WEST BENGAL STATE COASTAL ZONE MANAGMENT AUTHORITY
Pranisampad Bhaban, 5th Floor, Block-LB-2, Sector-III, Salt Lake, Kolkata — 700 106
Tel : 033 23355246
Fax : 033 23350271
Email — environmentwb@gmail.com
Website : www.environmentwb.gov.in

Date :23/6/2021

No.968 /EN/T-II-4/009/2018

To :-

1. The Addl. Chief Secretary, Department of Urban Development & Municipal Affairs, Govt.of WB. – **Member** secy.ma-wb@gov.in
2. The Principal Secretary, Department of Fisheries, Govt. of WB. — **Member.** prsecy.fisheries@gmail.com
3. The Principal Secretary, Department of Sundarban Affairs, Govt. of WB. – **Member** prsecysad5@gmail.com
4. The Addl. Principal Chief Conservator of Forests & Director, Sundarban Biosphere Reserve, Directorate of Forests, Govt. of WB. — **Member.** wbwildlife@gmail.com
5. Sri Sandip Chatterjee, Ex-Engineer-in-Chief, Dept. of Public Health Engineering, GoWB. — **Member.** sandip1952@gmail.com
6. Dr Parthasarthi Chakraborty, Former Chief Scientist, Geo-informatics and RS Cell, Deptt. of Science & Technology, GoWB. — **Member**. psarathic@rediffmail.com
7. Director, School of Oceanographic Studies, Jadavpur University, Kol-32. dir.oceanography@jadavpuruniversity.in
8. Chief Executive Officer, Kolkata Metropolitan Development Corporation

Sir,

I have been directed to forward herewith the minutes of 11th meeting of WBSCZMA held on 17.6.2021 regarding **CRZ clearance of the proposed offshore submerged reef at Gangasagar** by Gangasagar Bakkhali Development Authority (GBDA) for your kind information and necessary action.

Enclos: As stated.

Senior Environment Officer,
Deptt. of Environment, Govt. of West Bengal.

Copy forwarded to :-

1. Prof. Sugata Hazra, School of Oceanographic Studies, Jadavpur University, Kol-32. Sugata Hazra sugata_hazra@yahoo.com
2. Shri Biplab Mukhopadhyay, Deputy Secretary (Works), Irrigation & Waterways Department, Govt of West Bengal, Jalasampad Bhavan, 3rd Floor, Kolkata – 700 091. biplab_mukherjee05@yahoo.co.in
3. The Member Secretary, West Bengal Pollution Control Board. ms@wbpcb.gov.in
4. The Director, Institute of Environmental Studies and Wetland Management, ieswm@gmail.com contact.ieswm@gmail.com
5. Sri Sambhudwip Sarkar (WBCS Exe.), Executive Oficer & Member Secretary, Gangasagar Bakkhali Development Authority (GBDA), Vill & P.O. Gangasagar, P.S. Sagar, Dist. South 24 Pgs. eo.gbda@gmail.com - *The Project Proponent is requested to rectify and resend the application/PPT as per the discussion held on 17.6.2021, during the 11th meeting of WBSCZMA, at the earliest. The Project Proponent is also requested to inform a convenient date and time for holding the next meeting/PPT presentation.*
6. Sri Debasish Sengupta, Ultratech, CG 229, Sec-II, Salt Lake, Kolkata-700091, on behalf of GBDA debasish@ultratech.in

Senior Environment Officer,
Deptt. of Environment, Govt. of West Bengal.

MINUTES OF THE 11th MEETING OF WEST BENGAL STATE COASTAL ZONE MANAGEMENT AUTHORITY (WBSCZMA) HELD ON 17TH JUNE, 2021 IN THE CONFERENCE ROOM OF DEPARTMENT OF ENVIRONMENT, GOVERNMENT OF WEST BENGAL

The following members/officials attended the meeting:

1. The Addl. Chief Secretary, Department of Environment, Govt. of West Bengal.
2. Shri K. Balamurugan, Chief Environment Officer & Member Secretary of WBSCZMA
3. Smt. Tripti Sah, Senior Environment Officer, Environment Department
4. Mr. Chayan Gayen, Assistant Environmental Engineer, WBPCB.
5. The Addl. Principal Chief Conservator of Forests & Director, Sundarban Biosphere Reserve, Directorate of Forests, GoWB. — Member
6. Director, Institute of Environmental Studies and Wetland Management
7. Shri Biplab Mukhopadhyay, Deputy Secretary (Works), Irrigation & Waterways Department, Govt of West Bengal, Jalasampad Bhavan, 3rd Floor, Kolkata – 700 091.

The following officials attended the meeting on behalf of project proponents:

8. Chief Executive Officer, Kolkata Metropolitan Development Authority.
9. Shri Sambhudwip Sarkar (WBCS Exe), Executive Officer & Member Secretary, Gangasagar Bakkhali Development Authority (GBDA) , Vill & P.O. Gangasagar, P.S. Sagar, Dist. South 24 Pgs.
10. Sri Debasish Sengupta, Ultratech ,CG 229, Sec –II,Salt Lake, Kolkata – 700091 on behalf of GBDA

The following experts who were virtually present were :

11. Dr Parthasarthi Chakraborty, Former Chief Scientist, Geo-informatics and RS Cell, Deptt. of Science & Technology, GoWB. — Member
12. Prof. Sugata Hazra, Director, School of Oceanographic Studies, Jadavpur University,Kol-32
13. Mr. Sandip Chatterjee, Ex-engineer in Chief, PHED.
14. Dr. Sundar Vallam, IIT Madras
15. Dr. Sannasiraj, IIT Madras.

Proceedings:

The Chief Environment Officer & Member Secretary of WBSCZMA welcomed everybody and initiated the discussion. The Additional Chief Secretary of the Department chaired the meeting.

Agenda:

The agenda of the meeting was **CRZ clearance of the proposed offshore submerged reef at Gangasagar (to counter severe erosion at Sagar Island).**

Project Brief:

The project proponent is the **Gangasagar Bakkhali Development Authority (GBDA)**, Govt. of West Bengal. Through a Powerpoint presentation the GBDA gave details of their proposed project regarding construction of submerged offshore structure (reef) of about 2.30 km length at 2.30 m water depth and 150-200 m from Low Tide Line at a cost of Rs. 57.38 Crore to protect the shore situated at a coordinate of 21°37'57.31"(N) and longitude 88°4'29.28"(E) and also there lies the famous Kapil Muni Temple (21°38'15.35"N, 88°4'30.56"E), in the Gangasagar Mouza (JL No 38), Sagar Block, South 24 Parganas district by. The area is under severe threat from erosion.

The project site is of about 40,300 sqm. lying within CRZ-IVA, CRZ-IB and CRZ-1A as per CRZ Notification 2011 and approved CZMP, 2011 on scale 1:25000. According to the CRZ map provided by IESWM the proposed site falls under CRZ -IVA, CRZ – IA and CRZ – IB category. As per the 2019 survey conducted by IIT, Madras, the site falls within CRZ-IVA. Through the ppt GBDA highlighted the socio-economic perspective of this severed erosion problem, environmental settings of the project area, flora and fauna especially endangered faunal species including Olive Ridley Turtles; National Park, salt marshes, turtle nesting grounds, birds nestling ground, horse shoe crab and sea bed within the site of the project. The ppt also mentioned the values of physico-chemical parameters of Inland Fresh Water Quality and other heavy metals and marine water quality. GBDA also assured that there will be no displacement and resettlement of local

ople for this project, no change in land use and there will be no loss of vegetation also for this project. GBDA also presented the Environmental Impact and the mitigation measures while dealing with hazardous materials. The matter of soil erosion, regulated logging, sand mining, quarrying, Waste Water Management, Solid Waste Management with an objective of 'Plastic Free" surroundings during the Gangasagar Mela were also mentioned in the ppt along with process of Ground water extraction. Besides these, regular water sprinkling to control fugitive dust, valid emission control certification to control smoke emission, noise reduction steps, fuel spill control measures, adequate sanitation facilities for proper hygiene in project area were also mentioned by GBDA. The ppt also mentioned that the project will not have any impact during its operational stage, as an extended part of shoreline protection casurina / jhaw belt abutting the coast from Burir Khal to Gangasagar Khal will be augmented with appropriate species as per CPCB guidelines. Similarly, mangrove plantation will be undertaken in the intertidal patch near the mouth of Gangasagar khal. GBDA will develop a Response Mechanism in coordination with District Disaster Management Committee (DDMC) to counter any impending disaster.

Deliberation:

After the presentation was over the following issues were raised by the experts -

(1) The structure of geotextile portion, and its subsequent laying process was enquired about.

(2) The experts emphasised that as the proposed geo-tube project is much more complex than usual and is the first of its kind in eastern India, the consultant need to use the right documents, data, information, formulae, assumptions and material-tests to establish its points, so that the proposed structure will be able to withstand the huge wave action.

(3) The experts asked about the time and speed that will be taken by the structure to go down?

(4) Experts raised the issue about safety of the monolithic structure with displacement of sand from the bottom of the structure due to wave activities. Sea bed erosion study was suggested before the project implementation. Experts also raised concerns about macro-tidal effect and shifting of Gangasagar mouth at regular interval and suggested for consultation with GSI. Shifting of HTL at a rate of 400 mtr. towards shoreline also found a mention along with clear mentioning of aquifer depth which is missing in the DPR. It was also suggested that GBDA has not mentioned what will happen if the whole structure will go at a time as the particular site is just 200m away from the LWT.

(5) It was suggested that GBDA to keep in mind the shifting of shoreline study in the long run and to consult GSI's IGCP data in this regard. It was suggested to consult previous Topo sheets, latest satellite images and background data to calculate accurate numerical average of shoreline erosion every year.

(6) The issue of impact of deposition which will further bring HTL landwards on this project. Some more clarifications were sought by the experts such as intervention of geo mat with the fishing trawler impacting livelihood of local fishermen. Jurisdiction of GBDA in taking up the work in the areas was also questioned. Study of littoral depth, sand accumulation, wave current at the project site were suggested before implementation. Development of sand dunes in the site was also brought to the notice.

(7) The Project Proponent was requested to provide season-wise division of zooplankton and phytoplankton for the proposed project area.

(8) It was also advised to mention the exact process of harnessing ground water by deep tubewell or otherwise especially falling under the CRZ area as well as depth of the aquifer tapped for H2O sample.

(9)The following points were also raised regarding -

(A) IIT, Madras Report and presentation (ppt) –

(a) 5.0 – shoreline changes "significant level of erosion is observed at the site through years";
(b) 6.0 – requirements for a detailed evaluation for Protection Measures, 1st Bullet; PPT slide No.15-solution: last pt. 'shoreline survey, beach profile survey...'. Slide No.16—Model studies: pt. 2 "sediment transport modelling."
(c) As background information round the year database from GSI, Kolkata on "Repeated beach profiling (to study GRL in each Spring and Neap tide days) and Seasonal (viz. Winter, summer, rainy)

Geomorphological Mapping (on 1:5000 scale) since 1986/87 to 1992/93 to be consulted along with report of IESWM 3.2 – General Physiography, 2nd para).

(d) He raised question regard fixation of the proposed structure at 2.30 km.

(B) Mackintosh Burn Report and ppt (i) refer 2.3A – bullet 2:Erosion...5m/year.; bullet 3:change in shoreline. 3.2.1: Geology and Geomorphology.

In 3.2.1 2nd para – "much of this region below 4m. Contour level (Fig.3.1)". According to the Fig.3.1, the Kapil Muni temple area is around 3m. Contour level – differs from the IIT, Madras data provided in4.2.2 (Beach Profiling data) and 4.2.3 (Shore line Mapping-Fig.5); where the R.L. of 'O" Station of three beach transects vary between 5.0 to 6.0 m. R.L. and "demarcates the HTL (4.99 M)". It was suggested to use DGPS while taking SOI BM (3.2m) at Beguakhali, Sagar Island instead of Hand Held GPS.

(ii) Regarding shoreline shifting with long term perspective: a comparative study of the SOI toposheet (1970 ed. Surveyed in 1967-68), Seasonal Beach Maps (on 1:5000 scale), 1987-88, Geological Survey of India, 2010/11 HWL/HTL of NCSCM and 2020/21 HWL/HTL of IESWM, Govt. of WB may be carried out

(10) Project Proponent was requested to clarify whether the proposed project site of GBDA and its reef structure will fall into the route of fishing trawler and international maritime route and if so whether the said structure will obstruct it or not?

(11) As the tide enters from the Sagar island so whether the presence of this project will have any impact on the wave and further any consequence by this reef will happen on the western part reaching upto Digha Mohana. In this regard it was suggested that GBDA should specifically mention the ebbing or silting effect at Digha Mohana by this proposed reef of GBDA.

(12) How fast sediment accumulation will take place and how fast land mass on the northern part of the Sagar island will come up was requested to be mentioned by GBDA.

(13) Model showing how fast the lee side will be filled up with sedimentation and whether dredge spoil collected from Sagar-north can be used for faster land filling was questioned.

(14) Under the disaster management plan Project Proponent was requested to specify/model how such structure would with stand 3-6 meter high surge or high wind (200kmph) driven wave current environ [as happened during Amphan/Yaas) and what measures are to be taken to protect it.

(15) The contradiction about horseshoe crab habitat between IESWM and IIT Chennai, supported by field observation needs to be resolved

(16) Correction: Slide 36,point 2 mangroves,Cerios decadra = Jele goran , Ceriops tagal=Math goran, and Sonneratia griffiti= Ora

Representative from Irrigation and Waterways, Government of West Bengal raised the issue that:

(i) The ppt of GBDA have not mentioned any mathematical model study, so they suggested to submit a Mathematical Model study as per present scenario i.e. after the recent devastating Yash cyclone.

(ii) The Reduced Level (R.L.) height in Beguakhali, Kachuberia Irrigation Bungalow is 3.98 metres, so the height of the wave was required to be calculated properly.

Reply from the Project Proponent:

In reply to the above queries of the experts on behalf of GBDA, Dr. Sundar of IIT Madras clarified virtually that –

(i) Dr.Sundarlal Vallam pointed out that the said monolithic structure is actually an assemblage of smaller structures bound with geo mat around the whole structure which will gradually anchor the structure with the sea bed. The sand will accumulate below the structure gradually over the years and will

finally settle there without making the structure a rigid one.

(ii) The 3 metres portions on either side of the structure will go down, but not the total structure.

(iii) He assured that this reef structure at Sagar Island near Kapilmuni temple will also consolidate the western side of the beach.

(iv) He stated that the said submerged structure of the reef is a retaining structure of the island and will immensely help the island to rebuild its land mass.

(v) He assured that the submerged structure will not at effect any of the estuaries on both sides.

(vi) He clarified verbally that the geotextile component of this reef will retain the sand which the geocontainers will be filled up within a couple of years providing good result on the overall health of the structure of the island.

(vii) He suggested that if sand nourishment is done in the proposed area then it will be good for the project site as well as the whole of the island.

(viii) He reiterated that the proposed reef structure of the GBDA is an eco-friendly project and it will immensely help to protect the ancient Kapilmuni temple as well as will act as betterment of the livelihood of the socio-economic condition of the islanders.

Professor S. Sunderballam on behalf of GBDA also clarified that –

(i) In support of the project Dr. Sundar Vallam submitted that the proposed structure will help in retaining sand and allow sea water to go over it and thus preventing on-going erosion by filling up the beach in the process. He mentioned about having the experience of implementation of 300 such projects. Dr. Sannasiraj SA of IIT-M supported his view and added that the canals will act as boundary and prevent any adverse impact on the western and eastern side of the island, as the concerns were raised by the experts.

The Executive Officer of GBDA mentioned that –

(i) The sea is engulfing the island at a much greater speed than estimated, roughly about more than 50 metres of land has been eroded since Amphan and recent Yaas cyclone, so the project is very much needed to protect the Sagar island from severe threat of erosion.

Action Point:

The Additional Chief Secretary, Department of Environment concluded the meeting by stating that –

(i) GBDA will resubmit point wise replies in details of the queries raised by the experts especially mentioning the (i) desiltation process of the proposed reef structure (ii) impact of the project upon International maritime route as well as fishing trawler route (iii) Mathematical model of the project and others.

(ii) To send the newly submitted replies to the expert members for further examination.

(iii) To conduct the next meeting in this regard at the end of next month.

The meeting then ended with vote of thanks to and from the chair.

Chief Environment Officer,
Dept. of Environment, Govt. of West Bengal,
& Member Secretary,
West Bengal State Coastal Zone Management Authority