

VIDYASAGAR UNIVERSITY



PROJECT REPORT ON

COASTAL EROSION DIGHA & ADJACENT
AREA, PURBA MEDINIPUR

DIGHA :: PURBA MEDINIPUR :: WEST BENGAL

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TO WHOM IT MAY CONCERN

This is to certify that sri/smt. Shirly Noyak Roll. 1112149
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Submitting a Field Report on DIGHA under my guidance & supervision for the partial fulfillment of degree of arts/Science of his/her paper AEC Scheduled & prescribed by the Vidyasagar University.


Indrajit De
(Supervisor)

Examined



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INTRODUCTION

Coastal Zone is transition area between land and water which terrestrial environments influence marine environments and vice-versa (Carter, 1989). Coastal Zone is the dynamic junction of Ocean, Atmosphere and Land. Undergoes continuous geomorphological changes in responses to natural sources and man-made activities. Natural processes like wind generated waves, tides, currents and continental drifts are always been densely populated and are nucleus for urbanization. Industrial growth and intense agricultural activities.

It frequently to change from its original environment due to natural or man-made activities.

COASTAL EROSION IN DIGHA AND ADJACENT

AREA:

CONCEPT:

Digha is one of the largest sea Resort towns located at Purba Medinipur district of West Bengal along the east coast of India at latitude $21^{\circ} 37' 25'' N$ and longitude $87^{\circ} 31' 35'' E$. Facing a long history of erosion and has been engineered extensively since 1970s. It extends for 5.45 km along the medinipur coast. Beaches, marshes, barriers against storm damage along the lowland coastal plain. Shoreline developments of Digha coast has intensified coastal erosion, altered the hydrology of sand dunes and wetlands, and also disrupted natural processes. The protective structure along the shoreline of Digha coast typically built to dissipate the energy of storm waves in turn disrupt the natural process of sand replenishment, and lead to further erosion in the near by unprotected areas.

According to previous reports, during powerful cyclone storms and high tides (High Spring tide) The wave of sea water rises above 5.50 m resulting into formation of

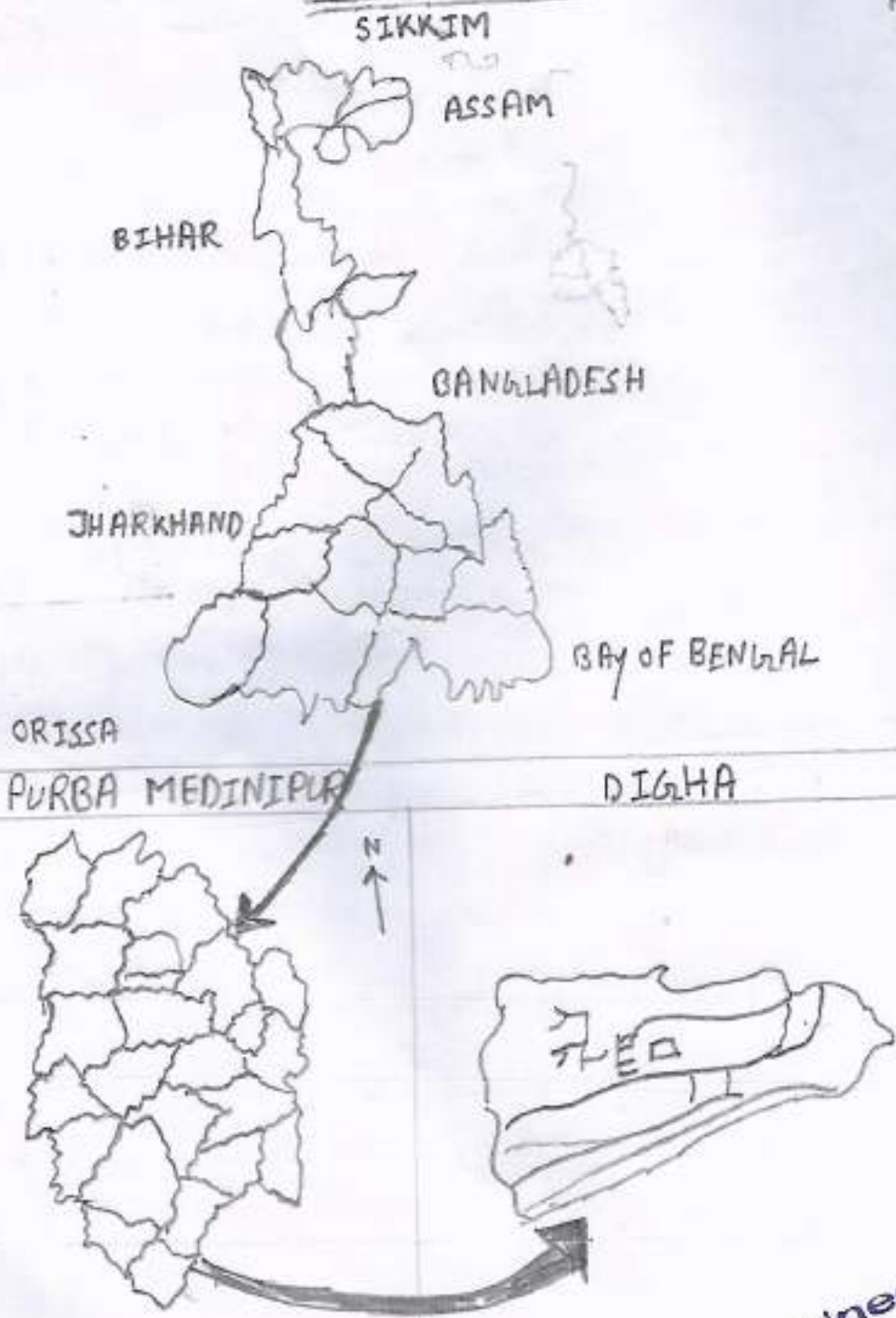
Vertical slips due to sea erosion main cuts with erosion through out its length from Shomkarpura to Tajpur (3.7 km) in Ramnagar and Degha ps.

OBJECTIVES

- The major objectives of this paper are.-
- To identify the causes that hinder behind the shoreline change during 1851 - 2015.
 - To delineate the changes of land use and land cover pattern due to erosional activity.
 - To highlight the socio economic impact for such changes.
 - Suggest remedial measures for erosion control for this coastal zone.

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LOCATION OF REGION
WEST BENGAL



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CAUSES OF COASTAL EROSION IN DIGHA AND ADJACENT AREA :

During this project investigation I have asked some respondents who have answered positively about the reason of the coastal erosion. They have given various answers to my questions.

From their information I have divided the causes into two categories. These are 'Natural and anthropogenic causes according to them. cyclone (27.27%), wave activity (18.18%), sea level changes (18.18%), deforestation (13.64%), engineering structure (11.36%) and others (6.82%) are responsible for coastal erosion. Also, some respondents have denied to make any comment (4.55%)

NATURAL CAUSES OF COSTAL EROSION

a. Tide / wave Activity :

The Phenomena of tide and wave are very significant facts in the Ocean area. The origin of the tides is in the sea but tidal effects travel up estuarine rivers. The tides have characteristic periodic Variation; to such periodic Variations are easily seen in lunar Semi diurnal tides and lunar tides, there are also other short and long period tides. The mean range of the during spring of Digha when the maximum erosion is done and falls with the ebb tide. During the cyclonic situation in the east of Digha region, maximum erosion and damages are occurred along the costal beaches, estuarine and the creeks.

b. cyclone :

cyclonic disturbance along the Digha coast area found maximum in a The destructive power of revolving tropical cyclones with strong south-west monsoon winds hit the Digha costal tract frequently during the mid-rainy season. In this Period the Joint hazards of winds (8-170 km/hour), waves (4.5m heights) and tides (up to 5-6m) causes greatest in a single season. So far as we got the record from the costal zone until is known that high erosion prevails in Junpat

With a rate of / per year.

c. Sea Level change :

Rise of sea level (due to global warming environmental pollution, wetland capture etc.) is also. Affecting such severe erosion in the coastal tract of Digha, west bengal. This up rising sea level is allowing the boy waves to break closer in shore at present along Junpui - Digha beach zones. This is more activity in the region of old digha township area and also in the boy of sea - hawk hotel Region.

UNNATURAL CAUSES OF EROSION :

a. Erosion Due to Engineering structure :

Digha coast of west Bengal is partially protected by boulder paved sea walls to prevent the erosion. Erosion is being occurred in this side the beach area is gradually sinking (120 m/year) along Digha zone. A long boulder wall has been built but that is not enough. It is also a cause of coastal Erosion.

b. Deforestation :

Vegetation of digha has already been destroyed due to huge constructions and other anthropogenic activities. Global warming and climatic changes has direct impact on coastal vegetation. Several human interferences (Industrialization, Pollution, waste disposal harbours, Roads, Sand mining, Sea breeding commercial or social forestry construction of resorts and beach tourism) causes destabilization of coastal sand dune and severely influence the dune ecosystem. In this places, the vegetation itself is the target of exploitation. It is the source of Fuel, wood and charcoal.

CAUSES OF COASTAL EROSION



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EFFECT OF COASTAL EROSION

a. Increasing salinity:

Tidal influence plays an important role to increase the salinity. Tidal water enters into the island and the severe destructive wave action increases the salinity which has a bad effect on socio-economic conditions of this island, especially on the crop production. This type of water is not fit for irrigation and agriculture purpose.

b. Loss of Land:

Due to destructive wave action and tidal effect most of the area are going to submerge under the sea. As a result of which people have to lose their property as well as land. Though the state govt. has taken the to construct the embankment but built up embankment is not a permanent solution to protect the island from erosion or landless.

c. Disturb Livelihoods:

The occupational structure of the displaced population has undergone a major change. Majority of residents are involved

In primary activities, i.e. fishing and agriculture, with the loss of agricultural land the people who were depend on such income source had to look for another alternative. Fishing is still popular. But different forms. Fish culture and dry fish business are the new attraction. Traditional method of capturing fish is losing its stand. There were write a number of reasons enlisted by the respondents for such a kind of shift. Like; decreasing marine fish catch dominance of mechanized etc.

EFFECTS OF COASTAL EROSION



Examined

MANAGEMENT OF COASTAL EROSION:

a. Construction of Groyne:

Groynes are barriers or walls perpendicular to the sea. of len made of concrete, rock or wood. Groynes are extremely cost effective coastal defense measures, requiring little maintenance and are of the most common coastal defense structures.

b. Construction of sea walls:

Sea walls refer to a type of vertical barriers that separate the land from the sea. This is especially important during storms where waves have high energies. They can be made of concrete, rocks or wood. The walls can be slopping or vertical. Although sea walls are expensive to build and maintain. Few years back an embankment was constructed by govt. from old digha to new Digha with the help of rocky boulders.

c. Revelments:

This is a sloping feature which breaks up or absorbs the energy of the waves but may let water and sediment

posts fixed into the beach with wooden slats between. Modern movements have concrete or shaped blocks of stone laid on top of timber material.

d. Monitoring coastal Erosion:

Shoreline mapping, Remote sensing, Beach profiling survey, Aerial photography methods, helps to monitoring coastal Erosion.

MANAGEMENT OF COASTAL EROSION



Examined

SUGGESTIONS

Keeping in mind the above finding problems, so - me suggestions are recommended for the development of this area along with an assessment of the resource potentiality for the economic revitalization of the area. These are as follows:

1. Regular maintenance of embankments is a must. Embankments should be repaired much ahead of rainy season and hoe measures need to be followed at construction phase. As embankments often collapse due to faulty engineering methods.

2. Forestry should be increased not only along the shoreline but also in the open lands of island rights. It is effective for protection from coastal erosion and storm attack and for ecological balance.

3. Maintain the CRZ rules proposed by the Govt. of India.

4. The running of the cars on the beaches should be banned for prevention of coastal erosion.

5. For casting of cyclone should be made for this area to minimize the damage to resource. and lives. Some resq must be built in such hazardous zone to give quick shelter the victims. Delineation of coastal batten zone is to be completed and a quick communication system is also to be made to connect safe and batten zone.

6. During the cyclone, the govt, should taken necessary steps to rescue to vulnerable men. Also they should built house for homeless people.

CONCLUSION

Therefore, on the basis of the above analysis it can be stated that management of coastal erosion is the most complicated and difficult task that involves integration and planning of several activities in a co-ordinated manner and thereby helping in sustaining the natural resources and the long term economic growth of our study area. The coastal areas exhibit a variety of specialized ecosystems some of which are land based and some of them are intertidal in nature, in the land part of coastal area. Terrestrial activities are predominant and they have tremendous impact on the quality of coastal erosion and play a vital role in the development of natural resources. Unless land based and sea-based activities are properly integrated and activities are made compatible to each other, the goal of sustainable development is difficult to attain.

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