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## Natural resources and economic activities of Digha-Shankarpur coastal region in West Bengal, India

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### Abstract

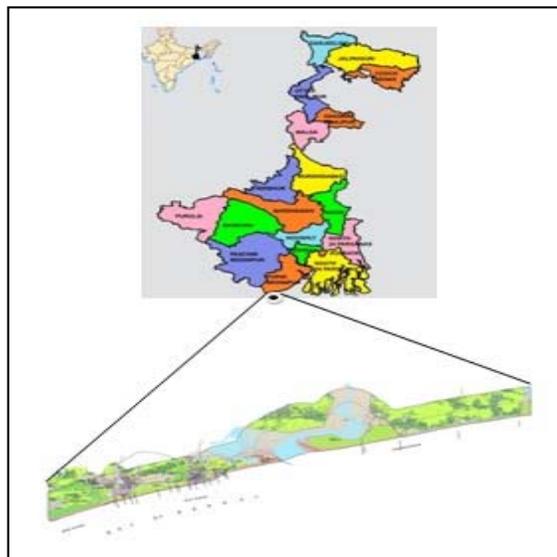
Natural resources, both renewable and non-renewable, and ecosystem services are a part of the real wealth of nations. The economies of most developing countries are currently very dependent on natural resources, for agriculture, fisheries and forestry subsectors, mining, oil and gas extraction, marine tourism and ocean transport. They are the natural capital out of which other forms of capital are made. Sectors related to natural resources use provide jobs and are often the basis of livelihoods in poorer communities. Long coastal tract of Digha-Shankarpur region has rich volume of different types of natural resources, which develops different types of economic activities and plays an important role in livelihood generation and local area development. This article reviews different types of natural resource base economic activities with special reference to Digha –Shankarpur coastal region.

**Keywords:** Natural resource, Coastal region, Livelihood, Economic activities

### 1. Introduction

Coastal areas are commonly defined as the interface or transition areas between land and sea, including large inland lakes. Coastal resources means the coastal waters of the state, their natural resources, related marine and wildlife habitat and adjacent shore lands, both developed and undeveloped, that together form an integrated terrestrial and estuarine ecosystem. Coastal areas are extremely important for the social and economic welfare of current and future generations, as coastal resources support key economic and subsistence activities. The economies of most developing countries are currently very dependent on natural resources, for agriculture, fisheries and forestry subsectors, oil and gas extraction, marine tourism and ocean transport etc.

### 2. Study area



**Fig 1:** Digha-Shankarpur Coastal Region

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The Digha - Shankarpur Area is one of the most popular beach destinations in West Bengal located south west of Kolkata. The region has attracted over 20 lakh tourists in 2011 and is showing a growing trend. It is 187 km from Calcutta and described as the Brighton of the East. Digha has a low gradient with a shallow sand beach and gentle waves. The beach extends 7 kms in length. The charming scenic beauty of this beach is complemented with casuarinas plantations along the coast. The sea at Digha is calm and shallow for about a mile from the beach making it ideal for swimming.

**3. Objectives**

1. To identify different types of natural resources of the study area.
2. To examine how people utilized these natural resources for their livelihood generation.

**4. Methodology**

This study has been done on the basis of literature review and secondary data and also based on field observation. Secondary data and documents related to this topic has been collected from different Govt. offices, NGOs, published and unpublished documents and websites.

**5. Coastal resource base economic activities**

There are four economic options in the coastal belt of the Digha-Shankarpur and Mandarmoni region: Coastal marine fishing at the open sea area, Coastal fish farming at the occupied tidal flood plains, Coastal farming of rice and other seasonal crops, Coastal recreation and tourism activity. There are also major occupations run by local people on the basis of livelihood support system such as agricultural labourers, fishing operators, transport and travelling companies, salt manufactures, hoteliers, vegetable gardeners etc. marginal economy also exists on the basis of available resources.

**5.1 Coastal marine fishing at the open sea area**

Fishing is a complicated activity under any circumstances. It involves the making, maintaining and repairing of boats, procurement and maintenance of requisite nets and other implements, putting together a crew, going out to fish in weather fair and foul, braving the risks of the sea making the catch and coming back. It also involves a lot of other things like freezing, sorting, processing and marketing.

This sector is no way related to tourism, but fact remains that this industry provides ample job opportunity to the local people of the Digha-Shankarpur-Mandarmoni area. Nevertheless, sea fish is an added attraction of Digha tourism.

There are two sites having two different activities-Shankarpur have two jetties with loading and unloading facilities of trawlers and fishing boats and Mohana at Digha operates wholesale auction activities.



**Fig 2:** Fishing boat at Digha Mohona

It is reported that about 1000 trawlers and 500 fishing boats use these jetties for unloading the fish they catch in sea. Most of the catches are sent to Mohana Auction Centre at Digha. Peak season of fishing is June-September and closing period is March-May. It is also reported that every trawler catches fish of about 7500 kg during a trip of 8-10 days in pick season. The corresponding figure of boat is 4000 kg. Average number of employee in a trawler is 10 and for a boat the figure is about 14. Thus about 17000 fishermen are directly employed in the fishing activities in sea. Besides another 3000 persons are engaged for loading, unloading, storing activities and carrying of fish to auction centres. Thus the total employment figure of Shankarpur jetties works out to be 20000 during peak season. Average cost per trip of fishing is reported to be Rs.1.40 lakh while average sale proceed is about 2.50 lakhs, leaving a profit of Rs.1.10 lakh per trip during peak season.

**Table 1:** Fishing gear, species & season

Fishing Gear	Species	Season	Fishing area
Drift gillnets	Pomfret, threadfin, hilsa, seer, croaker, catfish	Oct-Feb May-Oct	Bay of Bengal Estuarine
Set bagnet (Behundi)	Bombay duck, croaker, ribbonfish, small pomfret, shrimp, penaeid and non-penaeid	Sep-Feb	from temporary camps, Bay of Bengal
Bottom longline (Dhon)	Threadfin, croaker, ray, catfish	Sep-Feb	Bay of Bengal
Bottom set gillnets	Large perch, polynemus, catfish, ray	Oct-Mar	Bay of Bengal
Boat seine & encircling gillnet	Hilsa, catfish, threadfin	Sep-Feb	Bay of Bengal
Shore seine	Sardine, nonpenaeid shrimp	Year-round	Bay of Bengal
Trawling	Croaker, ribbon fish, catfish, prawn	Croaker, ribbon fish, catfish, prawn	Bay of Bengal

**Source:** Marine Small-Scale Fisheries of West Bengal: An Introduction, 1990

There are more than 50 Auction Units with about 250 commission agents are working at this Auction Centre under the control and supervision of Fish Owners Association comprising of 1850 members including 580 of Shankarpur. The Centre is located over 15 acres land where all trading activities are carried out. An International Auction Centre is being constructed by the Fisheries Development Corporation for which the Association has donated 3 acres of land to the government.

As reported by the said Association average daily sale of sea fish from this Auction Centre is about 500 metric tons;

annual transaction is about Rs.400 crores out of which Rs.300 crores are annual export earnings. About 28000 persons are directly employed in fishing and sale related activities. Beside thousands of people are engaged in storing, transportation activities, retail trade and ancillary industry, like, ice factory, fish processing etc. Thus taking two activity centres (Shankarpur and Digha) together, total number of direct employment works out to be 48000. Adding the employment figures in ancillary activities total number of employment in fishing sector cross 100000 marks.

**Table 2:** Fisher Folk Population

Name of district	No. of Fishing Village	No. of fisher folk family	Fisher folk population			
			Male	Female	Total	
Purba Medinipur	Inland	35	8625	27893	26800	54693
	Marine	624	20316	91419	30471	121890

Source: West Bengal Fishery Department, 2011

Small fishermen in unorganized sector operate 90 boats in a group to do fishing manually near sea shore every day. Out of 90, it has been possible to conduct survey of 68 boats. Of these 26 boats are found to consist of a group of 30 person, and 42 with a group of 10 persons. Thus with a conservative estimate about 1500 persons are directly engaged in this unorganized sector fishing activities (DSDA, 2014) <sup>[3]</sup>.

A good number of stake holders are already involved in ornamental fish farming of coastal Bay of Bengal, but there is lack of proper marketing channel in this trade. In most of the cases the rural women and children collect the fishes from the natural habitats. The exporters buy these fishes from the farmers/collectors, against nominal price and export them to the global fish market (Dutta, 2013) <sup>[4]</sup>.

Fishing on the East Medinipur coast is related to an entire chain of activity. After the fish is brought to the shore, the raw fish goes into a separate marketing chain. But the bulk of fish is put out to dry. Therefore when one goes into a Khoti area during the Khoti season, i.e. the main fishing season (roughly from 15 September to 15 March in West Bengal) one is immediately overwhelmed by the odour of fish drying.

Large tracts on the beach are set out for fish drying. Mostly women – busily engaged in the process of sorting and drying the fish. So the Khoti brings together an entire host of people. Fishers who take out boats and crew and catch fish. Sorters and driers; plus vendors and traders; and often shopkeepers, paramedics, and other people doing business within the Khoti area. The Khoti is there and fully functional for around 6 months and often somewhat more. And all those people are there, going about their business. This business involves massive cooperation. It also entails conflicts. The Khoti is the fishing community's mode of civic and economic self-organisation; it is coming together by the fishers to ensure cooperation and reduce and manage conflicts (DISHA, 2006). <sup>[5]</sup> about 39 Khotis continue to function, year after year, on the relatively short stretch of the East Medinipur coast and involving easily more than 50,000 fishworkers, vendors, traders and their staff, and carrying on incredibly bustling activity, proves that the fishers have succeeded in creating a self-organisation that is viable in all senses of the term.

**Table 3:** Major Khotis of the coastal areas of Purba Medinipur District

Category	Khoti											
	Dadanpatrabar (Kharpai)			Junput			Haripur			Baguran Jalpai 1 and 2		
	M	F	T	M	F	T	M	F	T	M	F	T
<b>Fishing</b>	1000	0	1000	1300	0	1300	520	0	520	491	4	495
<b>Traders</b>	30	0	30	400	0	400	16	9	25	2	0	2
<b>Traders' employees</b>	270	0	270	700	0	700	-	-	-	-	-	-
<b>Sorting, Drying, Cooking, Packing, Net Repairing</b>	1080	1400	2480	1800	-	1800	125	375	500	57	298	355
<b>Sundry activities</b>	196	32	228	-	-	-	80	25	105	22	29	51

Source: DISHA-Society for Direct Initiative for Social and Health Action, 2006

**Table 4:** Fish landing centre/Khuties in Purba Medinipur District

District	Police station/Block	Landing centers/ Khuties
Purba Medinipur	Ramnagar -I	Digha Mohana, Sankarpur, Digha Matsyajibi, Jaldha, Jaldha Mabasuli
	Ramnagar - II	New Jaldha, Dadan Patrabarh, Cheausuli – I, Cheausuli – II, Jona kolyan
	Contai-I	Soula – I, Soula – II, Bhandar Mohana, Baguram Jalpai – I, Baguram Jalpai –II, Haripur, Junput
	Contai-II	Uttar Kadua, Dakshin Kadua, Gopalpur, Bhogpur, Bankiput, Daha Sonamui
	Khejuri-II	Gorharjalpai, Boga, Sundarpur, Nijkasba, Medinagar Dolai, Medinagar, Gini, Dinda, Dutta, Pradhan Roy khoti, Nankar Gopindapur, Washilchak Thana, Koukhali, Arakbari, Dhobaghata, Kadirabadchak, Chursahed

Source: Personal observation

The majority of the fishers (40%) involved in dry fish or shabar business at the Digha - Mandarmoni coastal area of Purba Medinipur district. There are two types of people work in a shabar. People who catch and transport fish to the shore are called “naukar lok” and people who work and stay in the khunti are called “kuler lok” (Pramanick 1993, 48) [6]. The shabar malik pays to the fishers and other dry fish workers on the basis of a seasonal contract. The dry fish workers at the khunti are divided into two categories. One who are wage labours and other who are office staff such as manager (Pramanik 1993) [6]. The wage labours are divided into two groups. One group, generally comprised of men, women and children, is engaged in sorting and drying of fish. The other group, comprised of old and retired fishers, is engaged in making and repairing nets. This latter group is called bununi/sarani. They always repair damaged behundi nets for the entire season. The price of dried fish in the market depends on its color. If the fish become reddish in colour the fish are considered rejected. These fish are not sold as food for human consumption. Those are mainly used for making fish meal.



**Fig 3:** Fish Drying at Digha Mohona

Aquaculture and shrimp farming has been taken up in a big way in the coastal belt of this district. Large tracts of lands in Purba Medinipur coastal area is steadily getting converted into saline ponds for Shrimp farming, an economic boom is benefiting farmers, traders and the government (Acharya, 2014) [7]. Shrimp farming is a popular economic activity of the coastal areas of Purba Medinipur district. Shrimp farming ponds are situated at the Ramnagar – 1 and 2, Contai – 1, Desapran blocks of Purba Medinipur district. Digha play a major role in the prawn culture in West Bengal since 1980. A fisheries department official said mostly tiger prawns were farmed in the East Midnapore fisheries. “Every year, 15,000 tonnes of prawn are produced and much of it is exported to Japan.

Digha coast has a long sheltered shelf that becomes an easy ground for shallow water fishing is immense here. Fishing has also been a means of livelihood to the coastal villages of Digha were most people live below the poverty line. Risks and accidental deaths are not taken in to account by these poor fishing classes who have no other way of earning livelihood. Situated along the sand drier parts of Bengal the prospects of agriculture are not so high. As a result people keep on finding alternative ways of livelihood. Small-scale and cottage industries sprout out to support the economy of Digha and adjoining areas. Mostly these industries use

marine products as their raw materials to run a shop and earn living. Clams, corals, shells, stones are used as raw materials to prepare ornaments, accessories, products of daily use, mats, hats and curios. Along the Contai seashore various types of beautiful oysters and conch shells are available, which can be utilized to make ornaments, house decorations, handicrafts and a variety of other products (Sarkar, 1988) [8].

**Table 5:** Coastal Resources Based Small Scale Industry

Type of units	Main area of concentration	No. of units (approx)
Cashew processing	Contai-I & Contai-II	300-350
Salt manufacturing	Ramnagar-I & II, Contai-I	55-60
Sea Shell	Ramnagar-I & II	600-650
Diversified Jute Products	Ramnagar-II	150
Brass & Bell Meta	Ramnagar-I	100

**Source:** District Human Development Report Purba Medinipur, 2011

Beside the marine fishing and coastal aquaculture some peoples are engaged in Cashew farming and Cashew processing at the coastal area. Cashew farming areas are mainly situated at Ramnagar – 1 and 2 blocks along the coastal areas and Cashew processing centers are located at Contai 1 and 2 blocks of Purba Medinipur district. Cashew nut is cultivated in area of 2233ha. and with a production of 1784 MT.



**Fig 4:** Cashew Tree Garden at Digha

## 5.2 Cash Crops Cultivation

Cash crops such as coconut, squat gourd, and melons of all varieties, cashew nut, jackfruit, betel nut, betel leaf and banana are cultivated at the coastal areas of Purba Medinipur district. The soil of the southern and southeast portion of Midnapore district is saline, which is why coconut grows very well there. Large quantities of coconut tree plantations are located at the coastal area, which is very important for the income generation of the local people. A network of small-scale or cooperative coconut industries can be established in the Contai Basin to supply coconut oil throughout West Bengal and the north eastern states of India. Even the shell of the coconut can be used to produce various commodities. Thus, in every village there is the potentiality to develop cottage industries. In fact if coconuts are grown on a large scale in the Contai Basin, the local economy will be transformed automatically, and the standard of living of the people will be greatly increased (Sarkar, 1988) [8].

Cashew nuts are also a very profitable cash crop in India and abroad. The soil and weather of the coastal areas of Contai Basin is quite congenial for cashew nuts. The local farmers earn a good livelihood by utilizing this valuable cash crop in various ways. Local people also cultivated Jackfruit, Potatoes, Water Melon, Chiku, and Strawberry in different seasons for income generation and increase the opportunity of livelihood diversification.

### 5.3 Ice plant and Boat manufacturing

The ice supply in Midnapore is, however, inadequate at present. Ice production is only 100 Ton/day at Contai, Sankarpur and Digha where there are private and co-operative sector plants.

Since the early '80s, there has been a rapid increase in motorization of traditional craft, Government-supported and otherwise. Engine spares are usually procured from Calcutta, but running spares are usually available in the main centres or nearby towns.

Boat-building facilities are available at Sankarpur in Midnapore District. Traditionally, boats have been built in centres like Junput, Saulaghat. As with workshops, timber depots and saw mills are within a day's reach from any centre.

### 5.4 Tourism activities

Coastal areas worldwide are major destinations for tourism, which represents the fastest growing sector of the global economy. The gently rolling coastal plains of Digha has been a source of attraction for the tourists and lakhs of tourists pour in this small growing township every year to enjoy the scenic beauty & the gently waves. The region has attracted over 20 lakh tourists in 2011 (DSDA, 2014) [3] and is showing a growing trend.

### 6. Summery

On the basis of above discussions it can be said that, from a livelihoods perspective, the role of natural capital in the study area was highly important. Above discussion showed that significant dependence on at the Digha-Mandarmoni coastal region of Purba Medinipur district local peoples are engaged in different types of natural resource based economic activities for income generation and development of their society. The main economic activities of the Digha-Mandarmoni coastal region are agriculture and marine fishing. Local people also engaged in cash crop cultivation, i.e. Jackfruit, Potatoes, Water Melon, Chiku, and Strawberry in different seasons for income generation and increase the opportunity of livelihood diversification. Populations in coastal areas are growing faster than those in non-coastal areas. This is a concern because population growth and the activities associated with it can degrade coastal and marine ecosystems. Integrated Coastal Zone Management (ICZM) project has been taken for overall development of the study area.

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