CHAPTER 6

RECOMMENDATION
6. RECOMMENDATIONS

Tropical estuaries have played a significant role in course of human development. But the increased anthropogenic activities along estuarine coast tend to degrade its quality. Narmada and Tapi are two major estuaries which are under immense anthropogenic pressure. The degradation of these estuaries will result in serious economic, ecological and social loss for the community. Therefore, based on the investigations, this chapter is concluding imperative site specific problems and recommendations on the future development of selected sites of both the estuaries, especially with regard to sustainable development, long-term conservation and management.

6.1. NARMADA ESTUARY

Site 1: Zadeshwar

Zadeshwar is located in upstream Narmada estuary. It is a fresh water zone dominated with little tidal influence. It forms the habitat for various freshwater floral and faunal components.

- Since this site is near to Bharuch city zone, it receives high amount of organic load through discharge of domestic wastewaters from city and also from small towns located upstream. This site also receives waste water from agricultural runoff from fields located around upstream of river. Proper measures should be adopted to divert waste water from Bharuch city away from this zone after pre-treatment.

- The main pollution load experienced at this area is by pilgrims visiting temples located at this area. Regulations in dumping of idols and wastes, manual cleaning of the bank by local authorities time to time can prevent organic pollution to a certain extent.

- A Bridge crossing the river at this zone also forms a source of pollution. People travelling through the bridge, throw garbage, plastic waste, coins, and holy items
Environmental studies on biotic components in relation to nutrient status of selected sites of Narmada and Tapi estuaries, Gulf of Khambhat, Gujarat, India.

into the site which pollute the waters. Both sides of the bridge can be provided with fencing having net with definite size in order to prevent the garbage and plastic wastes entering into the water body.

- The Salinity intrusion at Zadeshwar zone is low and therefore the estuary can be considered as freshwater zone while planning coastal development.

Site 2: Bhadbhut

Bhadbhut is one of the important fishery zones in Narmada. It forms the habitat for variety of fishes and arthropods. As this is one of the major fishing zone in Narmada estuary, various anthropogenic activities in connection with fishing forms a major source of pollution.

- Open defecation is the common practice at this site which can lead to the contamination of the estuary water by harmful pathogens.

- This area receives domestic effluent from Bhadbhut village which is a small village of 5000 population and many people use river bank for bathing and cloth washing purposes. Awareness camping about the health and vitality of the Narmada estuary to the villagers in local language should be organized regularly.

Site 3: Ambata

- This estuarine zone is directly connected to the sea and it is surrounded by many industrial complexes. It also receives effluents from a various industries situated in and around the area which includes Relience industries, Gujarat Flurochem Ltd, Luna chemical industries, ABG shipyard, Sterling Auxiliaries, GACL and Birla copper. Care should be taken by industry officials not to release the effluent directly into the estuary without prior treatment. Setting up of efficient wastewater treatment plant by individual industrial unit is desirable. The government should implement strict legislation for control of pollution.

- This area is declared as Dahej-Special Economic Zone (SEZ). Importantly this zone is used for easy transportation by ships and small boats. People from Ambata...
village also employ this zone as a major fishing zone. The estuary should be protected by controlling such anthropogenic pressures.

- Lastly, establishment of efficient estuarine monitoring board to assess the pollution threats by local authorities / governments is needed.

6.2. TAPI ESTUARY

Site 1: Hazira

- Hazira is one of the important Industrial regions in Gujarat. The major industries located in this area are ONGC, National Thermal Power Corporation, Reliance Industries Ltd, Larsen and Turbo Ltd, KRIBCO, ESSAR Steel...etc. All these industries are located on the bank of estuary and release their effluent directly into the estuarine region. The area also receives domestic sewage released from Surat city. Proper and strict implementation of laws and legislation to control such direct discharges is mandatory.

- The oil spillage from the boats and ships travelling to port is severe and some regulatory norms for passing of ships and boats in the estuaries, issuing Oil Spillage certificate etc. should be implemented taking into consideration the tidal cycle.

- Considering the existing and future development of the industrial area along the lower reaches of the Tapi estuary, setting up of wastewater treatment plant and monitoring agencies to check pollution should be established by local authorities / government bodies.

Site 2: Umra

- Sediment dredging at this site is a common practice throughout year which directly affects the plankton community and benthic fauna. Such activities should be monitored and dredging should be regulated.
• Domestic wastewater from the periphery of the Surat city is also released at this site. The domestic wastewater should be channelized through a proper canal and should be released after proper pre-treatment.

• Release of the oil from the ‘dredging boats’ is also a major problem at this site. Regular monitoring of the boat machine and proper operating strategies should be implemented. “Oil spillage certificate” should be issued to the boat owners after thorough verification and checking of the boat motors.

• Along with this many small scale industries and Magdella port also forms a source of pollution in this area. Proper measures should be adopted for regulating effluent/waste discharge into the estuary.

Site 3: Causway

• Domestic sewage from the Surat city appears to be the major anthropogenic input responsible for the degradation of the estuarine water quality at this site. Various anthropogenic activities like bathing and cloth washing and other recreational activities also make this site pollution prone because of the availability of fresh water. Adequate pre-treatment of domestic sewage before releasing the wastewater into the estuary at this site should be monitored.

• People dumping holy items as a part of worshiping the river also forms a major threat to this area. An initiative is required to educate the people about not to spoil the water quality by such rituals.