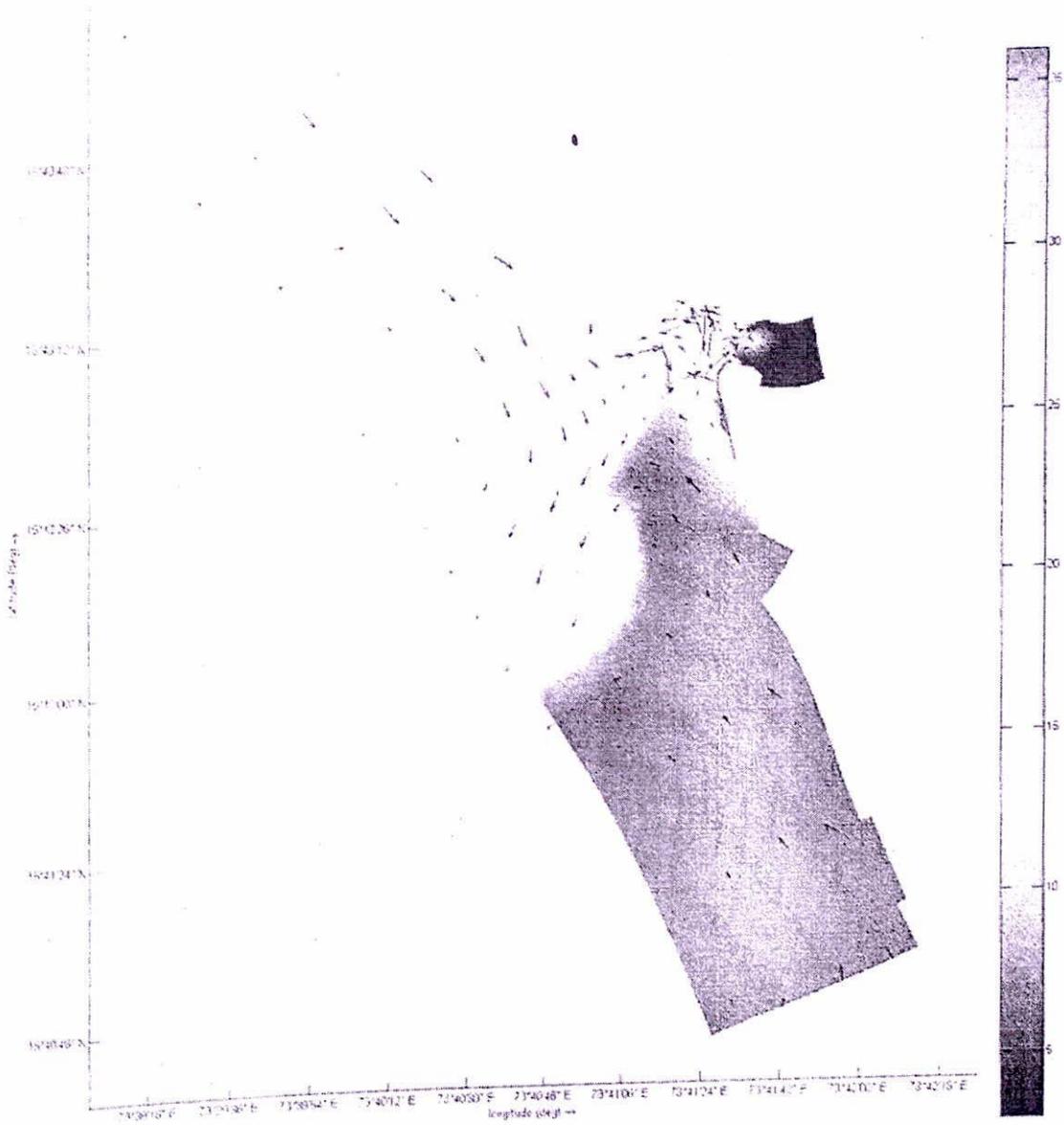


Figure 13 - Salinity circulation in the vicinity of the mouth

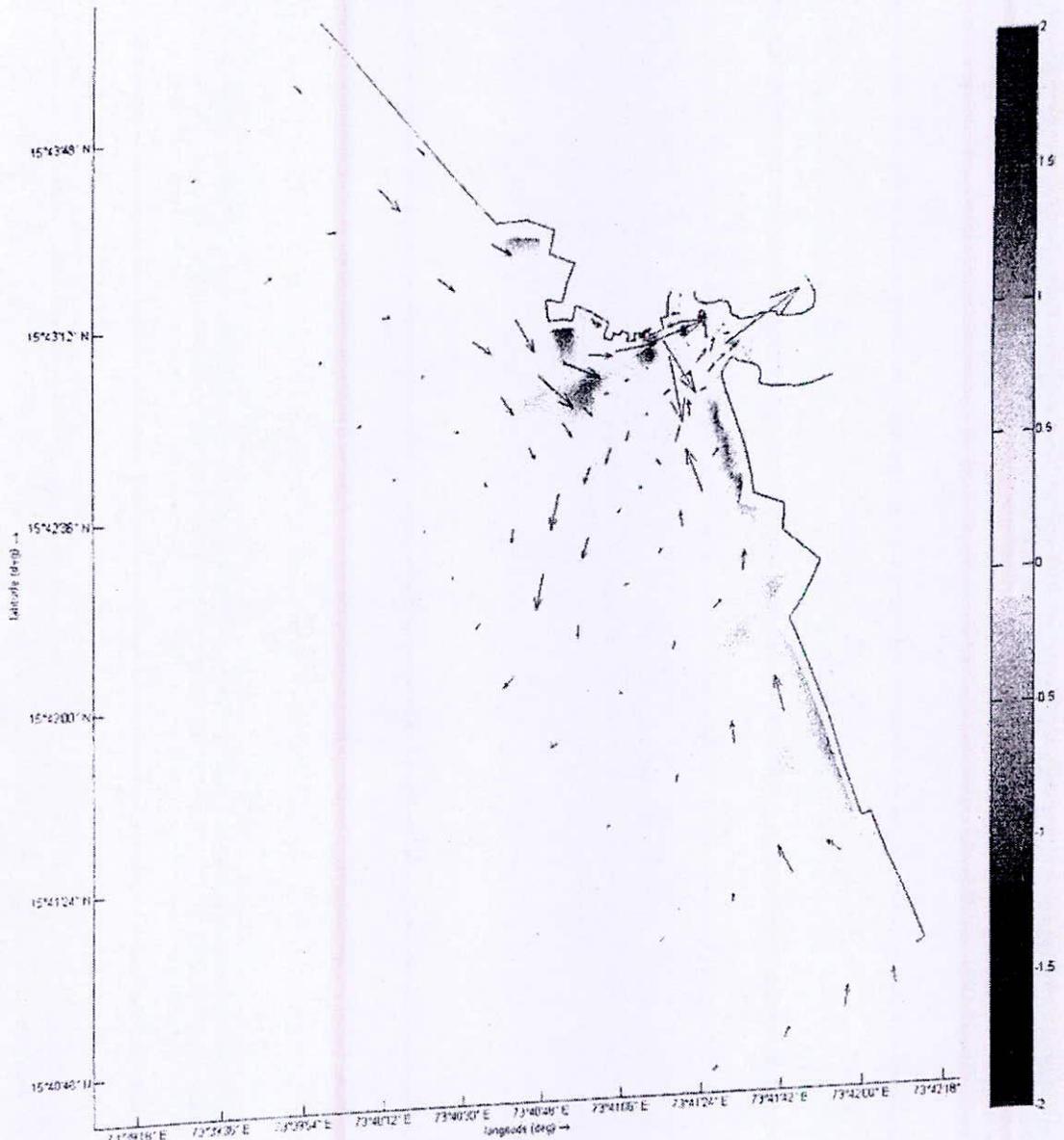


Figure 14 - Estimated morphology and predominant transport direction for monsoon

Conclusions

Studies are in progress and details shall be reported in Intermittent/final report at least 2 months after first fort night of December, the anticipated field data collection closure time, as accepted through TOR.

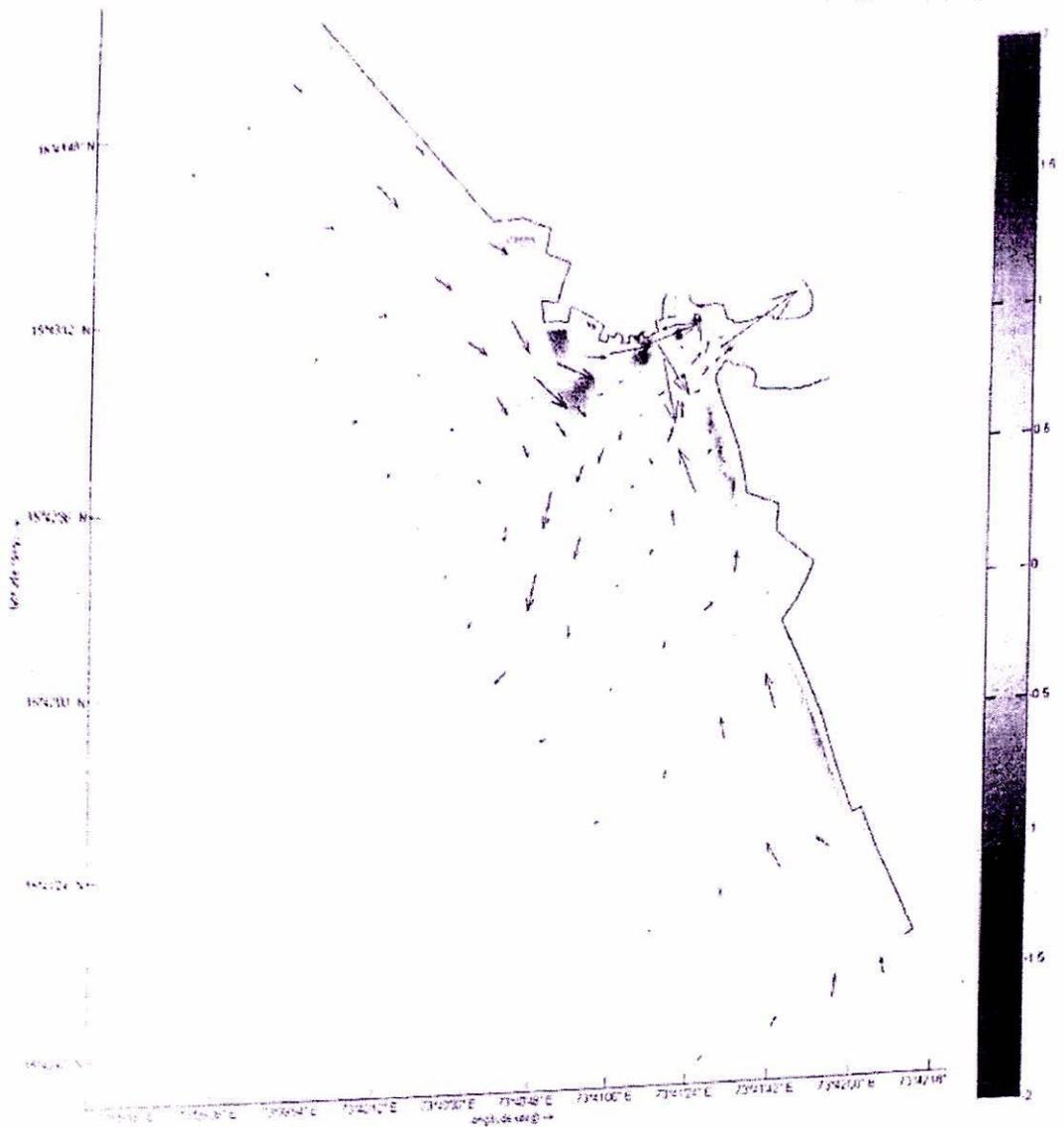
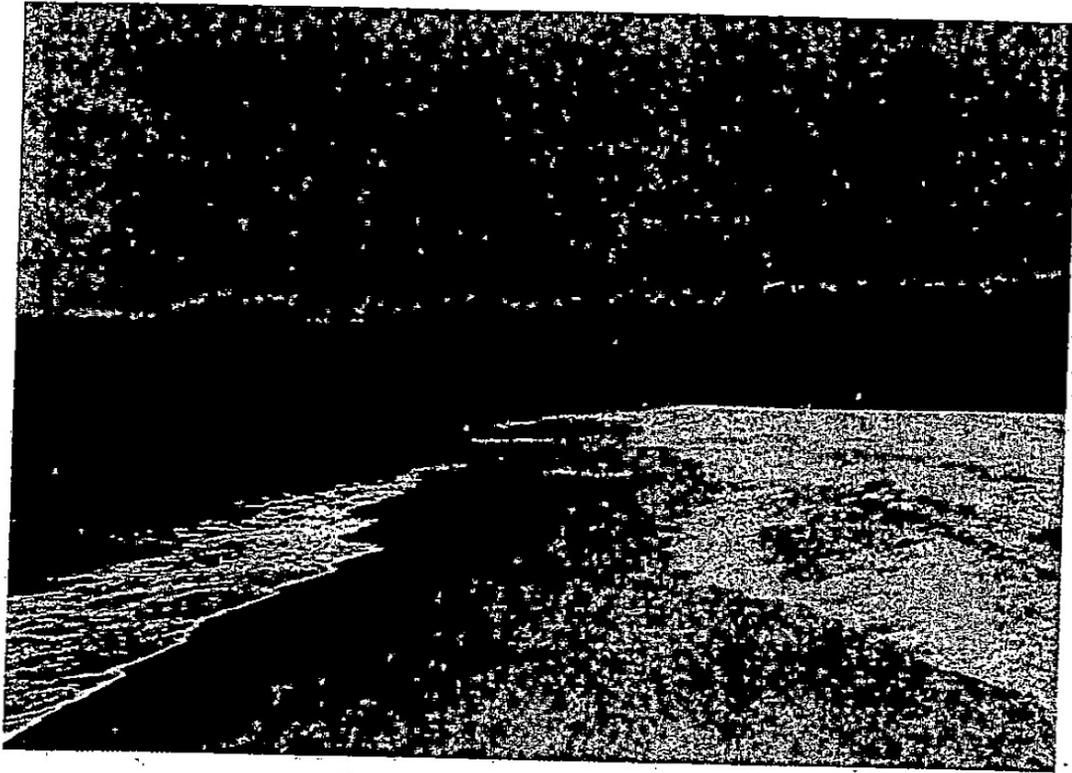


Figure 14 - Estimated morphology and predominant transport direction for monsoon

Conclusions

Studies are in progress and details shall be reported in Intermittent/final report at least 2 months after first fortnight of December, the anticipated field data collection closure time, as accepted through TOR.

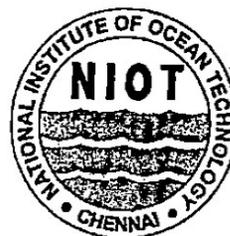
Study of Hydrodynamic and Morphological change at Tiracol Estuary, GOA



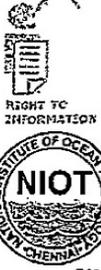
A report Submitted to
National Green Tribunal

By

Coastal and Environmental Engineering,
National Institute of Ocean Technology,
(Ministry of Earth Sciences, Govt. of INDIA)
Chennai - 600100



NATIONAL GREEN TRIBUNAL
PUNE
FILED
Date: 18/2/16



डॉ. म वें रमण मूर्ति

परियोजना निदेशक (वैज्ञानिक - जी)

Dr. M.V. RAMANA MURTHY

Scientist-G & Advisor

Ref. No. NIOT/CEE/GSIDCL/2015-16/03

दिनांक: 17-02-2016

To
The Registrar
NGT (WZ) Bench
New Admin Building
First Floor, D - Wing
Opp. Council Hall, Pune - 411001

Sir,

- Sub: Study of Hydrodynamics and morphological change at Tiracol Estuary - reg.
Ref: 1. NGT application No. 33/2015 (WZ), Item No.16, April 17,2015 order No. 2
and S.O.to 25th May 2015.
2. GSIDC/Engg/Works/854/2501 dated 28th June 2015

This has reference to the request from GSIDCL, Goa to conduct study to assess environmental impacts on the estuaries area, particularly, on the spit of Keri (Pillar No.6) and particularly regarding changes, if any, caused as a result of construction activity in the tidal water activity or changes of estuarine areas, due to adverse impact of construction put in or that construction of pillar No.6 is likely to influence the tidal movements of water of river whatsoever it may be.

The report is prepared and enclosed in sealed envelope. Please let us know, if further details are required from our end.

Thanking you

Yours faithfully

M.V. Ramana Murthy
17/2/2016

[M.V. Ramana Murthy]

Cc: Letter alone to GSIDCL for information.

2) DIRECTOR for kind information.

87

This page is internationally kept blank



Executive Summary

A proposal on construction of a suspension bridge has been taken up by the Goa State infrastructure development corporation, across the Tiracol estuary, downstream of Kiran pani Bridge during 2013. A pillar (No.6) of the bridge is found to be falling into the estuarine area on the spit head in the southern bank. Upon direction by National Green Tribunal, GSIDC has approached National Institute of Ocean Technology, Chennai to undertake studies on the impact of proposed pillar, its influence on tidal water activity or changes in estuarine areas, through letter: "GSIDC/Engg/Works/854/2501".

NIOT has conducted desk studies to assess the impact of the bridge pillar based on secondary information and short term measurements carried out for a period of 15 days. The measurements include water level, current and waves in the Open Ocean and Water level, current in the estuary. Bathymetry and topographic surveys are undertaken in the vicinity of the proposed bridge.

The analysis of the collected data during October, 2015 around pillar 6 indicates growth of sand spit is seasonal and there can be inter-annual variations. The dimensions of the bridge pillar are not significant when compared to the natural variation of the sand spit. However, a detailed analysis was conducted to study the migration of sand spit at pillar 6 with respect to the season and its impact. The study indicates that pillar 6 has no influence during monsoon and limited accretion during fair weather, when estuary is wide opened. The flow simulation with accretion at pillar 6 shows no significant changes in the exchange of flow between estuary and the open sea. As a precautionary measure, it is recommended to increase the pile cap elevation by 1m above highest flood level (HFL) to avoid blockage of sediment, if any in future.



Report Summary

Client: Goa State Infrastructure Development Corporation Limited (GSIDCL), Goa.				Project Reference: GSIDC/Engg/Works/854/2501			Pages: 33	
Keywords: <i>Tiracol mouth, Banda river, Sand spit, Littoral drift, Anthropogenic disturbances, Arabian Sea</i>								
Revision	Date	Author	Initials	Review	Initials	Approval	Initials	
Preliminary Report	26 Nov 2015	Mr. Karunakar	KK	Dr. Basanta Kumar Jena	BKJ	Dr. M. V. Ramana murthy	MVR	
		Mr. Aruna Kumar	AKA					
Final Report	17 Feb 2016	Mr. Karunakar	KK	Dr. Basanta Kumar Jena	BKJ	Dr. M. V. Ramana murthy	MVR	
		Mr. Aruna Kumar	AKA					
Classification: <input type="checkbox"/> Open <input type="checkbox"/> Internal <input type="checkbox"/> Proprietary <input checked="" type="checkbox"/> Confidential								
Distribution State: Final and confidential, for NGT (WZ), Pune						No of copies: 02 – Hard copy bound and sealed.		

Table of Contents	
Executive Summary.....	3
Report Summary	4
List of Figures	6
List of Tables.....	7
1. Background	8
2. Physical description of the site	8
2.1 Catchment.....	11
2.2 Sediments.....	11
2.3 Preliminary assessment	12
3. Desk Studies	15
3.1 Field observations	15
3.1.1 Tides	16
3.1.2 Near-shore Currents.....	18
3.1.3 Bathymetry.....	18
3.1.4 Wave Characteristics.....	19
3.2 Modeling	21
3.2.1 Flow	21
3.2.2 Wave	23
3.2.3 Sediment transport and morphology.....	24
3.2.4 Seasonal Scenarios.....	29
4. Observations	31
5. Recommendations	32
6. References.....	33

List of Figures

Figure 1 - Location of proposed bridge and its environment.....	8
Figure 2 - Boulders and spurs on northern bank.....	9
Figure 3 - Southern beach with coastal protection works.....	10
Figure 4 - Pristine shore line, Jan 2008 imagery.....	10
Figure 5 - Protected shore line, Jan 2010 imagery.....	10
Figure 6 - Thematic geological map of the northern goa.....	12
Figure 7 - Spit status by 20 April 2013.....	13
Figure 8 - Spit status by 14 March 2014.....	13
Figure 9 - Spit status by 6 November 2014.....	13
Figure 10 - Spit status by 9 November 2014.....	14
Figure 11 - Spit status by 13 March 2015.....	14
Figure 12 - Spit status by 3 April 2015.....	14
Figure 13 - Spit status by 19 December 2015.....	14
Figure 14 - Location of field observations.....	15
Figure 16 - Open ocean tidal constituents, source - T/P corrected GOT model.....	16
Figure 17 - Current rose, at inlet channel near northern pillar.....	17
Figure 15 - Nearshore current rose during fair weather season.....	18
Figure 20 - Surveyed bathymetry contours.....	18
Figure 18 - Wave height rose for the site, source -WWIII.....	20
Figure 19 - Wave period rose for the site, source -WWIII.....	20
Figure 21 - Flow model grid with resolution in color scale.....	21
Figure 22 - Comparison of Water elevation at NS point.....	22
Figure 23 - Comparison of water level at Bridge point.....	23
Figure 24 - Grids prepared wave model with resolution.....	24
Figure 25 - General net sediment movement along North Goa coast, source - ORZECH, 1997.....	25
Figure 26 - Pre monsoon beach configuration, 14 March 2014.....	25
Figure 27 - Post monsoon beach configuration, 6 November 2014.....	25
Figure 28 - Submerged bar, April 2013.....	27
Figure 29 - Submerged bar, March 2015.....	27
Figure 30 - Shoreline and dune line by various months of 2013.....	28
Figure 31 - Zones of possible morphology changes induced by pillar 6.....	31



List of Tables

Table 1 – Details of field observations at proposed site.15
Table 2 - Observed tidal characteristics of the site.....16
Table 3 - Spring current characteristics.....17
Table 4 - Tidal current constituents at the Kiran pani bridge17
Table 5 – Wave characteristics by season.....19
Table 6 - Dean number for various wave climates.....26
Table 7 - Non Monsoon Morphology input data cases.....29

1. Background

National Green tribunal (NGT), western zone bench, Pune, has ordered Goa State Infrastructure Development Corporation (GSIDC), vide orders of the tribunal on “application no. 33/2015 (WZ), Item No. 16, April 17, 2015 – Order no.2”, to consult for ascertaining changes by construction of “pillar no. 6” in Tiracol mouth, its influence on tidal water activity or changes in estuarine areas, particularly on the spit of Keri and closure of mouth.

GSIDC has requested National Institute of Ocean Technology (NIOT), Chennai to undertake studies on the impact of bridge pillar to flow into the estuary of Tiracol vide letter “GSIDC/Engg/Works/854/2501”. NIOT has conducted desk studies based on the secondary information and primary data collected for a period of 15 days during October, 2015. The results of the study and recommendations are reported.

2. Physical description of the site

Tiracol is a non-perennial river and estuary is influenced by tide. The northern portion of the coast features hilly terrain, hosts the famous Tiracol fort, whereas the southern portion has a beach with sand coast line that migrates with seasons. The southern portion of the shore is protected with tetrapods to protect from severe monsoonal erosion.

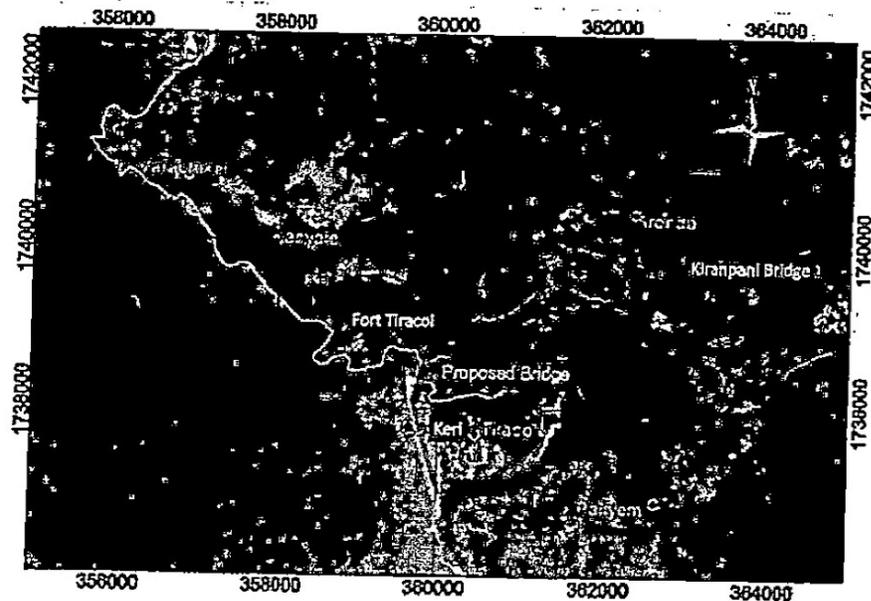


Figure 1 - Location of proposed bridge and its environment.

There exist two bays like systems on both sides of the Kiran pani bridge. The site has large areas of intertidal flats, with mangroves and the deep channel that assumes river alignment further upstream. A submerged bar is present in the shallow water with seasonally varying direction and size modulated with the runoff and tide interaction, shown in Figure 1.

The northern bank of estuary has the rocky extension and boulders in intertidal zone, with a small bay near the cemetery. The southern bank is built of marine sands and is flat. Various river training structures are existent, like spurs in the northern bank, shown in Figure 2, probably for bank protection and concrete wall in the estuarine portion on the southern bank (Figure 3). The southern shore of the estuary confluence is protected by sea wall for a length of 1.25 km approximately. Sand accumulation during fair weather season on the sea side of the protection Keri beach and erosion during monsoon are noticed. The channel is deeper with a bird neck like feature near the small bay at the Tiracol fort, deeper up to 10 m and the channel extends in to the river.



Figure 2 - Boulders and spurs on northern bank

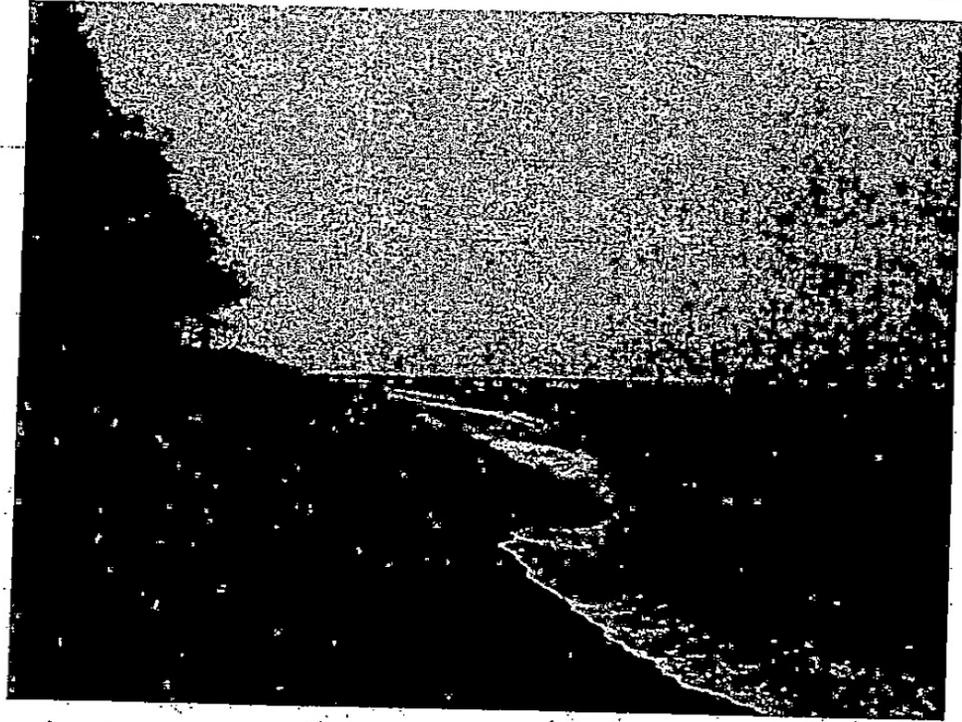


Figure 3 - Southern beach with coastal protection works

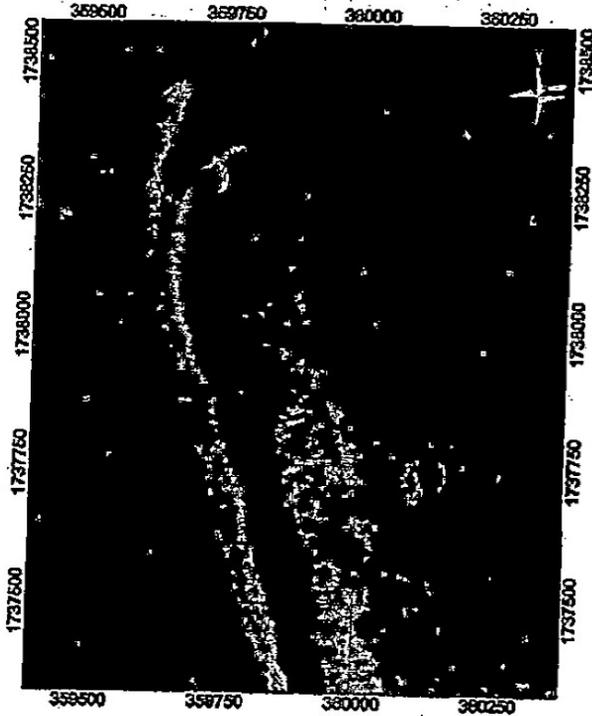


Figure 4 - Pristine shore line, Jan 2008 imagery

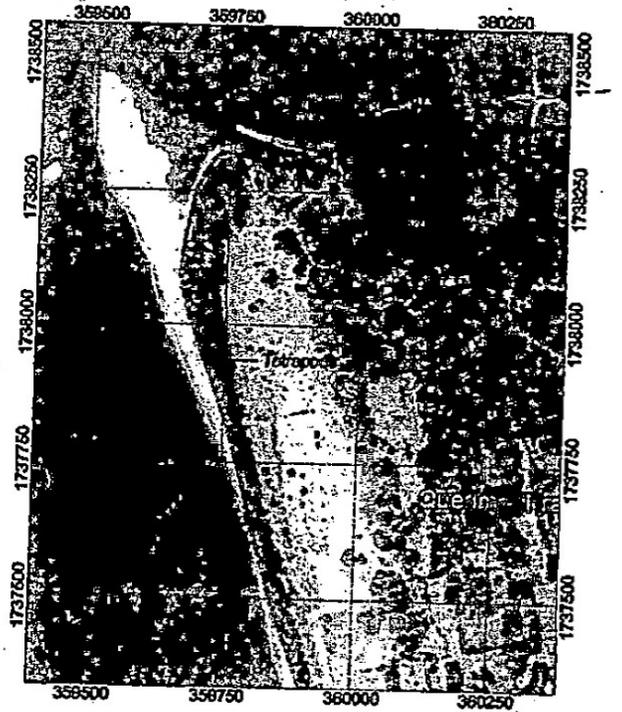


Figure 5 - Protected shore line, Jan 2010 imagery

2.1 Catchment

The Banda River in Maharashtra, the younger phase, originates in the Sahayadris and is called Tiracol at the mouth portion. Major portion of the catchment is in the Maharashtra state and streams flow down the narrow gorges of the Western Ghats. National Institute of Hydrology has listed this river under west flowing rivers from Tapi to Tadri, under line item 37, with a catchment area of 530 sq.km and an annual run off of 1233 million cu.m, which is more realistic owing to rainfall of the region. Ground water information booklet for northern Goa by central ground water board states that Tiracol River is surrounded with laterite soil type and can have a ground water recharge from 0.15 to 0.25 m. The average evapo-transpiration of 12% and 35.5% of ground water recharge for northern Goa districts is estimated by Choudri *et al.*, 2004 with a model for varying land cover and use.

Goa experienced heavy rains during March, 2008, (Rupa *et al.*, 2011). By rainstorm analysis, Nandargi *et al.*, had derived an envelope for maximum rainfall over day period. The maximum average rainfall for a day is expected to be 0.2 m. This results in high drainage of fresh water into the estuary during SW monsoon.

2.2 Sediments

The Geological map of the site, as provided by the web version of the Bhuvan thematic maps, NRSA & ISRO, Figure 6 says that the site formed from neo coastal sediments and is abutted by rocky terrain on the both banks. The flat land on the southern banks towards the sea is in the shape of a quarter pie surrounded by elevated terrain, whereas plain features exist on the northern banks of the river upstream.

Sediment discharge from rivers is major contributors to the Total suspended solids in the high energy water column. The average physical discharge is 73.5 tons per sq.km of catchment per year (research studies utilizing CWC report) and that 90% of total discharge take place in monsoon.

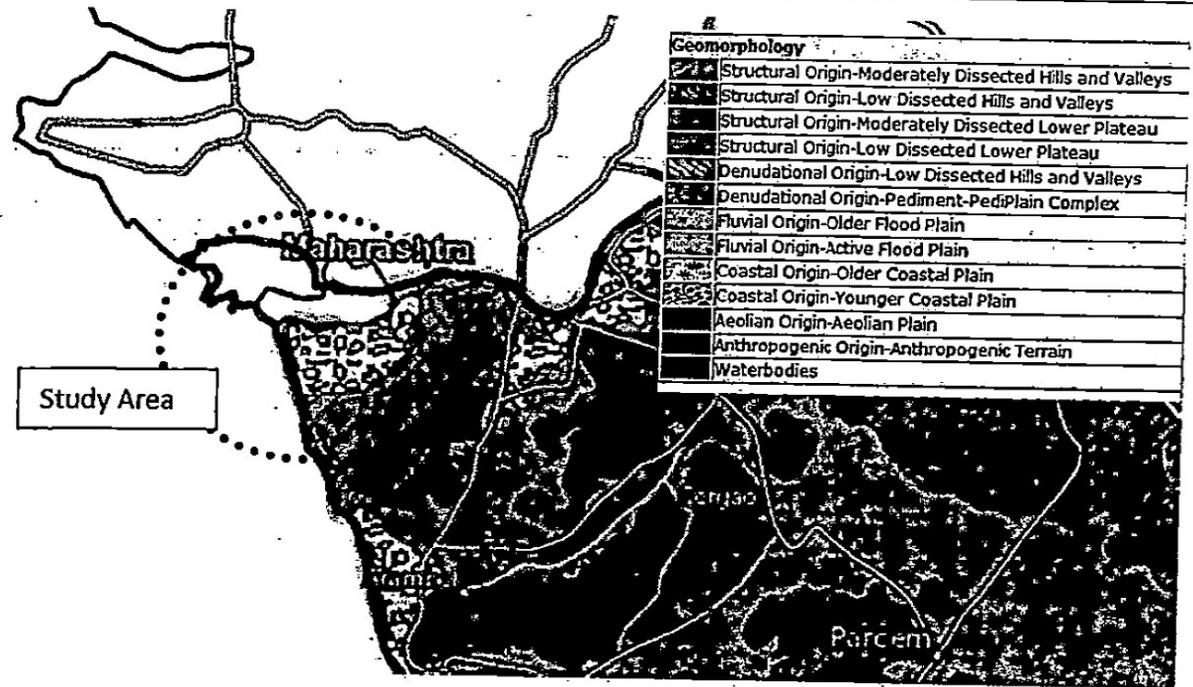


Figure 6 - Thematic geological map of the northern goa

The net transport of sediments in coastal region is established to be flowing southwards for west coast by Wagle, 1985, Chandra Mohan and Nayak, 1992 with peculiarities at some places owing to regional effects. Antony, 1976, opined closure of sediment movement and balance of beach sections in a coastal cell pattern.

Data on sediments has been drawn from Jayakumar *et al.*, 2014 where systematic post monsoon analysis was reported. The mean of the grain size is found to be 340 μm , with a small oscillation over the high and low tides, except for the month of December.

2.3 Preliminary assessment

The sand spit at the Tiracol mouth is dynamic and growth is dependent on the interaction of waves, tides and fresh water discharge from the river. Satellite images available in public domain google earth from 2013 to 2015, were studied to enumerate the spit changes, shown in Figure 7 to Figure 13. It can be seen that the spit develops seaward and migrates towards the estuary. The bridge pillar no. 6 in the estuary is located at 35m from the permanent coast line (shore protection). Location of Pillar no. 6 is always in the shallow waters in the wake of spit or on dunes for most of the time. The pillar no 6 with a projected area of 4.8 sq. m/m depth across the flow is small compared to the mouth dimension of 200 m approximately. The above analysis clearly

indicates the effect would be less significant. However, a detailed analysis is conducted to quantify influence of bridge pillar on the growth of spit and resulting water flow exchange between sea and estuary.

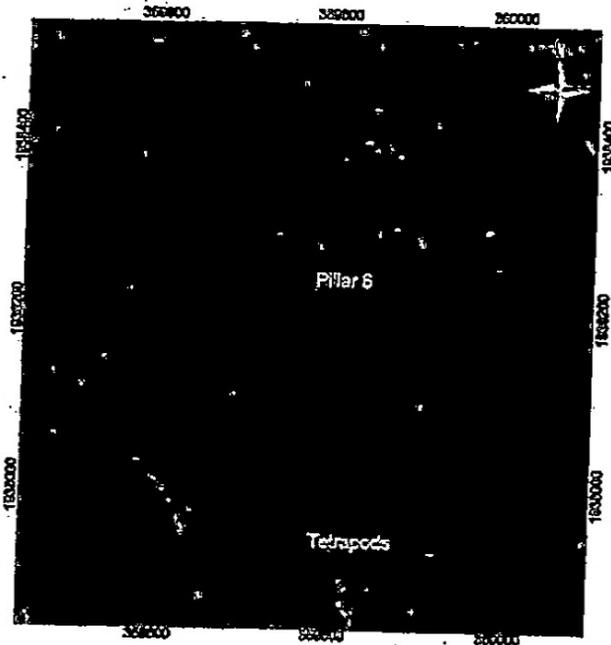


Figure 7 - Spit status by 20 April 2013



Figure 8 - Spit status by 14 March 2014



Figure 9 - Spit status by 6 November 2014



Figure 10 - Spit status by 9 November 2014

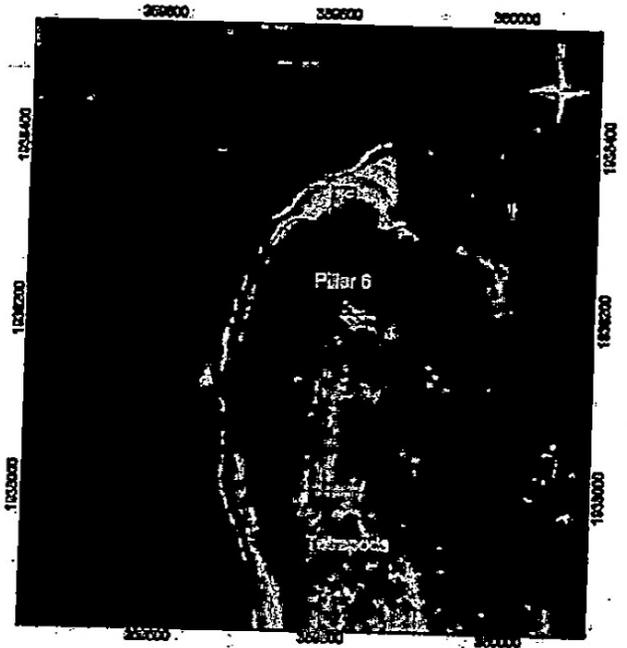


Figure 12 - Spit status by 3 April 2015



Figure 11 - Spit status by 13 March 2015



Figure 13 - Spit status by 19 December 2015

3. Desk Studies

3.1 Field observations

As per the request of GSIDC and requirements of NGT, NIOT has conducted bathymetry survey and physical oceanographic (Tide and Current) observations in Tiracol estuary. Topographic surveys were carried out along the Querem beach during October second week and November third week. The details of measurements are provided in Table 1.

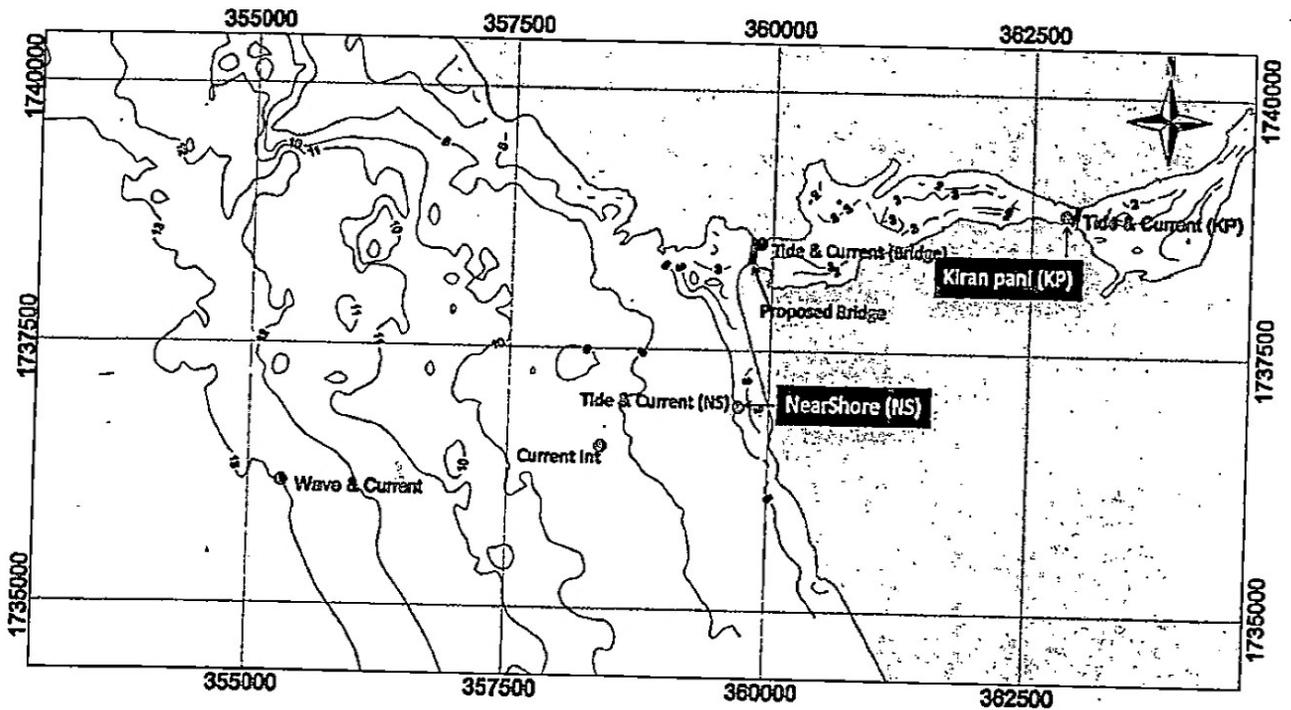


Figure 14 - Location of field observations

Table 1 - Details of field observations at proposed site.

Sl. No	Instrument type	Deployment type	Location	Deployment starting date	Deployment ending date
1	Tide KP	Bottom Mount	15° 43.458' N	11/11/2015	27/11/2015
	Current KP	U-Mooring	73° 43.188' E	11/11/2015	27/11/2015
2	Tide Bridge	Bridge Mount	15° 43.272' N	10/11/2015	27/11/2015
	Current Bridge	Bridge Mount	73° 41.539' E	13/11/2015	27/11/2015
3	Current	Boat Hanging	15° 43.253' N 73° 41.533' E	15/11/2015	17/11/2015
4	Discharge (Rio-Grande)	Boat	15° 43.272' N 73° 41.539' E	13/11/2015 & 18/11/2015	13/11/2015 & 18/11/2015
		Boat	15° 43.458' N 73° 43.188' E	14/11/2015 & 19/11/2015	14/11/2015 & 19/11/2015

5	Bathymetry	Single beam	mouth to 6km upstream	15/11/2015	16/11/2015
6	RTK	GPS	2km on Querem beach from the river mouth	10/11/2015	12/11/2015
7	Wave & Current	Mooring	15° 41.981' N 73° 38.990' E	13/10/2015	12/11/2015
8	Current Int	Mooring	15° 42.420' N 73° 41.442' E	13/10/2015	12/11/2015
9	Current NS	Mooring	15° 42.198' N 73° 40.707' E	13/10/2015	12/11/2015
12	Off shore Bathymetry	Single beam	Shown in Figure 14		

3.1.1 Tides

Water level

The site is primarily in mixed, micro-meso tidal regime in the open ocean. Constituent data with Topex - Poseidon corrections from delft dash board is presented in Figure 15. The form factor is about 0.627 in Open Ocean. Tide measurements are carried out in the open ocean, near the mouth and the Kiran pani bridge. The statistics of the observations are provided below.

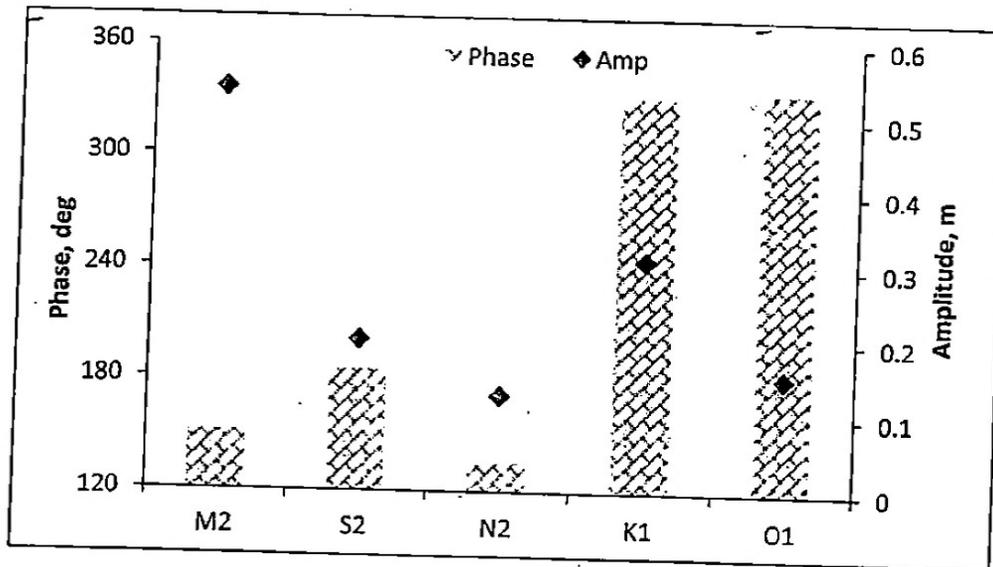


Figure 15 - Open ocean tidal constituents, source - T/P corrected GOT model

Table 2 - Observed tidal characteristics of the site

Station Id	Tidal range		Form factor	Description
	Spring	Neap		
NS point	2.43	1.074	0.627	At 5m depth in open ocean
Bridge point	1.66	1.043	0.587	At 3.5m depth in the vicinity of mouth
KP point	1.73	0.954	0.582	At 6 m depth near the bridge

Currents

Tidal currents unlike tidal water levels have a principal direction about which they oscillate in addition to the variation in magnitude. Thus each constituent would have a direction of maximum current and also minimum current, which ideally would look like an ellipse. Super position of all constituents with proper phase information would yield the tidal current at the required point of time. The extracted current constituents are tabulated in Table 4.

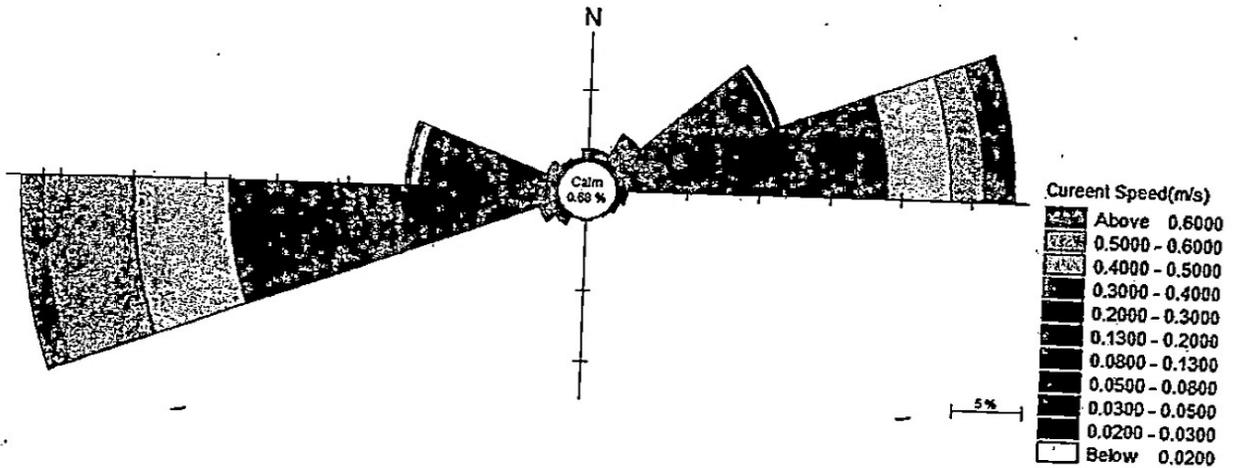


Figure 16 - Current rose, at inlet channel near northern pillar

Table 3 - Spring current characteristics

Station Id	Speed, m/s	Direction, degrees	Water level, m
NS point	0.138	4	1.060
Bridge point	0.484	264	1.013

Table 4 - Tidal current constituents at the Kiran pani bridge

Name	Major	Minor	Inclination	Phase
K1	1.38E-01	8.00E-03	170.9	72.3
M2	3.90E-01	2.00E-03	167.1	279.0
M3	3.40E-02	-7.00E-03	164.6	239.7
M4	3.10E-02	-1.10E-02	8.5	222.0
2MK5	1.60E-02	-6.00E-03	178	96.2
2SK5	1.50E-02	0.00E+00	4.5	116.9
M6	3.00E-02	-4.00E-03	162.8	334.9
3MK7	1.10E-02	-2.00E-03	149.5	281.7

M8	5.00E-03	-1.00E-03	49.1	188.8
----	----------	-----------	------	-------

3.1.2 Near-shore Currents

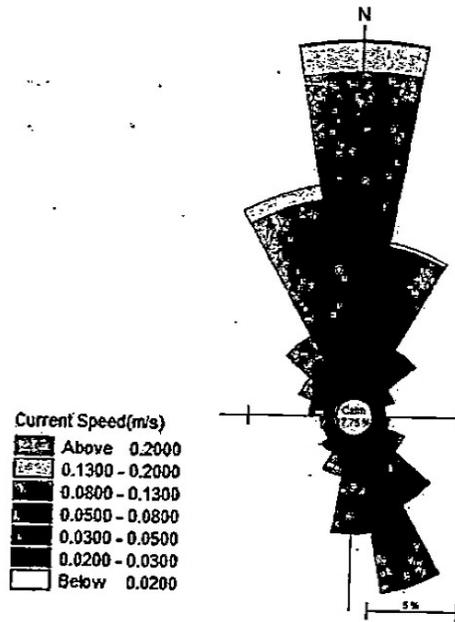


Figure 17 - Nearshore current rose during fair weather season

Current measurements are carried out in the open coast at 5m depth. The coastal currents are in the range of 0 - 0.25 m/s, with a mean of 0.05 m/s.

3.1.3 Bathymetry

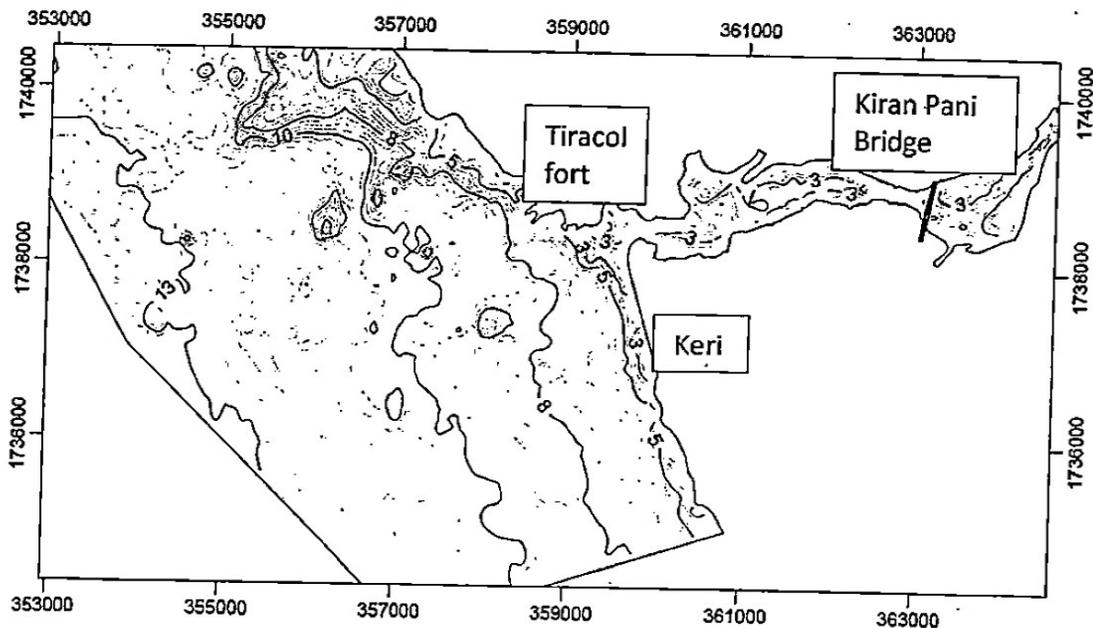


Figure 18 - Surveyed bathymetry contours

Bathymetry surveys provide an insight on the local sea bottom gradients. It can be seen from Figure 18 that the estuarine portion is shallow with an average depth of 4m. But there exist a deeper pocket at Kiran pani bridge, constriction between two bays like features where average depth goes up to 6.5m. The contour in the coastal region are shore parallel and gentle on the southern side, where as steep profiles with rock outcrops, possible land ward terrain extensions, on the northern side.

3.1.4 Wave Characteristics

Waves are very short period oscillations with period between 2 - 20 seconds in general. They heavily influence the sediment transport in the surf zone and directly are the reason for erosion or accreting behavior of a coastline. Waves act about the instantaneous Mean water level controlled by tides of the region and surges if any.

The Arabian Sea is peculiar about its choppy seas. Monsoons are dominant with an average significant wave height of 3m westerly about 10 sec peak wave periods. Fair weather seasons have mild swell from southern Indian Ocean with local seas developing randomly from NW winds. The wave roses for the site are presented in Figure 19 and Figure 20 from the data downloaded from global WWIII output, hosted by University of Hawaii. The data set from Jan 2011 to Dec 2014 is subject to classification based on slope parameter H_s/T_p for seasonal characteristics. The statistics and classes of data are presented in Table 5.

Kumar, Kumar and Anand, had attempted to relate the significant wave heights with peak wave periods for observations during south west monsoon in the vicinity of present area. They have estimated that 1.63 m significant wave height is associated with a 10 second peak wave period and spectral peakedness parameter is about 1.45.

Table 5 - Wave characteristics by season

Case	Direction	Significant wave height, m	Peak wave period, s
General	240	0.82	11.5
Monsoon	260	2.54	10.2
Sea	314	1.00	5.6
Swell	220	0.67	13.3

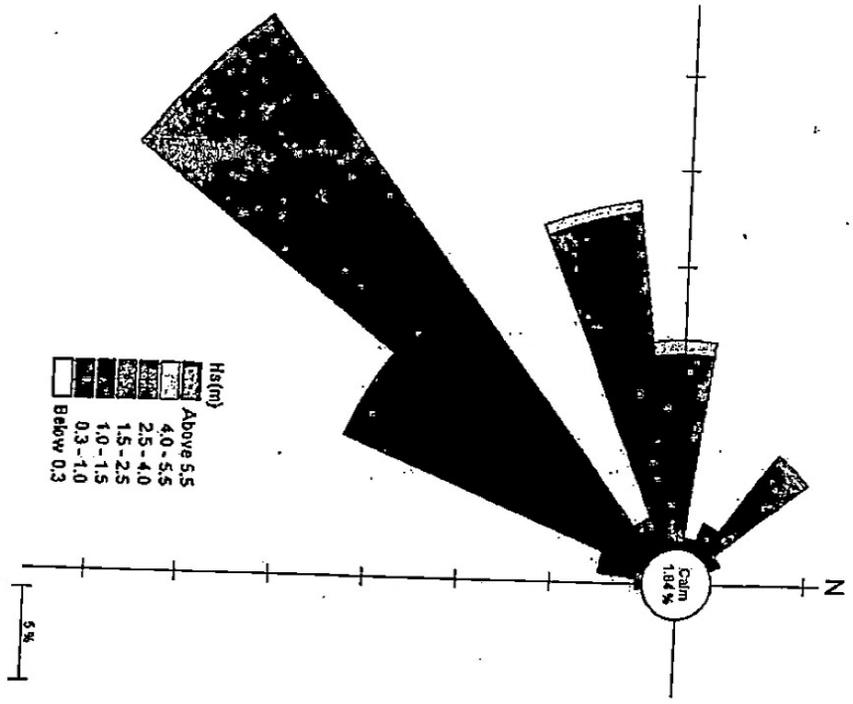


Figure 19 - Wave height rose for the site, source -WWIII

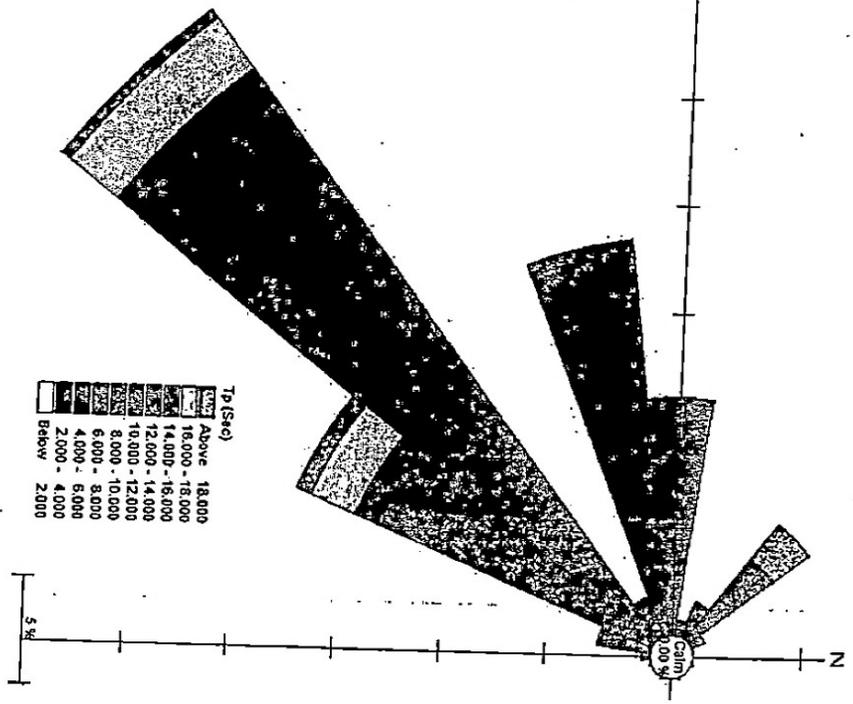


Figure 20 - Wave period rose for the site, source -WWIII

3.2 Modeling

3.2.1 Flow

The flow model is setup on Delft3D, which is a finite volume curvilinear grid adoptable numerical solver code. The deep water boundary condition can be forced with time varying tide reconstructed from the global astronomical tidal constituents. The lateral boundary conditions are achieved with Neumann type boundaries with zero gradients. Riemann type boundary conditions are applied on the river head side, for ease of use in 3D models: Manning's based friction accounts for the depth based variation of conveyance and is thus utilized in the model.

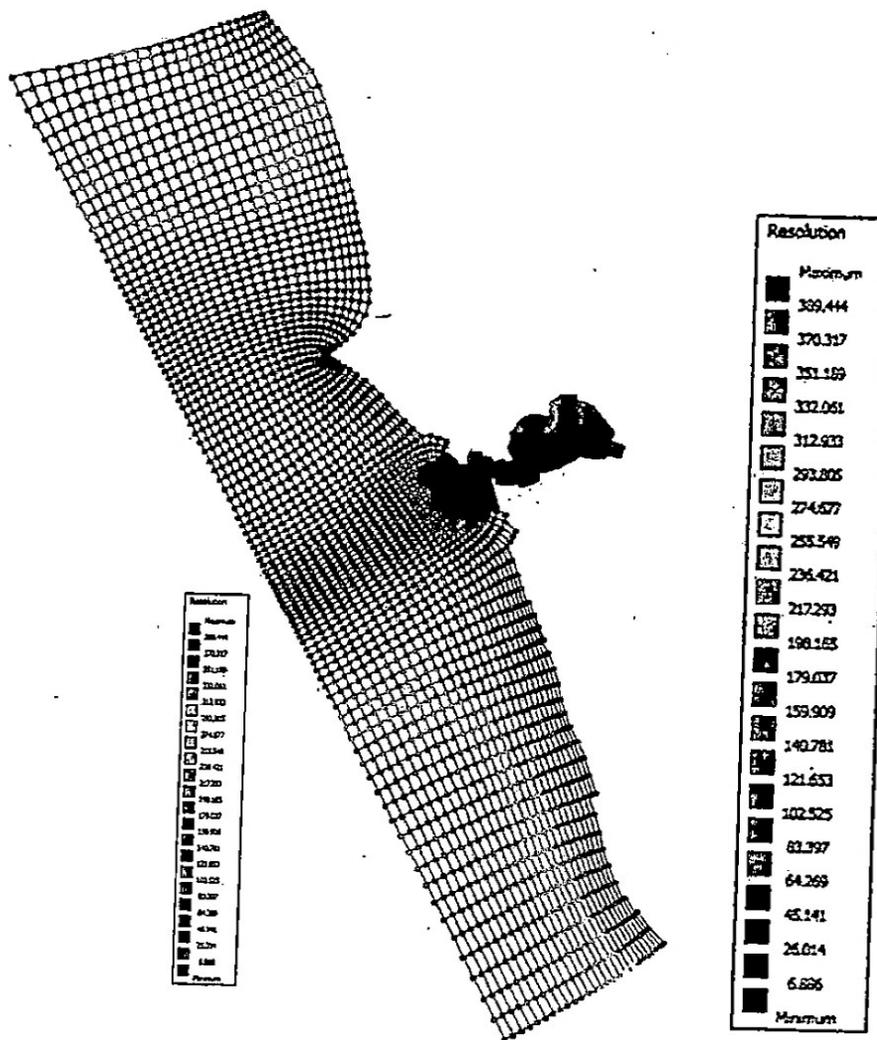


Figure 21 - Flow model grid with resolution in color scale

The model domain, shown in Figure 21, is limited to few meters sea ward from Kiran Pani Bridge to reduce non-physical oscillations. The model is run in 2d mode for the calibration phase and a manning coefficient of $1/20$ is used in the estuarine portion and $1/32$ in the coastal zone. Monsoon model is based on a 3D model for the entire domain. Wave model runs in tandem with the flow model at every 1 hour interval.

Validation

The measurements at the Kiran Pani Bridge are incorporated as boundary conditions. Hence a 2D model is calibrated with Manning's friction and validated for measurements at the mouth. The measurements have high frequency oscillations, owing to wind gusts, which are not included in the numerical model. Moreover, wave conditions are expected to remain stationary over an hour, which otherwise would need very tight wave flow coupling, which is computationally intensive.

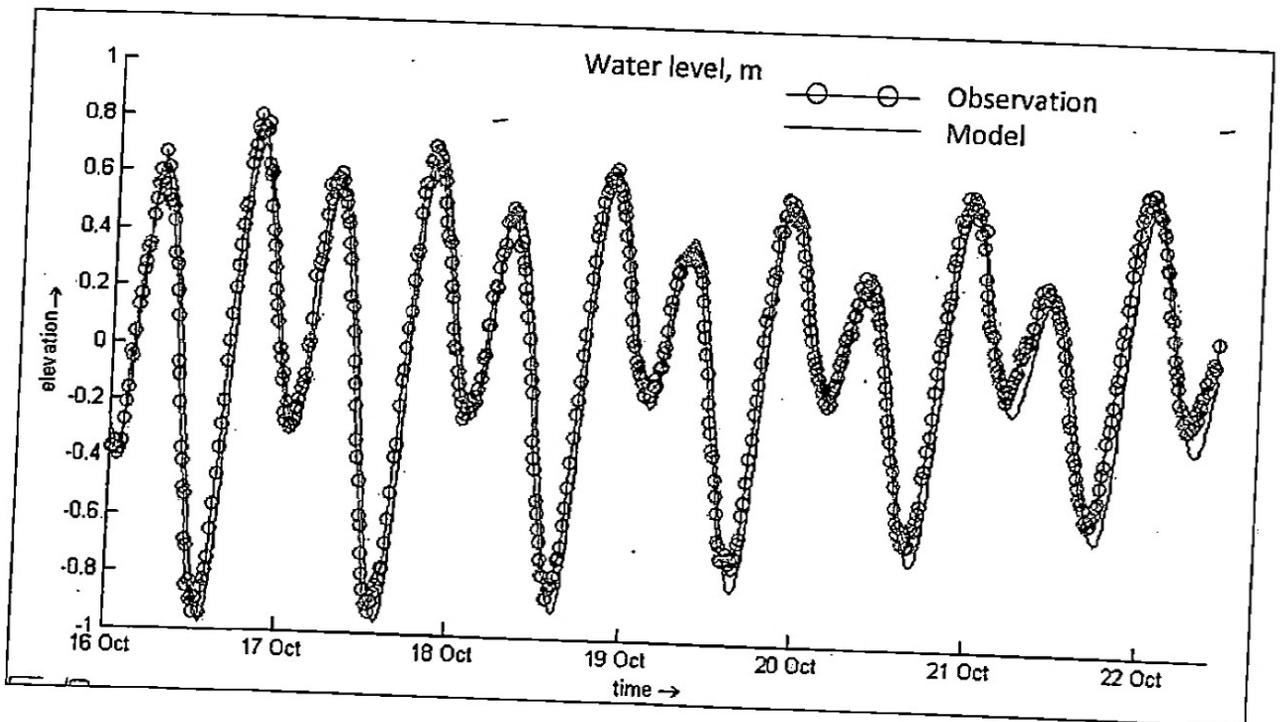


Figure 22 - Comparison of Water elevation at NS point

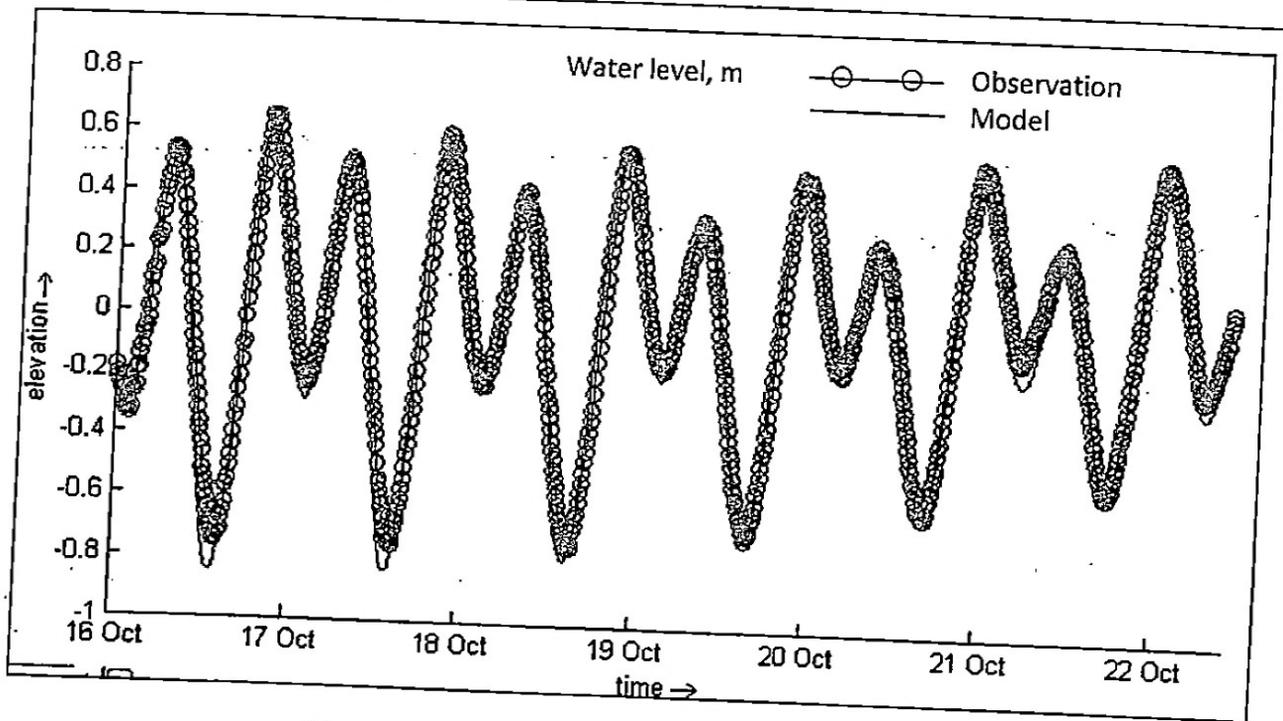


Figure 23 - Comparison of water level at Bridge point

3.2.2 Wave

A spectral wave model is setup with state of the art SWAN model with the delft interface which also transfers ambient current and depth information from flow model. Grids are prepared in coast following curvilinear grid system for wave computation. A finer grid developed over the mouth and river channel is nested into the outer wave domain for enhanced resolution. The outer grid has a resolution of 111 m. The grids at various levels are presented in the Figure 24.

The offshore boundary is driven with the deep water integral wave parameters derived from global WWIII model. The calibration of wave model is carried out with Madsen eddy viscosity type dissipation coefficient. Triads, bottom slope based wave breaking and Westhuysen based white capping are chosen in the model. Diffraction of waves by structures is not considered in the present model, owing to the numerical complexity and requirement of a very fine resolution model.

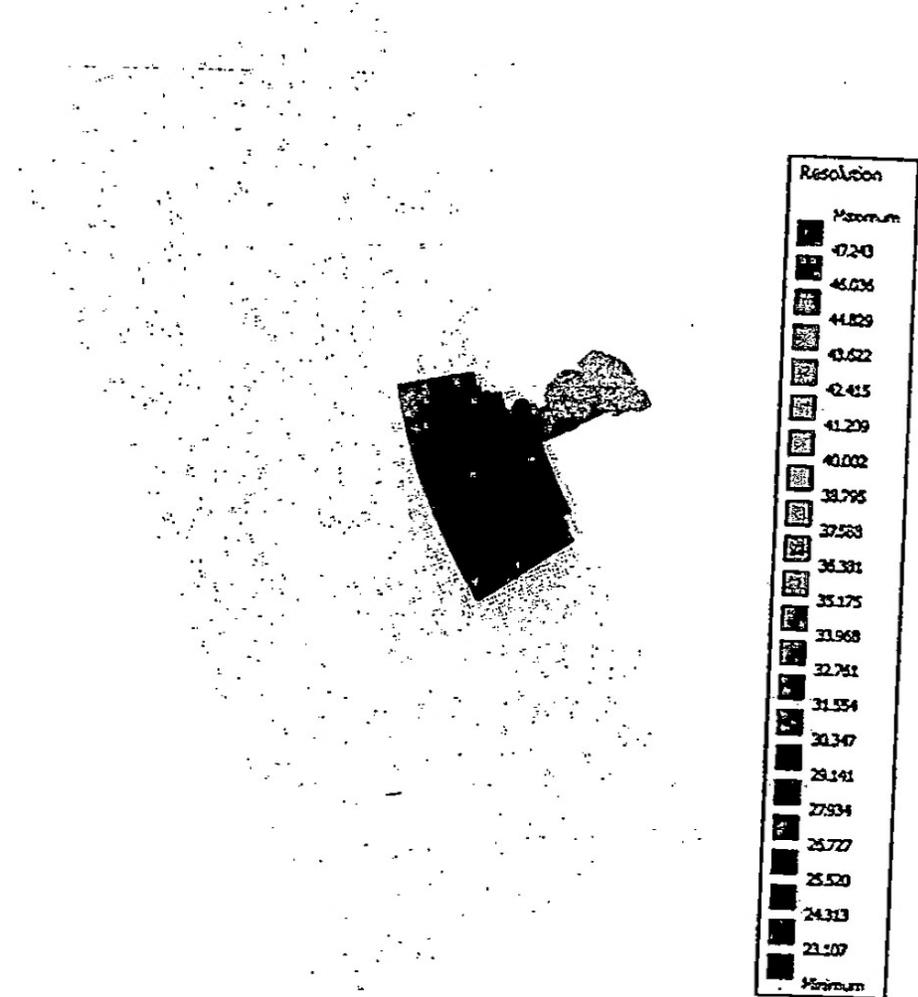


Figure 24 - Grids prepared wave model with resolution

3.2.3 Sediment transport and morphology

Veerayya *et al.*, 1981 studied beaches of goa and concluded that the littoral drift is toward north for SW swell, south for WNW waves and oscillatory, converging and diverging for W and WSW waves for nearby sites. They had identified that the morphological variation is cyclic and closed over a year. Also, erosion is severe from onset of SW monsoon and accretion with disturbance by NE monsoon during fair weather seasons for this area. This is visible from Figure 26 and Figure 27. The spit size is a function of sediment availability and estuarine flow velocities.

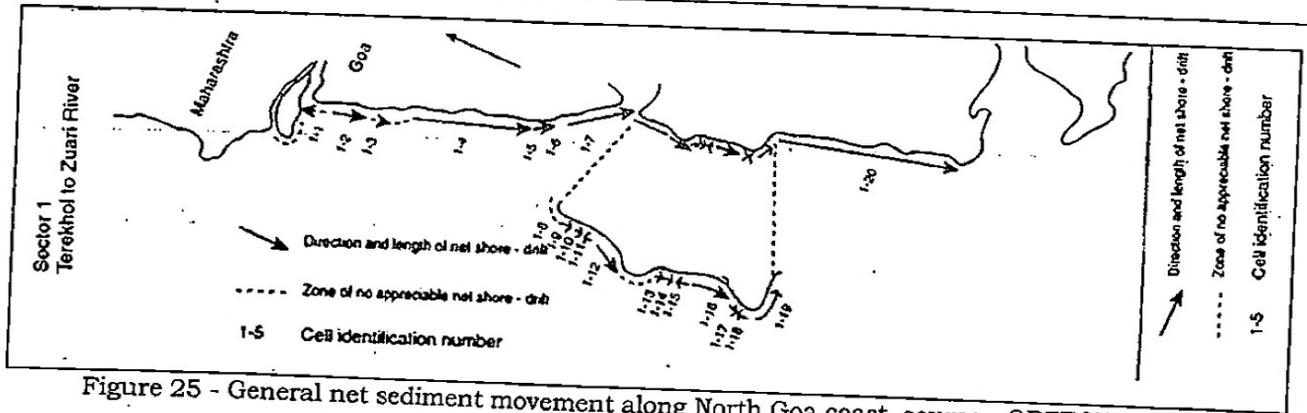


Figure 25 - General net sediment movement along North Goa coast, source - ORZECH, 1997.

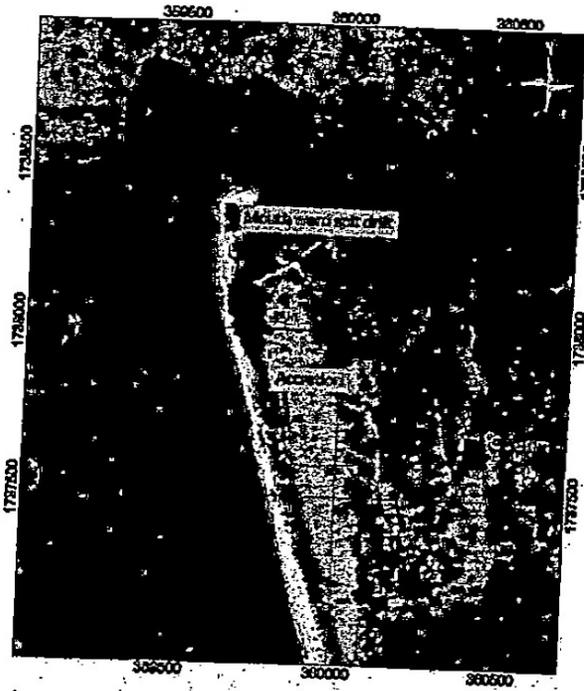


Figure 26 - Pre monsoon beach configuration, 14 March 2014



Figure 27 - Post monsoon beach configuration, 6 November 2014

A clear cell structure of sediment movement is established by Kunte, 1994 using Landsat and aerial photographs by methods of landform indicators. They used sediment plume direction to estimate net movement of the grains and confirmed southward drift in general with variations at places of headlands and river mouths. Orzech, 1997 has further refined the coastal sediment transport classes with higher number of cells. The transport near the Tiracol mouth and its out of phase variation from southern beaches is shown in Figure 25 and supported by Figure 26 and Figure 27 satellite imageries.

Chandramohan and Nayak, 1992 estimated a transport rate of 0.53×10^6 cu.m/year northwards and 0.820×10^6 towards south for Goan coast. Similarly Anand *etal.*, 1991 found that transport is 0.41×10^5 cu.m /month in monsoon and 0.055×10^5 cu.m / month during other months on an average. Kunte, 1994 states that pro-grading beaches are supplied with sediments by retreating beaches. There exists heavy variation of erosion and deposition even in continuous stretches owing to transport direction. According to Brunn classification, the present estuary with an expected area of 4.75 sq.km would fall into, with a factor of 16, scenario of closure by a bar, very shallow to wide shallow ocean bar.

The sediment suspension regime, thus onshore offshore transport of a site can be estimated from the Dean number. Its variation with a constant grain size and a settling velocity of 4 cm/s over various deep water wave climate classes is presented in Table 6. Higher dean numbers than critical of 2.25 are associated with sediment suspension and offshore drift.

Table 6 - Dean number for various wave climates

Case	Dean no	Transport
General	1.7875	On shore
Monsoon	6.2327	Offshore
Sea	4.3649	Offshore
Swell	1.2513	Onshore

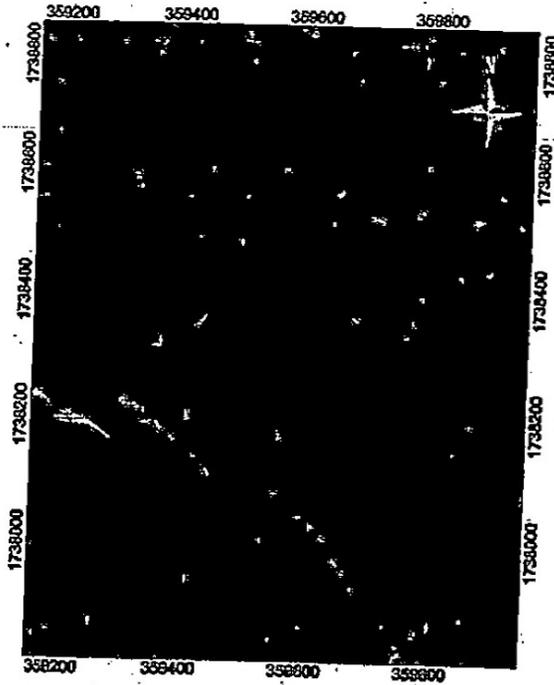


Figure 28 - Submerged bar, April 2013



Figure 29 - Submerged bar, March 2015

Krauss has worked extensively on spit growth and formulated a relation between sediment transport rate and the spit length for spits restricted by presence of inlet channel based on sediment volume balance. The shortest spit closure path would be in NNE direction, but the usual submerged bar growth is in WNW direction. The shortest distance between bank protections on south by tetrapods to center of the channel is about 195 m, but 450m in the bar progression direction. The coast line angle of Colva, Calangute and Keri beaches are almost similar, oriented by about 345° from North. Assuming the beach length of 1.5 km at Keri would supply enough sediment for an unlimited spit growth, with a northern sediment drift, the maximum possible growth till migrated channel center, is calculated as, 375 - 400 m (ERDC/CHL CHETN-IV-44, June 2002) from rigid coast line on the south. It would take over 2 decades for such a formation and with absence of tidal action. The said formation in the area is already saturated in the present condition, can be seen in both Figure 28 - Submerged bar, April 2013 and Figure 29 - Submerged bar, March 2015. Since the estuary is abutted by hilly terrain on the northern bank, the channel migration further north is not possible and is set by tidal current.

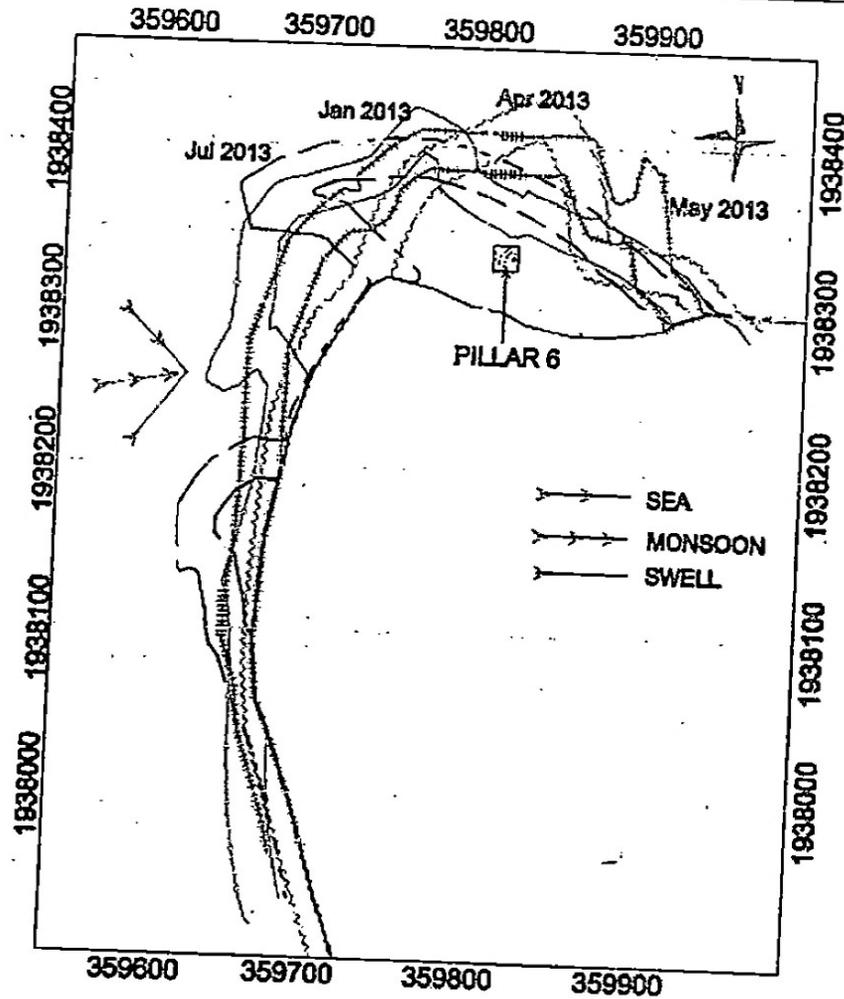


Figure 30 - Shoreline and dune line by various months of 2013

Rajasekaran *et al.*, 2014 had attempted to study the sand spit and shore line dynamics of the Querem beaches. They have established that during 2010-11, the site had a decent accretion and severe erosion by the following year. There were various phases of shore line oscillations in the subsequent years and a net erosion of 10 m is apparent. The maximum height of dune observed by the authors is about 2m at the spit, marked in Figure 30.

The sediments in the present case are found to be medium sand of 340 μm sized and a uniform size is adopted irrespective of the tidal condition to keep the model simple. Van Rijn's, 2004 formulation, which accounts for bed load and suspended load simultaneously, has been used in the model. Edwin *et al.*, studied the bar mouth on the west coast of North America and validated that majority currents influencing the morphology are semi diurnal and their over tides. Moreover, the time

scale of bottom bed changes are slow, but proportional compared to the hydrodynamics. Hence a morphological acceleration factor is accounted to convert a simulation over spring/Neap tidal cycle to the seasonal contribution. Also, Rapid assessment of morphology is taken up with an assumption of superposition of morphological changes by various hydrodynamic conditions over a season. This implies simulations for various conditions are run in parallel and the net bed changes are estimated accounting all of them with duly assigned weight age and fed back to all models to incorporate changes in hydrodynamics.

3.2.4 Seasonal Scenarios

The cases for an extreme monsoon run off is based on the river discharge for a 200mm rainfall. Similarly assessment is carried out for fair weather season with swell and local seas generated in a larger wave grid for major NW wind classes and their period of occurrence. The wave model grids are nested into a 500 X 111 km outer grid with a resolution of 2.7 km. The weight ages in the numerical model, detailed in Table 7, are scaled to form a sum of unity.

Table 7 - Non Monsoon Morphology input data cases

Sl. No.	Wind	Wave	Weightage
1	NNW	Local Sea	0.1000
2	NNW	Swell	0.3299
3	SSW	Swell	0.0728
4	NE Seaward breeze	Swell	0.0753
5	SE Seaward breeze	Swell	0.0890

The pillar 6 is introduced into the numerical model as bridge elements. Since the grids in the model are coarser and equal to the size of the pile cap, the energy loss coefficient is estimated for the blockage of flow by columns alone and is incorporated as a quadratic friction. The loss coefficient is estimated to be around 60% after Farraday and Charlton, 1983 for the given description of pile structure. The wave transmission is about 90% and reflection 9% for the same, after fume experiments by Weele and Herbich, case I - b and c sets.



Study of hydrodynamic and morphological change at Tiracol estuary, GOA



5. Recommendations

- Increase in the elevation of pile cap by 1m above high flood level to allow natural movement of the sand.
- Monitoring of the morphological changes of sand spit at the bridge pillar no. 6 at closed interval to study the seasonal and long term variability.
- Monitoring the shoreline changes up to 2km on either side of the pillar no.6, both in open coast as well as estuary.

6. References

1. Chachadi A.G., Chaudri B.S., Ligia Naronha, Lobo Ferreira J.P.; [2004]; Estimation of surface runoff and ground water recharge in goa mining area using daily sequential water balance model - BALSEQ; Hydrology journal, 27 (1-2), March-June 2004.
2. Roopa S Belurkar and Mallikarjun S Yadawe [2011]; "A Survey of Soil Fertility Status of Cashew Nut Gardens of South Goa, India." International journal of applied biology and pharmaceutical technology, Volume: 2: Issue-3: July-Sept -2011.
3. Nandargi. S., Mulye. S.S., [2014]; "Spatio -Temporal rainfall variability and rainstorm analysis over the goa state, India"; Studies in Atmosphere Science, Volume 1, 2014.
4. Jayakumar, S.; Yadhunath, E.M.; Jishad, M.; Gowthaman, R.; Rajasekaran, C.; Pednekar, P.S. [2014]; "Post-monsoon equilibrium beach profiles and longshore sediment transport rates at Candolim, Miramar and Keri beaches of Goa, India"; Current Science, vol.106(3); 2014; 408-416
5. Wagle B.G, [1985]; "Distribution and dispersion of turbid waters on the western continental shelf of India - An interpretation of landsat images"; International journal of remote sensing, 6(1-1), 1681-4.
6. Chandramohan. P, Nayak. B.U., [1992]; "Longshore sediment transport model for Indian west coast"; journal of coastal research, 18 (4), 775-787.
7. Antony. M.K., [1976]; "Wave refraction studies of calangute beach, Goa with special reference to sediment transport and rip currents"; Indian journal of marine sciences, 5, 1-8.
8. V. Sanil Kumar, -K. Ashok Kumar, N. M. Anand, [2000]; "Characteristics of Waves off Goa, West Coast of India"; vol 16, No 3
9. Veerayya. M, Murty. C.S., and Varadachari. V.V.R., [1981]; "Sediment distribution in the offshore regions of Goa"; Indian journal of Marine science, 10, 332-336
10. Orzech, K., [1997]; "Net shore drift of the Goa coast, India "; Msc Thesis, western washington university, USA
11. Anand. N.M., Chandra mohan. P, Sanil Kumar. V, Pathak. K.C. and Nayak B.U., [1991]; "Coastal process along the goa coast"; Tech. Rep., National institute of Oceanography, INDIA, Nio/tr-10/91(NIO tr 1091), 77p
12. Jayakumar, S.; Yadhunath, E.M.; Jishad, M.; Gowthaman, R.; Rajasekaran, C.; Pednekar, P.S. [2014]; "Sand spit and shoreline dynamics near Terekhol river mouth, Goa, India"; Indian Journal of Geo-Marine Sciences; 43(7).
13. Nicholas C. Kraus and William C. Seabergh [2002]; "Inlet Spits and Maintenance of Navigation "Channels"; ERDC/CHL CHETN-IV-44, USACE
14. Farraday, R. V. and F. G. Charlton, [1983]. "Hydraulic factors in bridge design"; Tech. rep., Hydraulics Research Station Ltd., Wallingford, Oxfordshire, England.
15. Brian J. Van Weele, John B. Herbich, [1972]; "Wave reflection and transmission for pile arrays"; Chapter 10, Coastal Engineering.
16. Guy Gelfenbaum, Andrew Stevens, Edwin Elias, and Jonathan Warrick, [2009]; "Modeling Sediment Transport and Delta Morphology on the Dammed Elwha River, Washington State, USA"; Coastal Dynamics 2009; Paper No. 109.

4. Observations

The analysis of long term data with satellite imageries indicate that pillar 6 is normally submerged in sandspit due to natural processes. However, occasionally there could be exposure of pillar 6 due to high fresh water discharge from the catchment.

The maximum anticipated depth at bridge pillar 6 is 0.8 m which may occur during high river discharge. The simulations were conducted to this worst case scenario for fair weather and monsoon conditions. Under the above condition, the effective area of obstruction at pillar no.6 is 3.84sq.m against the total cross sectional area of channel 900sq.m, which is not significant.

The simulation studies indicate no significant accretion during monsoon season. But during fair weather from October to April, an accretion of 10 to 20m is noticed around the pillar location. The flow simulation with this condition indicates no significant changes in the water exchange between estuary and Open Ocean.

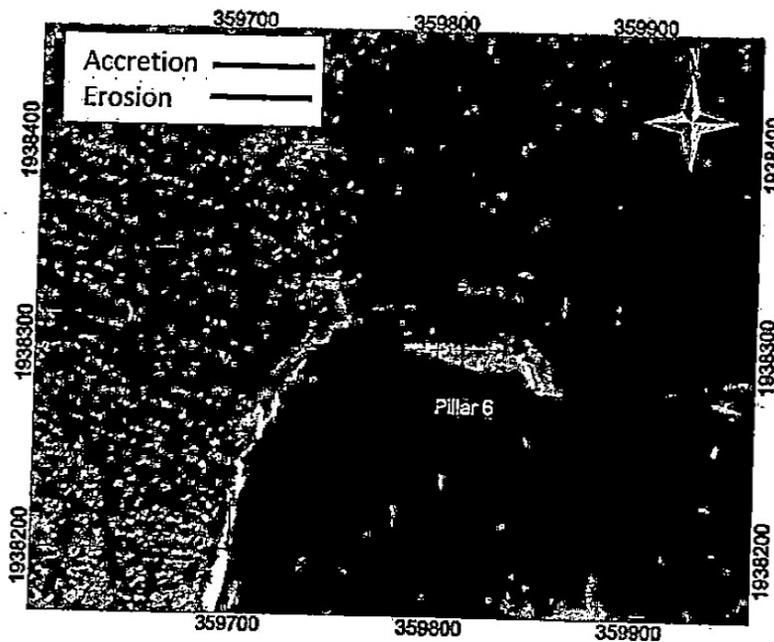


Figure 31 - Zones of possible morphology changes induced by pillar 6

MOST URGENT

552



ANNEXURE-16

GOVERNMENT OF GOA
Office of the Principal Chief Conservator of Forests
“Goa Van Bhawan” Forest Department
Altinho, Panaji, Goa

Ph: - 0832-2492548, 24925318

Email: dcfme-forest.goa@nic.in

No. 6-829-2024-25-FD/4899

Dated: 21/02/2025.

24

To,
The Deputy Director General of Forest (Central)
Ministry of Environment, Forest & Climate Change,
Government of India,
Regional office (Southern Zone),
Kendriya Sadan, Ivth Floor, E & F Wings,
17th Main Road, Iind Block, Koramangala,
Bangalore, 560 034.

Sub: - Diversion of 0.2884 ha. of forest land in North Goa Division/District for design & construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol Village of Pernem Taluka.

Ref: MoEF&CC, IRO, letter no. 4-GOB1053/2015-BAN/1356 dated 27.02.2023

Sir,

Inviting reference to the letter dated 27.02.2023, in the above mentioned subject, I am directed to submit the following:

The Managing Director, Goa State Infrastructure Development Corporation Ltd., (A Govt. of Goa undertaking), Panaji, Goa vide letter dated 13.01.2015 had submitted a proposal under Forest (Conservation) Act, 1980 for diversion of 0.2884 Ha of Private Forest Land in Sy. No. 14/1(part), 14/2(part), 15/1(part) & 15/7(part) of Tiracol village of Pernem Taluka for construction of bridge Keri to Tiracol over river Tiracol.

The Stage-I for the above proposal was accorded by the Regional Office (SZ), MoEF&CC, Bangalore vide letter no. 4-GOB 1053/2015-BAN/7826 dated 30.12.2015
(copy enclosed)

Meantime Shri Salvador Rodrigues & others filed a case in the Hon'ble High Court of Bombay at Goa in W.P No. 121/2017 against the project challenging the ownership of the land acquired by the User Agency i.e. GSIDC and in turn to revoke the Stage-I granted accorded by IRO, MoEF&CC, Bangalore. The decision of the Hon'ble High Court is awaited in the matter.

The compliance report submitted by the User Agency was forwarded to the IRO, MoEF&CC, Bangalore, vide letter no. 6-829-2020-21-FD/3739 dated **02.12.2020**.

Vide letter dated **17.03.2022** RO (C), MoEF&CC, Bangalore conveyed that, *"since the ownership of the land and Stage-I approval issued by this office have been challenged in W.P.No. 121 of 2017 before the Hon'ble High Court of Bombay at Goa and the matter is yet to be decided by the Court, it is requested that State Government's specific comments on the issue of grant of Stage-II approval at this stage may kindly be furnished"*.

RO (C), MoEF&CC Bangalore vide letter dated **27.02.2023** again requested to provide the specific comments / clear recommendation in regards to the matter pending before the Hon'ble High Court of Bombay at Goa. Subsequently the Survey nos. falling within the **diversion** proposal were verified again from the Working Plan Division and it is found that :

" Survey number 14/1 (P), 15/1(P) and 15/1-A(P) of Terekhol village of Pernem Taluka does not form part of Government Forest, Proposed Reserved Forest, Reserved Forests, Unclassed Forests, Compartment of Working Plan, Wildlife Sanctuary, National Parks, Protected Areas. Further, Survey number 14 & 15 were earlier provisionally identified as Private forest by V.T. Thomas (SLEC) Committee of North Goa Division. But after review by RC-II, the survey Number 14/1 (P), 15/1(P) and 15/1-A(P) of Terekhol village of Pernem Taluka have been found not qualify for the criteria of private forest. As such these survey nos. are no more falling in the category of private forest also. Further, as regards to Eco-Sensitive Zone of above said survey numbers the same area falls outside Eco-Sensitive Zone of Goa State" (**Abstract copy of the 2nd Interim Report of Review Committee of June, 2021 is enclosed**).

In view of the above, I am directed to convey the approval of State Government for withdrawal of the diversion proposal and to request you to kindly revoke the Stage-I clearance already granted by you vide your letter dated 30.12.2015.

Yours faithfully,



Dy. Conservator of Forest
Monitoring & Evaluation

Copy for information to:

1. The Inspector General of Forests (FC), Ministry of Environment Forests & Climate Change, Government of India, Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi, 110003.
2. The Assistant Inspector General of Forests, FC), Ministry of Environment Forests & Climate Change, Government of India, Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi, 110003 for necessary action.
3. The Dy. Conservator of Forests, North Goa Division, Ponda Goa.
4. The Managing Director, Goa State Infrastructure Development Corporation, 7th Floor, EDC House Dr. A.B.Road, Panaji-Goa-403001 for necessary action.

“Swachh Bharat, Swachh Goa”
“Clean India, Clean Goa”



सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE
Regional Office (Southern Zone),
Kendriya Sadan, IVth Floor, E& F Wings, 17th Main Road,
IInd Block, Koramangala, Bangalore – 560 034,
Tel.No.080-25635909, E.Mail: rosz.bng-mef@nic.in

**BY SPEED POST**F.No.4-GOB 1053/2015-BAN/
Dated the 30th December, 2015

7826

To

The Secretary (Forests),
Government of Goa,
Secretariat Annexe, Junta House, 3rd Floor,
Panaji (Goa)

Subject: Diversion of 0.2884 ha. of forest land in South Goa Forest Division/District for design and construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol village of Pendem Taluka.

Sir,

Please refer to Dy. Conservator of Forests, Monitoring & Evaluation, Forest Department, Government of Goa's letter No.6-829-2014-15-FD/218 dated 04/12/2015 seeking prior approval of the Central Government in accordance with Section'2' of Forest (Conservation) Act, 1980 in respect of the above project.

After careful consideration of the proposal, I am directed to convey Central Government's approval in-principle (**Stage-I**) under Section'2' of Forest (Conservation) Act, 1980 for diversion of 0.2884 ha. of forest land in South Goa Forest Division/District for design and construction of bridge connecting Keri to Tiracol over river Tiracol including approaches in Tiracol village of Pendem Taluka, for a period of 20 years, subject to the following conditions:-

1. The legal status of forest land shall remain unchanged.
2. Demarcation of the proposed forest area shall be carried out by erecting 4 feet high cement concrete pillars duly numbered at an interval of 20 meters at the cost of user agency, before issue of Stage-II clearance.
3. The cost of raising plantation of ten times the number of trees to be felled shall be realised from the user agency.
4. The State Government shall charge the Net Present Value of the diverted forest land measuring 0.2884 ha. from User Agency as per the orders of the Hon'ble Supreme Court dated 28.03.2008 and 09.05.2008 in IA Nos.826 in 566 with related IA's in Writ Petition (Civil) No.202/1995.
5. Additional amount of the Net Present Value (NPV) of the diverted forest land if any, becoming due after revision of the same by the Hon'ble Supreme Court of India in future, shall be charged by the State Government from User Agency. User Agency shall furnish an undertaking to this effect.

F.No.4-GOB 1053/2015-BAN/

6. The User Agency shall make online payment of cost of Net Present Value with Adhoc-CAMPA through e-payment module of Forest Clearance portal- forestclearance.nic.in.
7. The total forest area utilized for the project shall not exceed 0.2884 ha.
8. All other approvals required, if any, under different Acts shall be obtained before commencement of work.
9. Any other condition that the Additional Principal Chief Conservator of Forests (Central), Regional Office, Bangalore may impose from time to time for protection, improvement of flora and fauna in the forest area and public convenience, shall also be applicable.
10. Violation of any of the conditions shall invite penal action, as deemed fit by the Additional Principal Chief Conservator of Forests (Central), Regional Office, Bangalore.

After receipt of the compliance report on the above conditions, the proposal will be considered for final approval. Transfer of forest land to User Agency shall not be effected prior to the issue of final approval. This in-principle approval shall be valid for a period of 5 years. In the event of noncompliance of the above conditions, this in-principle approval shall automatically stand revoked after 5 years.

Yours faithfully,


 (Dr. Avinash M. Kanfode) 30/12/15
 Conservator of Forests (Central)

Copy to:-

1. The Director General of Forests & Special Secretary to Govt. of India, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, Agni Wing, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. The Principal Chief Conservator of Forests, Forest Department, Government of Goa, Panaji (GOA), PIN- 403001.
3. The Deputy Conservator of Forests (Monitoring & Evaluation)/Nodal Officer (FCA), Office of the Principal Chief Conservator of Forests, Forest Department, Government of Goa, Panaji (GOA), PIN- 403001.
4. The Managing Director, Goa State Infrastructure Development Corporation Limited (A Govt. of Goa Undertaking), Panaji (Goa).
5. Guard file.


 (Dr. Avinash M. Kanfode) 30/12/15
 Conservator of Forests (Central)

o/c 30/12/15



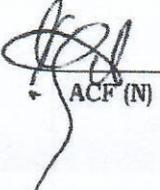
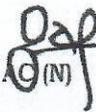
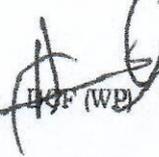
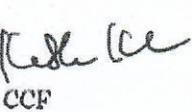
GOVERNMENT OF GOA

**2ND INTERIM REPORT OF REVIEW COMMITTEE
ON
REVIEW OF PRIVATE FOREST AREAS
IDENTIFIED BY NORTH GOA & SOUTH GOA DISTRICT COMMITTEE
(V. T. THOMAS & F. X. ARAUJO)**

JUNE 2021

List of survey numbers not qualifying private forest criteria reviewed by the Review Committee meeting held on 10.06.2021

58	Bardez	Penhe de Franca	140	NON QUALIFY	Survey number does not qualify the criteria of private forests
59	Bardez	Penhe de Franca	146	NON QUALIFY	Survey number does not qualify the criteria of private forests
60	Bardez	Penhe de Franca	147	NON QUALIFY	Survey number does not qualify the criteria of private forests
61	Bardez	Penhe de Franca	149	NON QUALIFY	Survey number does not qualify the criteria of private forests
62	Bardez	Penhe de Franca	150	NON QUALIFY	Survey number does not qualify the criteria of private forests
63	Bardez	Penhe de Franca	151	NON QUALIFY	Survey number does not qualify the criteria of private forests
64	Bardez	Penhe de Franca	181	NON QUALIFY	Survey number does not qualify the criteria of private forests
65	Bardez	Penhe de Franca	182	NON QUALIFY	Survey number does not qualify the criteria of private forests
66	Bardez	Siolim	198	NON QUALIFY	Survey number does not qualify the criteria of private forests
67	Bardez	Siolim	222	NON QUALIFY	Survey number does not qualify the criteria of private forests
68	Bardez	Camorlim	168	NON QUALIFY	Survey number does not qualify the criteria of private forests
69	Bardez	Camorlim	169	NON QUALIFY	Survey number does not qualify the criteria of private forests
70	Bardez	Assagao	69	NON QUALIFY	Survey number does not qualify the criteria of private forests
71	Bardez	Assagao	128	NON QUALIFY	Survey number does not qualify the criteria of private forests
72	Bardez	Assagao	129	NON QUALIFY	Survey number does not qualify the criteria of private forests
73	Bardez	Parra	214	NON QUALIFY	Survey number does not qualify the criteria of private forests
74	Bardez	Parra	213	NON QUALIFY	Survey number does not qualify the criteria of private forests
75	Bardez	Parra	212	NON QUALIFY	Survey number does not qualify the criteria of private forests
76	Pernem	Terekhol	14/1 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
77	Pernem	Terekhol	15/1 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
78	Pernem	Terekhol	15/1-A (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
79	Pernem	Arambol	185/1 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
80	Pernem	Arambol	186/1 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
81	Pernem	Paliem	154/1 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
82	Pernem	Paliem	155/1 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
83	Pernem	Paliem	155/3 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
84	Pernem	Paliem	155/4 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
85	Dharbandora	Codli	168 (p)	NON QUALIFY	Survey number does not qualify the criteria of private forests
86	Mormugao	Dabolim	37	NON QUALIFY	Survey number does not qualify the criteria of private forests
87	Mormugao	Dabolim	38	NON QUALIFY	Survey number does not qualify the criteria of private forests
88	Mormugao	Dabolim	43	NON QUALIFY	Survey number does not qualify the criteria of private forests

 ACF (N)
  ACF (S)
  AC (N)
  AC (S)
  DIR (DSLRL)
  DIR (AGRI)
  DOP (WB)
  CCF