

Regional Round Table Discussion at Chittagong

Operational Integration of Field-Level Activities Needed

The Program Development Office (PDO) of the Integrated Coastal Zone Management (ICZM) organized a regional roundtable discussion on December 23, 2001. The purpose of this roundtable discussion was to initiate a dialogue with different multi-sectoral stakeholders active in Chittagong/Cox's Bazar region. The discussion meeting was attended by representatives of the following organisations:

- GO : DoFisheries, Do Forests, Do Environment, BSCIC,
- NGOs : Uddipon, CODEC, Ghashful, COSED,
- Media representing local and national dailies
- Chittagong University : Geography Dept., Inst. of Marine Sciences
- Bangladesh Forest Research Institute
- Coastal Embankment Rehabilitation Project,
- Strengthening of Coastal Marine Fisheries Management Project
- Chittagong Port Authority



Coastal Fisherfolk Network (COFCON), a network of coastal NGOs, facilitated the organization of the roundtable discussion. Dr. M Rafiqul Islam, Interim Team Leader, PDO-ICZM made the introductory presentation on conceptual issues of ICZM in Bangladesh. During the day, three theme discussions were held : coastal resources, coastal people and development challenges. The participants identified mangrove, land, landscape, sea, forest, fishery, livestock, agriculture, salt production, aquaculture, sandy beaches, minerals, water, coral island, sea-weeds, natural gas, plantations on embankment, port/harbour, traditional knowledge, rainfall, migratory birds, solar/wind/tidal energy, medicinal plants as resources of the region. During the presentations, issues of land zoning, sustainable forestry management, water pollution, ship-breaking, resource use zoning, industrial pollution, biodiversity, eco-tourism, marine park, salt production, sustainable marine fisheries, training, rehabilitation of eroded communities, safe water & sanitation, applied research, sea level change, cyclone, storm surges, earth quake, conservation of medicinal plants, energy conservation initiative, human & institutional capacity building were raised and discussed.

The speakers demanded a chapter/ regional network at Chittagong. They also urged that, in order to eliminate duplication of efforts, the PDO-ICZM should be involved in planning/design of all new activities in the coastal zone.

Dr. Khurshid Alam of COFCON & CODEC presented concluding remarks. He explained the importance of integration and highlighted the need for operational integration of activities of Govt. & Non-Governmental organisations.

Each of the participating organisations also contributed written statement of their relevant activities. The next workshop will be facilitated by the Chittagong University.



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Regional Round Table Discussion at Patuakhali

Area-Based Development Plan Emphasized

The Program Development Office (PDO) of the Integrated Coastal Zone Management (ICZM) organized a regional roundtable discussion on December 30, 2001. The purpose of this roundtable discussion was to initiate a dialogue with different multi-sectoral stakeholders active in Patuakhali/Barguna region. The discussion meeting was attended by representatives of the following organisations:

- GO : DAE, DoFisheries, Do Forests, DPHE, BADC, BARI, LGED
- NGOs : ASA, ADAB, CODEC, MMC, Proshika, Coastal NGO Forum, Ahsania Mission, PMUS
- Press Club
- Patuakhali-Barguna Aquaculture Extension Project
- Small Holder Livestock Development Project
- Rural Development Project - 16,
- DPHE-Danida Water Supply & Sanitation Components

Community Development Centre (CODEC), facilitated the organization of the roundtable discussion. Dr. M Rafiqul Islam, Interim Team Leader, PDO-ICZM made the introductory presentation on conceptual issues of ICZM in Bangladesh. During the day, three theme discussions were held : coastal resources, coastal people and development challenges. The participants identified, farmers, fishermen, sea fishers, traders, potters, shutki processors, boatmen (patni), katha/pati makers, pond fisheries, fry collectors, fry traders, bedi, bawalis, mawalis, boat makers as some of the coastal stakeholders. During the presentations, issues of mangrove plantations, loss of resource base, lack of inter-departmental co-ordination, coastal agriculture, integrated farming, marine fisheries, poultry development, strengthening of Coast Guard/Navy, alternative livelihood, training & information dissemination, GO-NGO co-operation, role of media, poverty alleviation, crop diversification, tourism, water management, research need, bio-gas, capacity building, over-lapping of activities, empowerment of women and water-supply & sanitation were raised and discussed.

The speakers highlighted the importance of need based problem identification, accessibility of information and database, preservation of biodiversity and gender sensitivity. They appreciated holding of such a workshop and took decision to organize follow-up workshops at 3-4 months interval. The next workshop will be facilitated by the Coastal NGO Forum.

Each of the participating organisations also contributed written statement of their relevant activities.

The Proceedings of the regional workshop is being prepared.



Tidal Power Plant: A need for Coastal Islands

Energy is essential for promoting living standard, economic growth and technological progress. Electricity coverage being only 15% of the population and natural gas reaching only 3% of the households, new and renewable 'green energy' have to be explored. Tidal and wave power can suitably be exploited for the energy requirement of the coastal off-shore islands. Normal electricity supply under normal grid transmission system will be difficult for providing power to the remote coastal areas. The source of tidal power is natural and hence the supply is permanent. There is no cost of raw material in the production process. The cost of maintenance is minimum.

Tidal power stations have successfully been commissioned in Canada, France, Russia and China. The station on the river Rance in France generates 320 megawatts of electricity. In India, power generation from tide is being explored since 1979. Neighbouring West Bengal has also started pilot trial of transforming tidal energy. In Bangladesh, the harnessing of tidal power has not yet been done.

How it works

A large amount of energy is stored in the tides. The tides go in and out, and we can capture energy from this with tidal power stations. Tidal power stations can stretch over a delta, estuaries, beaches or other places that are affected by the tides. A barrage is first set across a beach or river. When high tide comes in, water flows through a turbine to create electricity. Now some of the water is up behind the barrage. A gate is lowered from the barrage, capturing the water above it. When low tide comes, the gate is raised and the water flows out, first transferring its energy through turbines. This way, electricity is created with a two-way turbine.



Tidal Power station at Rance in France

Energy Availability

The energy available between any 2 years is almost constant and there is no dry year or wet year; no summer or winter effect on the availability of energy. The energy varies from one day to the other, and the highest and lowest production of energy differ in the order of 8 times only.

The energy transformed is equal to the sum of the energy natural of the tide and the head times the volumes pumped total. The energy is: as much in big quantity, as the area of the basin is big. A cycle in double effect with double pumping, there will be production of energy without limit, except for the limitations of the equipment.

From the tide of 8 to 9 meters amplitude maximum, it is easy to draw 10 MW and 25 to 30 millions kilowatt-hours/yr for each square kilometer of basin area. Frequently the power may be more than this.

Sandwip Channel - an ideal location for tidal power generation

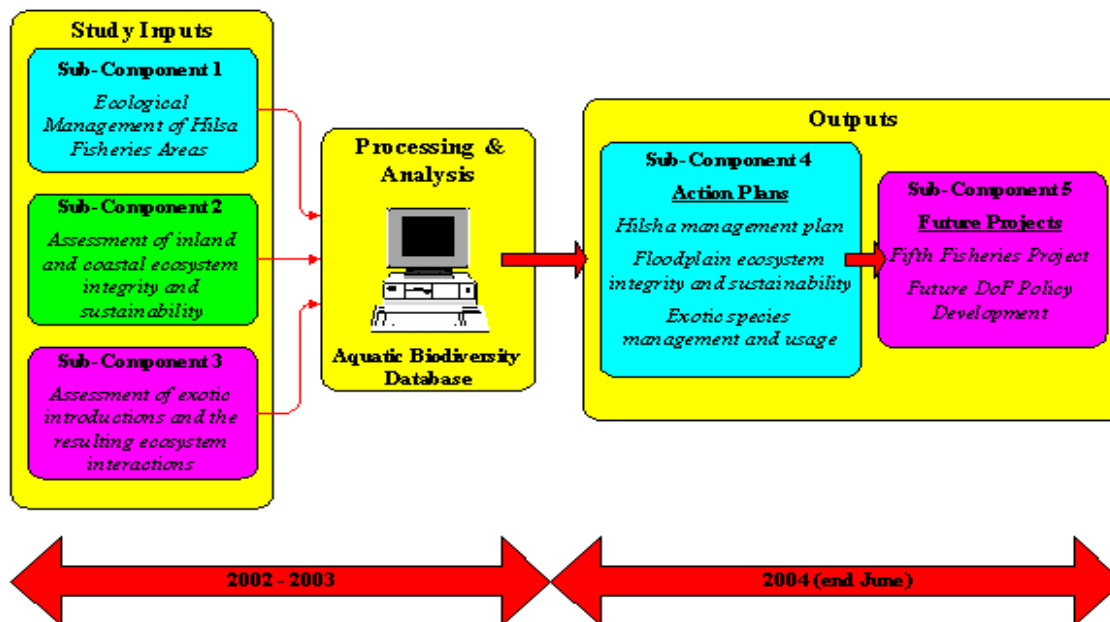
The prospect of producing electricity from tidal power around Bangladesh coast specially around Sandwip coast is bright. Literature review shows that electricity can be produced even for a tidal range as low as 2.5m, whereas tidal range around Sandwip coast is as high as 7.55m.

A feasibility study is proposed in the 5th Five-Year Plan to find ways and means to use tidal and wave power. It is urged that this feasibility study is initiated.

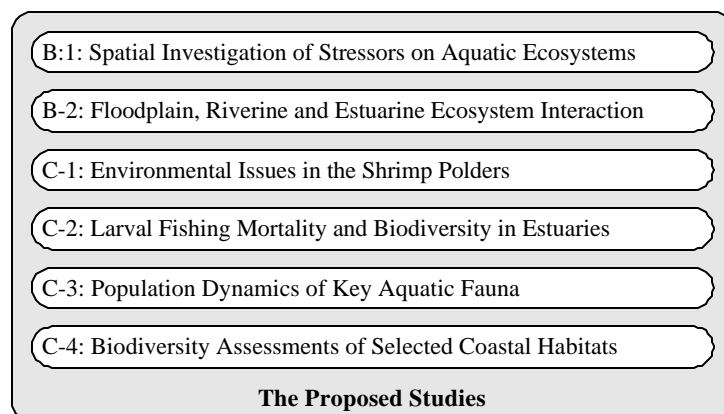
Aquatic Resources Development, Management and Conservation Studies

The Global Environment Facility (GEF) funded 'Aquatic Resources Development, Management and Conservation Studies' component of the Fourth Fisheries Project commenced work in October 2001. This is one of five components of the World Bank / DfID funded 'Fourth Fisheries Project' which has been underway since 2000. The overall project aims at sustaining growth in both inland and coastal fisheries through a number of interventions, including community-based floodplain stocking, aquaculture and extension training and improvements to coastal shrimp culture.

The GEF funding will focus on a series of research studies targeted at specific management constraints to



sustain aquatic resource development. Although the major emphasis is on inland fisheries and aquaculture, a significant part of the project is aimed at addressing coastal issues. The recently completed Inception Report conducted an 'issues assessment and needs analysis' where a number of areas were highlighted for attention. As a result of this, a series of studies have been proposed to address these (see inset).



In line with the main project objectives, many of these studies are obviously aimed at improving our knowledge of key coastal fisheries and aquaculture issues, such as an examination of environmental issues in the shrimp polders to the indiscriminate capture of larvae in the push and estuarine set bag net fisheries. However a number of studies are more innovative, such as the biodiversity assessments of selected

coastal habitats. Here the project will be examining in faunal components of inter-tidal and sub-tidal habitats to provide a comparative analysis of their species richness and relative abundance. A number of sites will be chosen in highly impacted areas, such as the ship-breaking yards in Kumira to determine the anthropogenic impacts on biodiversity.

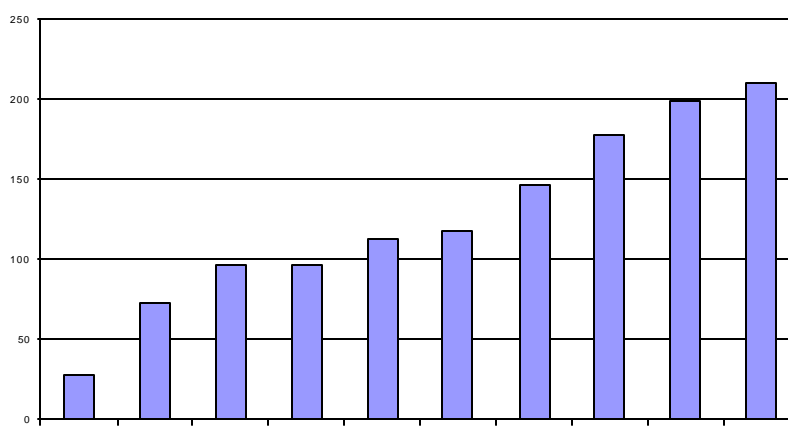
The purpose of these studies, which will be implemented over 2002 - 2003, is to produce a series of action plans for the Department of Fisheries to implement that will incorporate aquatic biodiversity conservation and management into mainstream fisheries development activities.

Salt Production & Processing : A Short Note

Coastal people of Bangladesh had tradition of producing salt by boiling sea water. During the reign of Arakan (around at the end of 15th century), salt was produced in Cox's Bazar area. In the 17th century, East India Company got full control over the salt business. The then British Government banned local salt production at the end of the 18th century. They started to import salt from Liverpool to meet the demand of this region.

The first commercial salt production company was established in 1947 in Cox's Bazar. In 1950s the responsibility of salt production and extension was given to the Director of Industry. In 1960-61 Bangladesh Small and Cottage Industries Corporation (BSCIC) has first started to produce salt by solar system. It has started their commercial production on 2742 hectare area in the Chittagong and Cox's Bazar districts. Since then, the salt production rate and area is gradually increasing to meet the ever-growing demand.

Fig. 1: Amount of land under salt cultivation (hundred ha)

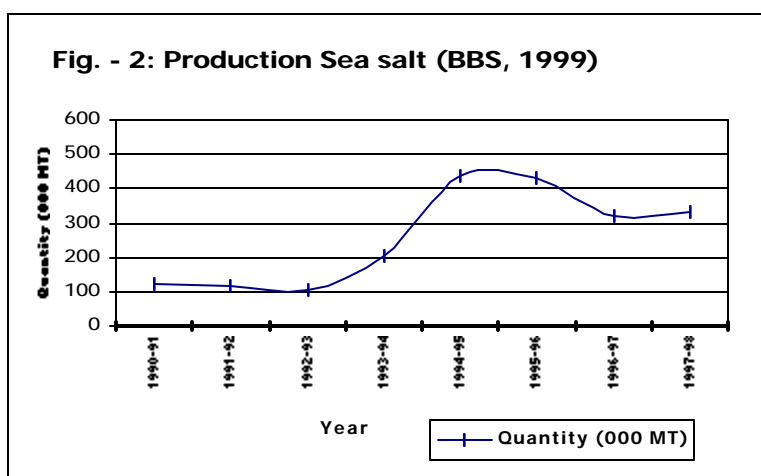


The main salt production area are Sadar Upazila, Ramu, Maheshkhali, Kutubdia, Chakaria, Teknaf of Cox's Bazar district and Bashkhali upazila of Chittagong district. Government is also trying to extend salt production area in Khulna and Satkhira district under a project named 'Salt Industries Development in Khulna-Satkhira Project'. Thus the area under salt production is increasing day by day. The rate of increase is 455 ha per year.

Keeping with the pace of area increment production, has also increased. During the period of 1990-98 the production has increased by 176%. Per year rate of increment was 2353 MT. Target for the year 2001-02 is fixed at 0.9 million mt.

Usually farmers start the production activity in the middle of the month of November if no heavy rainfall occurs. Initial salt production activity starts within this month in around 25% area. The rest is brought under production activity within December. The peak period for salt production is March and April.

Fig. - 2: Production Sea salt (BBS, 1999)



In the middle of 70's government took initiative to improve the quality of salt. An exhibition plot of white salt production training centre of BSCIC was established in the Kutubdia in 1975-76. In 1985 two training centers were established in Cox's Bazar Sadar and Maheshkhali. In 28 February 1989 government has passed a law "Prevention of disease originated due to deficiency of Iodine". According to this law production, marketing, storage and exhibition of any edible salt without iodine have been banned.

There are 43,000 listed salt farmers. About a half million people are directly or indirectly engaged in the salt industry and economic and social life of more than 25 million people are dependent on them.

Findings from Study on Land Use /Land Cover in part of Bangladesh Coast.

This research triggers to review and search for the best possible applied techniques on the detail analysis of a Landsat TM dataset.

Land use on coastal zone of Bangladesh

Bangladesh has different types of land use practice : 73% arable land, 2% permanent crops, 5% permanent pastures, 15% forests and woodland, 5% other practices. The Sunderbans mangrove area of Bangladesh is the home of very highly diversified geo-physical properties including eco-hydrology, climate, flora, fauna as well as land use and land cover. Under the integrated approach of coastal zone management, a reliable land use /land cover map is to be prepared as a starting point for the assessment of resources (both natural and man-made), its current use and potentiality.

Problem Issues

In terms of technical problems of land use /cover study from satellite imagery, although remotely sensed classification seems to be a good solution, but still to attain perfection, this process has to overcome few problems: namely confusion and/or mixed pixels, misclassification, tidal variation, seasonal variation etc. For instance, the small parcellation of lands, different crop production from the same land in different seasons, irrigation practice, interference of aquatic weeds with rice plants, low canopy of some winter crops, tidal fluctuation, shallow water depth shrimp culture practice and perennial fresh water body with weeds etc. are real problem to be taken in consideration.

Satellite Image data analysis

Different image processing techniques and classification methods including mixed (fusion and/or hybrid) techniques were consulted, reviewed and some of them were applied to delineate the land use /cover from Landsat Thematic Mapper (TM) data for this research. Ground truth and fieldwork datasets were used to evaluate and further improve the analysis with validation check and then incorporation of the ancillary data was also conducted.

Solution of the conflicts

Display of PCA (Principal Component Analysis) FCC, meaning false color composite, (7,3,2 RGB value), resulted in some detection of the TM image. Some striking conclusions were derived.

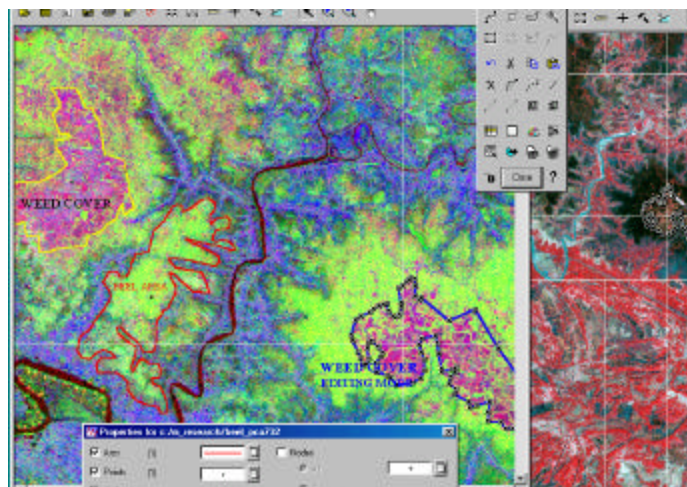
(a) The Weeds / Vegetative coverage in large water body (sometimes shallow) like the beels was always giving problem classifying digitally. But, in this case of PCA FCC 7,3,2 it is easily mappable (PURPLE color) digitally on screen using vector tools on top of the image from the display screen -resulting the output file ready to be used straight away (Figure).

(b) Naturally depressed large water bodies like the beels are easily mappable(the Light Green color) in the same way.

(c) The settlement cover could be mapped by its very distinct Magenta color and is distinguishably different from either mangrove or other vegetation in the vicinity and neighborhood. Mangrove and other vegetation coverage is not much clear to differentiate from TM FCC(4,3,2).

(d) Shrimp culture area or aquaculture area in broad sense could not be mapped from the same. But it might be mappable from the 7,3,2 (RGB) FCC display of the TM Image itself.

(e) Usually, weeds conflict with the rice and /or pastureland and/or rabi crops. The in-field channels (dead river channels -mostly dry during winter but flooded in the rainy seasons) used to misclassified as cultivated land due to their high canopy cover (sometimes due to the winter crop on it, sometimes for the long grass cover). Now, this problem is solved digitally from the TM Image without going to expensive detail field work.



It is to be noted that, some more intensive research could re-confirm these findings.

AIT Twinning Workshop on ITCZM

The Integrated Tropical Coastal Zone Management (ITCZM) program at the Asian Institute of Technology (AIT) organised a twinning workshop during October 9-10, 2001. The purpose of the workshop was to bring together regional and Danish twinning partners to meet key institutions that are actively involved in coastal zone management. The workshop, sponsored by Danida, was attended by participants from Bangladesh, Cambodia, Denmark, Indonesia, Malaysia, Netherlands, Philippines, Sweden, Thailand and Vietnam. Dr. M. Rafiqul Islam of the PDO-ICZM and Engr. Emaduddin Ahmad of the SWMC participated the workshop and presented topical papers. A closer understanding and experience sharing between participants achieved. A twinning arrangement with Bangladesh is foreseen.



Visitor from the Centre for Coastal Management



Dr. Martin le Tissier of the Centre for Coastal Management, Dept. of Marine Sciences, University of New Castle and Mr. Mark Ireland of the University of Bath, UK visited PDO-ICZM during November 24-30, 2001. During their stay in Dhaka, visits were made to SWMC, EGIS, Netherlands Embassy, FMS, University of Dhaka. Trainees who participated a short training at the Anna University, Chennai, India took this opportunity to meet Dr. Tissier, who was the co-ordinator of the course. Later, Dr Tissier made a 2-day field visit to Char Development & Settlement Project, Noakhali. During field visit, a boat trip was taken around Char Boyer, held discussion with

coastal land eroded families, observe cluster village and other activities of the CDSP.

Char Information Sharing Meeting

The PDO-ICZM hosted the Char Information Sharing Meeting on October 29, 2001. This is a network of organisations with interest in riverine and/or coastal chars. A total of 21 participants representing CDP, DFID, RDRS, ITDG, BRAC, RNE, WFP, JICA, CDSP, CARE, Embassy of Japan, Oxfam, EC Delegation, and PDO-ICZM attended the meeting. Two presentations were made : 'Inventory of Coastal & Estuarine Islands' by the PDO-ICZM and 'Experiences of Adaptive Technology for Charlands' by Intermediate Technology Development Group (ITDG), an international NGO.



Website

The website contains an introduction of the PDO-ICZM, inventory of relevant projects, contact addresses, all PDO-ICZM reports/publications, copies of the Coast News, proceedings of all meetings and many other items.

The address of the site is www.iczmpbangladesh.com

New Project Manager

Mr. Giasuddin Ahmed Chowdhury joined WARPO as the Director General on 30.12.2001. As DG WARPO he holds the position of Project Manager of the ICZMP. He brings with him an extensive experience on water resources planning including the coastal hydrology. Prior to his new assignment, he was serving as Chief Planning, BWDB.



About PDO-ICZM

The PDO-ICZM is constituted as a separate and independent unit under the mandate of Inter-Ministerial Steering Committee and Technical Committee. The Ministry of Water Resources is the lead Ministry.

The objectives of ICZM Program Development Office have been elaborated as to:

- Identify a policy and institutional framework and develop a strategy for coastal development.
- Defining measures to reduce the risk of loss of life and damage of property due to cyclonic storms and tidal surges and enhancing the capacities of the coastal communities to cope with immediate natural shocks and recover from the losses with dignity.
- Develop a strategy for the management of both risks and consequences of disaster, which would include prevention, emergency response and post-disaster recovery.
- Initiate a process approach to coastal development that harmonises the policies, programmes, procedures and activities of different GoB institutions, NGOs and donor supported projects active in the coastal zone.
- Develop a strategy for enhancing civil society (including the local communities) capabilities and participation in coastal development.
- Identify strategies and activities to enhance livelihoods development and reduce vulnerabilities in the coastal zone.
- Develop the knowledge base, improve awareness and establish a monitoring and evaluation system for coastal development.

In the preparatory phase of ICZM, the PDO will operate till December 2004.

Stop Press: New Announcement

The PDO-ICZM is happy to announce that the three-year consultancy services for the PDO-ICZM will most likely start as planned from 1st February 2002. The Royal Netherlands Embassy has invited ARCADIS Euroconsult to enter into contract negotiations to this effect.

COASTAL ZONE ASIA-PACIFIC CONFERENCE (CZAP2002) 12-16 May, 2002, Bangkok, Thailand

An international conference focusing on the coastal zones of the Asia-Pacific region is being organized to bring together regional and international researchers, policy-makers, interest groups and communities to address and discuss issues of common concern in those tropical coastal areas. Key themes are i) Sustainable Coastal Activities, ii) Coastal Ecosystem Management, iii) Community/Resource Interactions, iv) Coastal Resource Economics, v) Coastal Area Planning and vi) Integrated Sciences & Coastal Policy,

The PDO-ICZM is one of the Conference Partners and is the local contact of this conference in Bangladesh. The web-site of the conference is <http://www.vims.edu/czap>.

The last date of submission of abstract is February 15, 2002 and of registration, March 15, 2002

Projects/Initiatives are encouraged to send news & information relevant for the coastal zone for the next issue of the Coast News, to be published in April 2002.

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