

**MINUTES OF 9th MEETING OF
COASTAL PROTECTION & DEVELOPMENT ADVISORY COMMITTEE
(CPDAC)**

The 9th meeting of the Coastal Protection & Development Advisory Committee (CPDAC) was held at Port Blair (A&N Islands) during 23rd-25th January 2006, under the Chairmanship of Shri S. K. Agarwal, Member (River Management), CWC, and ex-officio Additional Secretary to the Govt. of India. List of participants is enclosed at Annexure-I.

2. After presentation of bouquets and lighting of the lamp, Sh. G. C. Khattar, Secretary & Chief Engineer, APWD, welcomed the Chairman and the delegates of the CPDAC. He expressed happiness for arranging this meeting in A & N Islands and hoped that it would contribute to adoption of effective and economical measures for control of sea erosion and development of coastal areas of these islands. Shri S. C. Awasthy, Member-Secretary, CPDAC welcomed all the delegates to this meeting and assured that committee would take up initiative in preparation and finalization of proposal for protection of coastal areas of A & N Islands. He gave brief background of constitution of Beach Erosion Board, which was later reconstituted as CPDAC. Shri S. K. Agarwal, Chairman, CPDAC, thanked Shri Khattar, Chief Engineer, APWD, A & N Administration for hosting the 9th CPDAC meeting at Port Blair and highlighted the urgency in protecting the coastal areas from erosion specially in view of vast damages caused by recent Tsunami. He said that protection of coastal areas requires careful planning, design, execution of works and management of coastal belt. Training and exposure to advanced technology play a vital role in taking up of economical and eco-friendly measures. In his speech, Chairman, CPDAC, emphasized the need to formulate the National Coastal Protection Project (NCP) at the earliest and requested the participants of different coastal States/UTs to expedite the finalization of proposals. In this regard, he invited attention of delegates from the States of A.P., Goa and Gujarat who are required to comply with observations of CWC and Lakshadweep who are to modify the proposal in view of suggestions made by a team of officials of CWC and CW&PRS who visited the Islands in December 2005. He specifically requested Chief Engineer, PWD, A&N Islands to expedite submission of proposal to CWC. He also requested the various States/UTs to review their proposals in view of recent tsunami and modify, if required. The inaugural session concluded with a vote of thanks proposed by Shri P. K. Singh, Superintending Engineer (Planning), APWD, Port Blair.

3. At request of the Chairman, Sh. S.C. Awasthy, Member-Secretary, CPDAC, took up the agenda items for detailed discussions in the meeting.

9.1 CONFIRMATION OF THE MINUTES OF 8th MEETING

The minutes of the 8th CPDAC meeting, held at Bhubaneswar (Orissa) on 17th June 2005, as circulated vide letter no.4/5/2005-CED/516-552 dated 4th July 2005 and as modified vide letter no.4/5/2005-CED/672-707 dated 28th August 2005 were confirmed.

9.2 STATEWISE COASTAL LENGTHS

The coastal States/UTs were requested to appraise the Committee of the status of reconciliation of their States/UTs coast length with National Hydrographic Office (NHO), Dehradun. Shri D. H. Patel, S. E., CDO, Gujarat, informed that they have recently visited NHO regarding reconciliation of Gujarat coastline. He informed that Secretary, NWR&WS Department, Govt. of Gujarat, desired validation of coastline as per latest survey for which Govt. of Gujarat would contact the NHO. Commander S. K. Mittal, from NHO, informed that river mouths and creeks are not taken as a part of coastline as per international guidelines. He informed that NHO has done revalidation of coast length of Karnataka State and the same may be done for other States/UTs also. Captain R. Mohan, Director (Ports & IWT), Karnataka, informed that NHO has confirmed Karnataka coastline as 300 km. Captain Mohan would furnish concerned documents to CPDAC Secretariat.

Chief Engineer, ALHW, requested to reassess the coastline of A & N Islands after tsunami. Dr. P. C. Basu, Director, GSI, also emphasized the need to regularly update coastline of the islands, which are susceptible to subsidence or uplift.

NHO representative was requested to furnish state-wise coastline as per latest records/charts available with them. Also, NHO was asked to exclude Daman & Diu from Goa coastline and furnish the length of those separately. NHO representative was requested to furnish detailed criteria for measuring coastline for discussion by the CPDAC and if the criteria is acceptable to all the States/UTs, then the coastal lengths worked out by the NHO would be considered as final.

(Action: NHO, Gujarat, West Bengal, Maharashtra, Goa, Karnataka, Kerala, UT of Andaman & Nicobar Islands and Pondicherry)

9.3 DATA COLLECTION, COMPILATION, ANALYSIS AND PUBLICATION

During the meeting, the need and importance of collection of coastal data were discussed. It was observed that the sufficient data are not available for formulation of anti-erosion schemes and schemes are formulated on ad hoc basis. Whatever data are available, are not given in the DPR. Now, it would be mandatory for providing all the available data in the DPR of any scheme proposed by the State/UT. During visits of erosion sites, discussions are held generally in qualitative terms and not in quantitative terms due to which the design aspects generally remain sub-optimal.

CWPRS was asked to prepare inventory of the data available with them for information of CPDAC and also digitize the same. It was informed in the meeting that there is shortage of staff with the States for this work. It was, therefore, agreed that where necessary, the work should be outsourced by the States/UTs. CWPRS may prepare a list of the agencies to whom the data collection work could be outsourced.

States/UTs were requested to supply available data to CWPRS without waiting for all the data listed in the format supplied by CWPRS. It was also agreed that item on

data collection may be kept in NCPP as central component and sufficient provision should be made for data collection.

(Action: Coastal States/UTs, CWPRS, CWC)

9.4 RESEARCH AND DEVELOPMENT

9.4.1 RESEARCH PROPOSALS

Shri S. C. Awasthy, Member-Secretary, CPDAC informed the Committee about the status of release of funds for the research proposal titled %Assessment of shoreline changes in the vicinity of Ennore port due to construction of breakwaters+under R&D programme of Ministry of Water Resources.

Gujarat representative mentioned that a R&D proposal was submitted to INCH, but the same had not been cleared. He was asked to furnish details so that CPDAC Secretariat could pursue the matter with the Director (FE&SA), CWC & Member Secretary, INCH.

All other member States were requested to expedite submission of their research proposals to MoWR/INCID for funding under intimation to CPDAC Secretariat who would pursue with the concerned officials.

The work of launching of CPDAC website is being taken up by the CPDAC Secretariat. Member-Secretary, CPDAC, was requested to expedite the formal launching of the website. Members were requested to regularly enrich the website by sending the material to CPDAC Secretariat.

(Action: CPDAC Secretariat, Gujarat, other member States/UTs)

9.4.2 COASTAL ATLAS

Member-Secretary, CPDAC informed that the proposal to prepare Coastal Atlas, estimated to cost Rs. 2.23 crores, had been recommended to the Ministry of Water Resources for approval and release of CWC's share of Rs. 1.10 crore to Space Application Centre (SAC), Ahmedabad. SAC, Ahmedabad has conveyed its commitment to fund the balance amount of Rs.1.13 crores from its resources. CPDAC Secretariat was asked to pursue with Ministry of Water Resources for early release of the funds to SAC. It was decided during the meeting that NHO may be invited as special-invitee in future meetings of the Sub-committee for preparation of Coastal Atlas.

As decided during the 7th meeting, Director, Beach Erosion Directorate (BED), CWC, Cochin, was asked to co-ordinate the collection of the coastal data required for incorporation in the Coastal Atlas. Director, BED, informed that the relevant information had been received only from Gujarat and Pondicherry. The Chairman requested the other States/UTs to furnish the requisite information to Director (BED), CWC, for incorporation in the Coastal Atlas.

(Action: Director (BED), CWC/ States/UTs)

9.4.3 INSTITUTIONAL STRENGTHENING

9.4.3.1 ORGANISATIONS

As per the available information, only Maharashtra State has exclusive division for planning and execution of coastal protection works. Other States/UTs were requested to apprise of the status of setting up of exclusive division for planning and execution of coastal protection works and, if already set up, may furnish its details. S. E., CDO, Gujarat, informed that they are trying to set up an exclusive coastal engineering cell under Gujarat Engineering Research Institute (GERI). During the discussion, some participants informed that they have appointed nodal officers for coastal protection activities. It was pointed out that nodal officers just co-ordinate the activities on coastal erosion, but do not contribute to transfer of knowledge and expertise. In order to retain experience and develop expertise, it would be advisable for the States/UTs to create dedicated units at the headquarters.

9.4.3.2 TRAINING AND STUDY TOURS

All member States have been arranging training courses for their officers on coastal processes, protection measures, etc., through CWPRS, Pune/ academic institutions/other Central/State agencies from time to time. CWPRS representative informed the Committee that the training had been provided to the officers of Maharashtra, Gujarat, Tamil Nadu, Karnataka and Orissa. The training courses for the officers of Andhra Pradesh, Kerala, Goa and A&N Islands could not be organized.

CWPRS was asked to conduct courses at Pune and invite nominations from all coastal States rather than restrict the course to one State at a time as it may be difficult for the States to spare officers in one go but they may be willing to spare two to three officers at a time. CWC was asked to explore possibility of organizing trainings/study tours abroad with a view to update the technology. Funds may be provided under NCPP.

(Action: CWPRS, CWC)

9.4.3.3 WORKSHOPS AND SEMINARS

The workshops and seminars are required to be conducted at regular intervals for dissemination of knowledge and sharing of experience gained by indigenous efforts. Prof V. Sundar, IIT Chennai, was asked to explore possibility of arranging one-day workshop wherein foreign experts may present the different practices adopted for coastal protection works in their countries. He informed that an International Symposium was being organized at IIT, Chennai, and he would explore possibility of combining it with the proposed Workshop. Possibility of part funding out of R&D funds with MoWR would be examined if a proposal is received.

(Action: Prof V. Sundar, IIT Chennai/ CWC)

9.5 MANUAL ON CONSTRUCTION TECHNIQUES OF COASTAL PROTECTION WORKS

Earlier efforts by the sub-committee constituted to bring out a manual for execution of coastal protection works through contract to consulting institutions have not borne fruits so far. However, during the meeting of the Steering Committee held on 17th October 2005 at NIO, Goa to review updating of the design manual, 'Protection and Control of Coastal Erosion in India', it was agreed that the manual for execution of coastal protection works could be prepared by CWPRS as a part II of the design manual so as to avoid duplicity of contents of both the manuals. Prof Sundar pointed out that US Army Corps of Engineers had published an elaborate Coastal Engineering Manual on coastal protection works, which had been adopted by European countries as well. India could also adopt the same. He was requested to send a copy of the same to CPDAC Secretariat. It was, however, felt that India could have a manual of its own which would suite Indian conditions.

CWPRS, Pune was asked to expedite submission of the detailed estimate for preparation of manual for execution of coastal protection works after including charges of NIO, if any, on account of printing/ binding etc. The draft manual for execution of coastal protection works may be presented in the next CPDAC meeting.

(Action: CWPRS, Pune/NIO, Goa)

9.6 REVIEW OF THE EXISTING WORKS

The Convenor, sub-committee for performance evaluation of coastal protection works, made a presentation on visit of the sub-committee to Goa State in October 2005 to carry out performance evaluation of coastal protection works. The sub-committee observed during the visit that beach environment in Goa is under stress due to considerable rise in tourism. The sub-committee emphasized the need of systematic collection and documentation of coastal data; establishing reference pillars, baselines and benchmarks; vetting of design by research institutes before implementation and regular maintenance of coastal protection works.

9.7 PREPARATION OF INDIAN SHORE PROTECTION MANUAL

The Committee was informed that the second meeting of the steering committee, constituted to review updating of the manual, 'Protection and Control Erosion in India', was held at NIO, Goa, on 17th October 2005, to discuss the first draft report of the manual, 'Protection and Control of Coastal Erosion in India' submitted by NIO, Goa. Out of total six chapters, three chapters were incorporated by the NIO in the first draft report of the manual. The observations of the members of steering committee raised during the meeting have been communicated to NIO for incorporation in the manual. Further, invoice for Rs. 4,17,702 towards second installment for the above work has been received from NIO, Goa alongwith the expenditure statement of the first instalment. The release of second instalment is

under process. All the State/UTs were requested to send the requisite information to NIO for incorporation in the manual.

9.8 NATIONAL COASTAL PROTECTION PROJECT (NCPPI).

The States of Andhra Pradesh, Goa and Gujarat were requested to expedite compliance of CWC comments. A team of Officials of CWC and CWPRS visited Lakshadweep islands recently; the report of the visit would be submitted shortly. The team would also help in formulation of the NCPPI proposal of the Lakshadweep. A&N administration was asked to formulate its proposal at the earliest using knowledge gathered during the CPDAC meeting. Chief Engineer, ALHW, agreed to help A&N PWD in formulation of the proposal. CWC & CW&PRS could also help if such a request is made by the Administration.

(Action: Andhra Pradesh, Goa, Gujarat, Lakshadweep, A & N Islands)

9.9 BENEFIT COST RATIO CRITERIA

During the meeting, problem faced by the maritime States in justifying anti sea erosion proposals on B. C. Ratio criteria was discussed. The committee was informed that the matter of relaxing B C Ratio had been taken up in the past with Planning Commission. Planning Commission has been of the view that such relaxation should be given only as a last resort after the project authorities have tried all other alternatives.

It was suggested to States/UTs to evaluate the benefits due to tourism, which otherwise would suffer due to diminishing beaches and increase due to widening/creation of beaches, benefits due to preservation & restoration of environment, forest and ecology in monetary terms and incorporate in BC Ratio calculations. If still some schemes are failing in B.C. Ratio criteria, which otherwise are necessary in public interest, the matter can be taken up with the Planning Commission for relaxation case by case basis.

9.10 NEW TECHNOLOGIES IN COASTAL PROTECTION WORKS

During the meeting the following presentations were made:

- (a) Presentation by Shri A. Sekar, Chief Engineer, ALHW, on protection measures already taken up in A & N Islands by ALHW in their jurisdiction near ports/harbours.
- (b) Presentation by Shri M. D. Kudale on %Impact of Tsunami on Indian Coast+.
- (c) Presentation by Shri Reddy, S.E., APWD, on the various erosion sites visited during the meeting.
- (d) Presentation by Shri M. D. Kudale on %Beach Nourishment Work at INS Hamla, Mumbai+.
- (e) Presentation by Shri B. M. Rao, CE (K), Gujarat, on Kalpasar project.

- (f) M/s Z-Tech Ltd. made a presentation on the role of Geo textiles in Coastal Protection
- (g) M/s Garware-Wall Ropes Ltd. also made a presentation on the role of Geo textiles in Coastal Protection.
- (h) M/s DHI India Ltd. made a presentation on optimal use of numerical modeling tools in connection with coastal development and protection works.

It was agreed that the States/UTs can plan their works in view of the technologies presented by the various agencies after ascertaining techno-economic and environmental aspects.

9.11 MASTER PLAN FOR COASTAL PROTECTION

It was decided during the meeting that the Ministry of Environment & Forests will be asked to submit Integrated Coastal Zone Management Plans for all the Maritime States/UTs for comments. The Maritime States/UTs should interact with the concerned State Coastal Zone Management Authority for obtaining the plans even in draft stage and convey their views on the proposal. The Master Plan for Coastal Protection should be consistent with such Management Plans. A&N administration assured to study the Plan handed over to them by CWC at the earliest and come up with a Master Plan of their own.

(Action: States/UTs, MOEF, CPDAC Secretariat)

9.12 COMPOSITION OF CPDAC

Out of the three experts nominated as non-official member of CPDAC, Dr. Vallam Sundar, Professor, IIT, Chennai and Smt. A. Komalavalli Amma, Chief Engineer (Retd), Kerala attended the meeting. CPDAC welcomed these officers.

Dr. V. Sundar, IIT, Madras, made a presentation on the coastal protection works designed by IIT, Madras. Smt. A. Komalavalli Amma suggested to explore the possibility of adopting new techniques of coastal protection and visit to those areas where such modern techniques have been executed.

They also contributed effectively to the deliberations of the Committee on various issues.

9.13 STATUS OF COASTAL PROTECTION WORKS IN MARITIME STATES

The status of coastal protection works was received from Kerala and West Bengal representatives. Other maritime States/UTs were requested to send the latest status of coastal protection works as per the prescribed format.

(Action: States/UTs)

9.14 SCOPE FOR MANGROVE PLANTATION

The committee was informed that the development of website on CPDAC is in progress and the information on %Mangroves in India+will also be incorporated in the CPDAC website subsequently. It was agreed that launching of website be expedited.

(Action: CPDAC Secretariat)

9.15 REVIEW OF PROGRESS OF PILOT SCHEME

The progress of the Centrally Sponsored Scheme (now shifted to State Sector) %Critical anti-erosion works in coastal and other than Ganga basin States+estimated to cost Rs. 20.64 crores was discussed during the meeting. The Scheme is progressing well in the concerned States/UTs except in Kerala. The Kerala representative was asked to submit utilization certificate of the first installment at the earliest. Completion reports by the States who have completed the works may also be submitted.

9.16 VENUE OF THE NEXT MEETING

Shri M. K. Rahaman, Engineer-in-Chief (Irrigation), Andhra Pradesh, agreed to host the next meeting of CPDAC in Visakhapatnam in October 2006. It was accordingly agreed to hold next meeting of CPDAC in October 2006.

(Action: Member-Secretary, CPDAC)

9.17 SITE VISITS

Following sites were visited by CPDAC and brief notes on outcome of the visits are as under:

9.17.1 BAMBOOFLAT JETTY TO HOPE TOWN SITE

The road connecting Bambooflat Jetty to the Hopetown got damaged due to subsidence of land after earthquake and Tsunami. The earlier existing road gets flooded with seawater during high tide on all days. The Tsunami also damaged many portions of the shore protection works. Continuous wave action after the Tsunami has also damaged the stone masonry of the shore protection work.

To provide all season connectivity, road is being raised by about 1 metre for a length of 3 km. The consultancy for providing protection work to this road has been given to WAPCOS, New Delhi, and the report is awaited. Interim arrangements have been made to repair the shore protection works wherever serious damage has occurred so as to enable the flow of traffic. The idea was accepted by the CPDAC.

9.17.2 ANDABEDA SITE

Due to earthquake and Tsunami on 26.12.2004, the land in and around South Andaman subsided by about 1 metre. The road from Bambooflat Jetty to Kadakachang via Andhabeda got breached at Andhabeda for a length of 30 mtrs. Being a low-lying area, the whole road gets inundated by seawater during high tide. The sluice gates had also become inoperative and remain continuously submerged under the seawater. Mangroves and other trees had been damaged due to continuous inundation in seawater.

The breach in the road had been closed by filling with boulders. To prevent damage due to constant flow of water at high velocity, the geotubes filled with stone dust have been used at the breached portion. Consultancy for shore protection work to road had been given to WAPCOS, New Delhi, and their final report was awaited. One of the options considered was to convert the submerged low-lying paddy fields into a sweet water reservoir to be filled with rainwater to solve the drinking water problem. It was also proposed to repair the sluice gates to drain out excess rainwater. This proposal was found acceptable as it was observed that mangroves or coconut trees could not be sustained in the area.

9.17.3 RANGACHAN SITE

This site was visited, and it was observed that the entire road length had been damaged due to erosion. Seawater had also entered into the nearby area. APWD has undertaken the work of raising of roads. CPDAC members were of the opinion that it may be suitable site for beach nourishment. This site may be included in the proposal of A&N Islands for National Coastal Protection Project.

The meeting ended with a vote of thanks to the Chair.

Annexure-I**Participants of 9th CPDAC Meeting**

Sl.No.	Name & Designation
1.	S/Shri S.K. Agarwal Member (RM), CWC & Chairman, CPDAC.
2.	S.C. Awasthy, Chief Engineer (P&D), CWC & Member-Secretary, CPDAC
3.	T.G.Antony Balan, Chief Engineer, CWC, Coimbatore
4.	R. Devasahayam, Director, CWC, Kochi
5.	A.K. Kharya, Director, CWC, New Delhi
6.	Bhupesh Kumar, Dy. Director, CWC, New Delhi
7.	G.C. Khattar, CE & Secy (PW), APWD, Port Blair
8.	B.N. Malhotra, SE, PBCC, APWD, Port Blair
9.	P.K. Singh, SE (Plg.) APWD, Port Blair
10.	K. Sekar, Chief Engineer, ALHW & Administrator, Port Blair
11.	T.L.N. Reddy, SE, CC-I, APWD, Port Blair
12.	Sridhar Behera, Chief Engineer & Basin Manager, Lower Mahanadi Basin, Orissa, Bhubaneswar
13.	D.H. Patel, S.E. CDO, Gujarat
14.	B.M. Rao, Additional Secretary & Chief Engineer (Kalpasar), Gujarat.
15.	M.K. Rahaman, Eng-in-Chief (Irr.) A.P.Hyderabad
16.	M. Viswanath, Dy. Chief Engineer, A.P., Hyderabad
17.	R. Mohan, Director (Ports), Karnataka
18.	B. Sarkar, Secy (Irr.) West Bengal
19.	A.R. Rao, Advisor (Ports), M/o Shipping, Road Transport & Highways, Delhi.
20.	Dr. P.C. Basu, Director, Marine, GSI, Kolkata
21.	Dr. V. Sundar, Dept. of Ocean Eng, IIT, Chennai
22.	Smt. A. Komalavalli Amma, CE (Retd.) Kerala
23.	Dr. V. Sanil Kumar, Scientist, NIO, Goa
24.	M.D. Kudale, Chief Research Officer, CW&PRS, Pune
25.	T.K. Sasi, Chief Engineer, Kerala
26.	Ramesan Achary, Chief Engineer, Kerala
27.	A.S. Salelkar, Superintending Engineer, Goa
28.	J.S. Hosamani, Executive Engineer, Goa
29.	Cdr. S.K. Mittal, NHO, Dehradun