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NEED FOR INTEGRATED COASTAL ZONE MANAGEMENT IN ORISSA

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INTRODUCTION

The Mahanadi, Brahmani, Baitarni, Dhamra, Patsala, Subernrekha, Budhabalanga and Devi rivers in Orissa State at their confluence point in Bay of Bengal form different types of islands and delta. These estuarine regions are biologically more diverse and rich in biodiversity. The swampy vegetation and the mangroves of the Orissa coast are ecologically more diverse compared to other coastal regions of the country. The coastal districts of Balasore, Jagatsinghpur, Bhadrak, Khurda, Cuttack, Ganjam and Puri with a total of 480 Kms coastline have very rich natural coastal resources. These resources provide easy means of livelihood and favourable socio-economic conditions. As one of the most thickly populated and developed coastal resource in the state it supports 36 % of the total population and 43 % of the urban population. The coastal areas formed by the silt and sediment deposition of the Budhabalanga, Baitarni, Brahmani, Mahanadi and the Rushikulya, are highly fertile.

Natural Resource of Coastal areas have been under tremendous anthropogenic pressure particularly during last two decades. The fertility of coastal area attracted intensive agriculture and other land uses to generate wealth. The causes of degradation include thick population density and multiple use of the land for agricultural and other practices, degradation of coastal vegetation, felling of mangroves forests, conversion of forest areas for agricultural and aquaculture purposes, reduction in grazing lands of the village and conversion of coastal swamps,

dune vegetation, grazing land etc. The coastal lands are fertile at the deltas because of deposition of silt and sediments by the river systems. During last several years there has been deposition and erosion at various places on the Orissa coast due to littoral drift that moves along the coast and due to retention of sediments in storage reservoirs constructed on rivers. The reduction in the movement of drift because of the harbour works and port related activities is also one of the major factors. Mangroves are nature's way of stabilizing the coastlines and shielding the landmass from tidal surges, cyclonic storms and heavy winds. These with specialized roots reduce wave action and check coastal erosion. Also mangroves with thick cover act as shelter belts against cyclones. The clear felling and conversion of the mangrove areas for other uses have resulted into further degradation of these areas including the loss of biodiversity.

THE LEGISLATION

Central Government has enacted Coastal Regulation Zone Notification in the year 1991 by exercising the Powers under Environment (P) Act 1986. The other Acts which have provisions for Pollution control or Environment protection in Coastal waters are: -

- (1) Maritime Zone Act 1976 with provisions to regulate activities in territorial waters, EEZ and Continental shelf etc.
- (2) Water (Prevention in control of pollution) Act 1974 provides provisions to control pollution's from land based industrial operations, up to 5 Km in the sea.

- (3) Merchant Shipping Act 1958 has Jurisdiction up to Maritime Zones to control pollution from ships and offshore platforms.
- (4) Indian Port Acts 1908.
- (5) Wildlife (Protection) Act 1972 for protection and management of coastal and marine biotic organisms.
- (6) Environmental (P) Act 1986 for industrial discharges (onshore / offshore) in coastal water.
- (7) Marine Fishing Regulation (MFRA) Act 1978 and the Indian Fisheries Act 1986, have provisions to ensure sustainable development of Marine Fisheries.

COASTAL REGULATION ZONE NOTIFICATION, 1991

The above notification was published in the Gazette of India on 19.2.91 (S.O. 114(E)) to declare Coastal stretches of 500 m from HTL and the stretch between LTL and HTL as Coastal Regulation Zone (CRZ). The regulatory provisions of CRZ are also applicable to creeks and backwaters for distance up to which tidal effect of the seas is experienced. Various provisions have been made in CRZ notification for regulating developmental activities. The notification has been amended several times. The brief account of provision regarding 4 CRZ zones is described below:

CRZ-I (Prohibited Zone for Activity) covers the ecological sensitive areas and the areas of outstanding activity are permitted up to 500m from HTL and the land between LTL and HTL also cannot be used for any activity.

CRZ-II (Zone of permitting Activities) applies within municipal areas. No activity is allowed in CRZ-II areas towards seaward side of an authorised building or road. It means any activity can be undertaken towards landward side of existing authorised structure or road.

CRZ-III applies to rural areas or such urban areas

where development activities have not yet been taken up. No developmental activity is permitted up to 200m from High Tide Line thus, declaring this stretch as "No Development Zone".

CRZ-IV applies only to A & N and Lakshadweep Islands. For A & N Islands, no new construction is permitted within 200m from HTL. CRZ-IV can be future classified as CRZ-I or II or III. The rules applicable to these categories will apply for according clearance to developmental projects.

REGULATION OF ACTIVITIES

Following activities may contribute to changes in coastal ecology thus affecting the socio-ecological conditions of coastal area. We should evaluate the impact parameters related to development from the site selection stage till the operation phase of the projects. Such activities are:

1. Setting up of new industries and expansion of existing industries, including those which require water front or directly needing foreshore facilities. Creation of facilities for manufacturing or handling or storage or disposal of Hazardous substances transfer of hazardous substances from ships to ports, terminals and refineries and vice-versa, in the port areas.
3. Setting up and expansion of fish processing units including warehousing and taking up existing fish processing units for modernization purposes with proper equipment and pollution control measures.
4. Disposal of wastes and effluents, into the water course by existing facilities with approval under the Water (Prevention and Control of Pollution) Act, 1974.
5. Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements.
6. Dumping of city or town waste for the

purpose of land filling or otherwise on Coast.

7. Land reclamation, bunding or disturbing the natural course of sea water by construction or modernization of ports, harbors, jetties, wharves, quays, slipways, bridges and sea-links and for other facilities that may change the Coastal ecology of the area.
8. Mining of sands, rocks and other substrata materials, exploration and extraction of "Oil and Natural Gas"; and the impact associated with such activities may be evaluated with a long term prospective.
9. Excessive drawl of ground water except through ordinary wells or hand pumps, for drinking and domestic purposes, cause sea water intrusion, that may affect the water quality of sweet water zones in Coastal area.
10. Dressing or altering of sand dunes, hills natural features including landscape changes for beautification, recreational and other such purpose, except as permissible under the Notification.

The coastal projects must ensure implementation of safety regulations including guidelines issued by the Oil Industry Safety Directorate in the Government of India, Ministry of Petroleum and Natural Gas and guidelines issued by the Ministry of Environment and Forests for ameliorative and restorative measures for environmental protection. Projects which are taken up for control of coastal erosion and maintenance or clearing of water ways, channels and ports or for prevention of sandbars or for tidal regulators, storm water drains or for structures for prevention of salinity ingress and sweet water recharge should be properly evaluated for their impact. Reclamation for commercial purposes such as shopping and housing complexes, hotels and entertainment activities in sensitive Coastal areas may create

adverse impact and cause changes in sea behavior. Various stretches of Orissa coast have been categorized into different zones based on their ecological significance which are as follows:

1. National parks, sanctuaries and marine parks, all reserve and protected forests, breeding grounds for horse shoe crabs and turtles, historical and heritage sites, areas rich in genetic biodiversity, areas of outstanding natural beauty falling in CRZ areas are classified as CRZ-1.
2. All uninhabited islands, all mangroves with an area of 100 squire metres, sand dunes are classified as CRZ-1
3. All mangrove vegetation in Paradip urban region, Chandipur protected forests, water bodies and waterlogged lands at the confluence of Kansbans and Paga nadi sand dunes around Markundi, Naugolbanda, and Baksipalli and mudflats of Ambanghai in Chilika are categorized as CRZ-1
4. Satapada island of Chilika, Orissa sands complex, chlor alkali plant near Rushikulya are classified as CRZ-III
5. Mahanadi, Brahmani and Baitarni delta are under CRZ-1
6. Reserve/protected forests between Konark and Puri, and turtle migratory route, entire Chilika lake, Hukitola island are classified as CRZ-1
7. Inhabited islands, all fishing harbours located beyond municipal limits, are classified as CRZ-III
8. Dhamra fishing jetty, urban areas of Gopalpur, Paradip, Konark and Balasore are categorized as CRZII.

The industrial and urban development projects should be accorded permission by local authorities subject to adherence to following environmental safeguards:

- (i) The construction shall be consistent with the surrounding landscape and local architectural style;
- (ii) The overall height of the construction up to height of the construction up to highest ridge of the roof, shall not exceed 9 metres and the construction shall not be more than 2 floors (ground floor plus one upper floor);
- (iii) As far as possible Ground water shall not be tapped except with the concurrence of the Central / State Ground Water Board;
- (iv) Necessary arrangements for the treatment of the effluents and solid waste must be made. It must be ensured that the untreated effluents and solid wastes are not discharged in to the water or on the beach;
- (v) The quality of treated effluents, solid wastes, noise levels etc. from the project area must conform to the standards laid down by the competent authorities including Central / State Pollution Control Board and under the Environment (Protection) Act, 1986;
- (vi) The project involving diversion of forest land for non forest purposes must obtain clearance as required under the Forest (Conservation) Act, 1980.
- (vii) Approval from State/ Union Territory Department shall be obtained under the laws an applicable.
- (viii) In ecologically sensitive areas (such as marine parks, mangroves, coral reefs, breeding and spawning grounds of fish, wild life habitats and such other areas as may be notified by the Central / State / Union Territories) construction activity shall not be permitted.

Need for Coastal Ecosystem Research & Monitoring Center (CERMC)

We have been witnessing accelerated development activities along the Coastal area of Orissa. The catchments of deltas and rivers which influence the coastal ecology have also become favourable sites for industrial projects. Most of the development in these areas are in clusters, thus, chances of concentrated discharge of pollutant in rivers are very high. Coastal Research and Eco development plans with Regional eco-development approach covering entire catchment of a river system may be made and a specialized centre i.e. CERMC may be established with terms of reference for research and management of coastal area. The research and management programmes should aim at encouraging sustainable resource utilisation and community development.

1. There should be an integration of district plans and rural development schemes for the villages of the catchment. District planning authorities should also act as input agencies for Resource Development Scheme under CERMC.
2. The Agriculture, Rural Development, Fishery, Horticulture, Afforestation department etc. should implement their individual programmes within integrated scope of TOR for coastal Management.
3. The issues having management implications i.e. Land ownership, encroachment, prawn gheries and R & R issues and conflicts between local Right for use of common coastal property resource and commercial harvesting need to be resolved.
4. There is increasing demand for harvesting of coastal resources by locals as well as commercial internship groups. Villagers should be exposed to various

- opportunities to divert to other income generating options.
5. Coastal areas should be provided with permanent shelter belt preferably by creating mangrove green belt and/or other feasible engineering designs to avoid losses of property and land due to tidal waves, storm water surges. All degraded lands on coastal line could be restored for which mechanism should be decided. Boundary of each coastal village should be afforested by the villagers themselves through JFPM or other such schemes.
 6. Each village should be monitored for any change in population, age group, sex ratio, infiltration etc. preferably by a state level non-Government organisation and data be made available to planning and development authorities to suitably revise the development plans to ensure sustainable community livelihood.
 7. Possibility of increasing agriculture/horticulture production through improved seeds, agricultural implements and cropping pattern change to encourage more people in agriculture sector may be explored.
 8. Fishery related jobs/works could be established in villages to attract people for these works. Import of fishery related materials and sending fishes for processing and packing elsewhere could be stopped and done locally.
- The activities of present and future projects will have significant impact on marine life forms and productivity. The depletion of resource will also lead to reduced availability of these resources to large local population. Environmental impact studies and implementation of safeguards involving institution like the IMMT (Regional Research Laboratory for coral research), Wildlife Institute of India or ZSI (Turtle/Crab/Shark and other marine macro faunal research) and Fishery Institute of ICAR at Barrackpore, West Bengal and Chennai or Utkal University/Botanical Survey of India, (mycoflora, phytoplankton) and NIO, Goa of CSIR (Mangroves) and Research Wing of Forest Department, Government of Orissa (Wildlife) under integrated research plan could be of much help for management and conservation. The value of coastal areas is tied up with culture and needs of the people of the area and the economic progress must be within the overall carrying capacity of these ecosystems to ensure sustainable living of the human society.