

## Indian Streams Research Journal

### SMALL ISLAND INSULARITY: A CASE STUDY ON CHUKSAR ISLAND, HUGLI ESTUARY

**Abstract:-**

Hugli is the western most distributaries of the Ganga-Brahmaputra deltaic region. Numerous transient islands are found in the estuarine regime. Chuksar is the outer most and smallest island of the estuary. The present study intends to study the dynamic transient nature of the island and to portray past occupancy and future prospects of the island.



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### 1.1 INTRODUCTION

Chuksar (88° 01' E and 21° 35' N) is located in the outer most part of the Hugli estuary. Morphologically it is the most unstable island in the studied region. The island continuously diminishes its size since the time of its inception. Areal extent is less than 1 km<sup>2</sup>.

Chuksar, a seasonally settled outer estuarine island is situated in south-west of Sagar. Reaks (1919) stated that Lower Long Sand, another tidal sand ridge of the outer estuary is characterized by formation and eroding nature of incipient islands fairly regularly. Morphologically, Chuksar is very dynamic in nature. It was evolved and developed as 1.19 km<sup>2</sup> tiny island between 1942 and 1967-69. During the next 32 years (in 2001) it migrated north by 2 km and gained 0.81 km<sup>2</sup> area. In 2009 Chuksar has remained 0.56 km<sup>2</sup> area (Table-1, Fig. 1). The island is constantly changing its shape because of strong wave action and its small size. One lagoon is found here in its western part. Marshy land found in middle part. The typical horn shape pointing north-east is due to prevailing south-western waves of outer estuary.

**Table-1: Changes in island areas (km<sup>2</sup>): 1967-69 to 2009**

Survey/Imaging Year	1967-69	1986-1988	2001	2009
<i>Time difference with previous survey year</i>	-	19 years	13 years	8 years
<b>Chuksar</b>	1.19 (Not reclaimed)	Not Considered	0.81 (Not reclaimed)	0.56 (Not reclaimed)

Source: Modified after Bandyopadhyay *et al.*, 2004

### REASONS FOR ISLAND INSULARITY

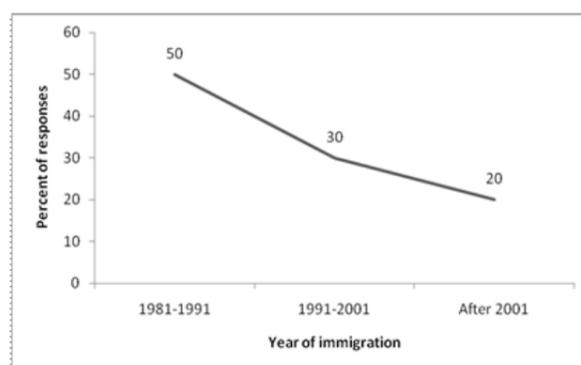
Dynamic nature of the tidal sand ridges and channels are characteristic features of the Hugli estuary. In 1865, Leonard indicated that, in the Hugli estuary, 'the channels are incessantly being redressed and or reshaped and hence the bars are constantly re-forming and moving up and down adapting them to the new form of the channel' (O'Malley, 1914). The changes in the islands of the Hugli estuary are strongly related to the changes in its tidal channels and sand ridges. The shapes of the outer islands are influenced by waves which play a major role in sediment reworking in the southern sections of the estuary.

The estuarine islands evolve, enlarge and dissipate due to sediment reworking in a high energy cyclone dominated macrotidal environment. Roy (1969) suggested that the movements of the tidal channels and sand ridges of the estuary follow a 90 to 100 year cycle. Bandyopadhyay's study (2000) also admits that the accretion-erosion trends of the islands situated on the tidal sand ridges are also cyclic and follow a rhythmic pattern operating on a similar time scale. However, caution should necessary in its application as long periodical observation is needed to establish its validity.

No such systematic work has been done on the transient fishermen of Chuksar. The fieldwork persuaded during the fishing season in February 2002 and 2004. The data was collected on the basis of questionnaire survey and taking interview of the fishermen present therein. Field visits in 2009, 2012 found the island to be deserted by the fishermen.

### 1.2 Past occupancy and future prospects

Chuksar evolved as a temporary settled island characterised by transient fishing activities since 1980s. Fishing techniques were similar practised in Jambu. Fisherfolk from East Medinipur, South 24 Parganas and Haora districts came here on seasonal basis (October to February). Immigration phases can be categorised as: 1981-1991, 1991-2001 and after 2001 with a tapering trend (Fig. 1).



**Fig-1: Immigration profile of Chuksar; Source: Field survey, 2002**

Fishing business did never flourish in Chuksar unlike Jambu. Dry fishes were of inferior quality

and sold for fish meal and poultry feed purposes mainly. Social groups of the fishermen consisted of SC (70 percent), general hindu (20 percent) and muslim (10 percent) categories.

### 1.2.1 Co-operation and conflict

The fishermen maintained co-operation both within the unit and outside the units. Co-operation found in various aspects like socio-economic, recreational and ceremonial kinship. As their focal concern was fish and fish related discussion, it created a strong bond of kinship. Most of them belong to the similar socio-economic group with common aspirations. Due to living in an isolated island and in a similar environment they were found to be interdependent and helped each other at times of need. Sometimes conflicts arose both within and outside unit members either due to mental disturbance created by disappointment regarding fish catch or setting of the net. But they tried to solve the problems with endurance (Table-2).

1968-'69	Chuksar was developed as 1.19 km <sup>2</sup> tiny island (Chakma and Bandyopadhyay, 2012).
1980-2003	Transient fishing communities from East Medinipur, South 24 Parganas and Haora Districts continued dry fishing activity (Field survey, 2004).
1990-'91	Fishermen developed an organisation and started fishing business in the island. (Field survey, 2002).
2002	Number of fishing unit increases to 130 (In 1991 it was 27). Each unit consisted of 7 to 30 members with 1 to 3 fishing boats depending on their size. Dry fish production was found highest in November (Field survey, 2002).
2004-'12	The area was abundant by the fishermen due to its diminishing size and erosion of a natural harbour (Field survey: 2004, 2009 and 2012).

### 1.2.2 Members in the fishing camp

Fishing camps had the following structure.

**Head fishermen:** They were the head men involved in the fishing system.

**Fishermen:** They were recruited by the head fishermen. They involved directly in catching fish, fish transportation and sometimes drying also. The skilled fisherman appointed by each headmen of individual unit was the key person for harvesting, site selection and construction of the unit. He advised other fishermen to operate the net in the sea. He was the highest paid person in the unit also.

**Labour:** Huge amount of labour was required in the fish drying activity. Mostly they were given money in advance basis.

### 1.2.3 Fishing techniques

Fishing techniques were common as practised in other marine fishing units in Sundarban (Jambu island). The selection of site for fishing net was the most important task and required considerable experience. The catch was removed either the end of tide and beginning of ebb, or the end of the ebb and the beginning of the tide. The time span varied according to lunar day decreasing towards new moon or full moon. The fishermen had to remove the catch during the short span.

### 1.2.4 Fish drying method

**Fish was dried under the sun. Two techniques were:**

- Horizontal drying: Small fishes were dried on horizontal wooden racks raised about one metre above the ground. The fishes were placed on mats and turned occasionally to prevent sticking on mats.
- Vertical drying: Fishes of large size like bombay duck, sword fish were dried hanging from vertical wooden racks. Some small stingrays were sliced and hung by the tail from a vertical rack to dry.

A typical drying yard consists of a fenced area in the unit with fishermen living therein for the season.

After arrival of the catch on the shore the fish were collected in the basket and carried to the camp and stacked over a bamboo mat in the place allotted for sorting the fish. Sorters then spread the fish thinly on the mat. The fish were sorted according to the types. After sorting, each variety spreads separately open to be dried in the sun. The bombay duck fish were stuck mouth to mouth through their gills and hung over the horizontal bar of the fish drying rack. When the fish became completely dry, they were packed in jute bags or stacked temporarily on the floor of the storeroom for final transportation to the market.

### 1.2.5 Marketing system of the fresh and dry fish products

Fishermen had an organization named Dakshin Sagar matsyajibi Samity. Sheikh Jaharat Ali was the president of that. He started fishing business in Chuksar during 1990-91, after getting permission from the Contai Meen Bhavan and Marine department. Survey during 2002 found that number of units increased from 27 to 130 during 1990-91 to 2002 (due to turmoil condition of Jambu island). Each unit had seven to 30 members with one to three fishing boats depending on their size. They usually spent about Rs.6, 000/- in a season and build one elongated house, stags for fish drying, dug wells for water and one ice box. During season, fishermen came here with their families and domestic animals (hen, goat e.g.). They brought their

daily necessary goods like rice, spices, mustard oil, kerosene oil, vegetables and drinking water from Kakdwip (South 24 Parganas district) or Uluberia (Haora district) areas in every fortnight. Dry fish production was found highest in November.

Some fresh fish also exported to the Kakdwip, Kolkata, Uluberia and Seoraphuli markets. For this, ice factory was constructed in Namkhana areas. Sometimes, small traders also came and directly purchased dry fish from the camps. Fish varieties had exported as Rs. 2,500-3,500 per quintal bases. Small fishes of mostly juvenile varieties, shrimps were sold about Rs. 500-700 per quintal basis and were mainly used as fish meal or poultry feed purposes. During a season each unit earned about Rs.50,000/-1,00,000/.

#### 1.2.6 Credit system

Credit played a vital role in the fishing activity. Head fishermen collected money from different NGOs and money lenders.

**Non institutional credit system:** Money lenders and associated money lending system are a common phenomenon in the coastal areas and Chuksar was not an exception to this. During study it has been found that there were 7 to 8 big farm houses of Medinipur district operating the system. Non institutional money lending compelled the fishermen to accept 'conditional engagement' in the fish drying business. Beside credit, other general loans of short period of time were also available. According to the credit system, the fisherfolk had to give the fish catch to the money lender. The dry fish were transported from the fishing camps to the dry fish market centres by trawler and handed over to the respective farm houses. Kolkata happened to be the main centre from where it was sent to different parts of India like Orissa, Chennai, Mumbai, Assam and other North-East states.

#### **Social credit system: Two types had been found in Chuksar:**

**(a) Commission system:** Fishermen took money from the local businessman on commission basis to meet their requirement for a fishing trip. The condition of the system was to give a share of the catch as commission or repayment of the loan taken.

**(b) Contract system:** According to this system rich trawler owners provided fishing permits and loans to fishermen and paid them for their catch. In this system fishermen acted simply as labourer.

#### 1.2.7 Health care system

In every fishing season, some private medical practitioners came and built their temporary medical shops in the nearby fishing camps of the Chuksar island. During survey, I had met with four such doctors. While discussing with them about the diseases mostly affected the fishermen, they talked about diarrhoea, dysentery, fever and headache and skin disease as the common diseases. Fishermen often felt victims of diseases like diarrhoea or cholera. For any kind of serious matter they suggest the fishermen to go the hospitals in the mainland areas (Kakdwip or Haldiya).

#### 1.2.8 Future prospects

It has been observed that though Chuksar acted as a dry fish producing centre for around two decades, fishing business didn't flourish much here. Unstable nature of Chuksar causes deportation of fishermen from the island.

#### 1.3 Concluding remarks

Chuksar is open to any kind of natural calamities as it is unstable and devoid of non-structural and structural protection. According to the severity of hazards tropical cyclone acts as the most hazardous. Initially, fishermen tried to venture Chuksar but abandoned it after seeing it difficult to continue fishing due to erosion of a natural harbour and continuous eroding nature of the island. The island can sustain as a natural laboratory to analyse evolution and island ecology of it.

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#### 1.4 REFERENCES

1. Bandyopadhyay, S. 2000. Coastal changes in the perspective of long term evolution of an estuary: Hugli, West Bengal, India. In: Rajamanickam, V. and Tooley, M.J. (ed.), Quaternary Sea Level Variation, Shoreline Displacement and Coastal Environments, New Academic Publishers, New Delhi: 103-115.
2. Bandyopadhyay, S., Mukherjee, D., Bag, S., Pal, D.K., Das, R.K. and Rudra, K. 2004. 20th Century Evolution of Banks and Islands of the Hugli Estuary, West Bengal, India: Evidences from Maps, Images and GPS Survey. In: Singh, S., Sharma, H.S. and Dey S.K. (ed.), Geomorphology and Environment, ACB publications, Kolkata: 235-263.
3. Chakma, N. Bandyopadhyay, S. 2012. Swimming against the tide: Survival in the transient islands of the Hugli estuary, West Bengal, In: Jana, N.J. (chief editor), West Bengal Geo-Spatial Issues, The University of Burdwan, Burdwan: 1-19.
4. Reaks, H.G. 1919. Report on the physical and hydraulic characteristics of the delta. In: Stevenson-Moore, C.J., Ryder, C.H.D., Nandi, M.C., Law, R.C., Hayden, H.H., Campbell, J., Murray, Stevenson-Moore, C.J.,

- Ryder, C.H.D., Nandi, M.C., Law, R.C., Hayden, H.H., Campbell, J., Murray, A. R., Addams-Williams, C. and Constable, E.A., Report on the Hooghly River and its Headwaters. 1, Bengal Secretariat Book Depot, Calcutta: 29-132. Maps in vol. 2.
- 5.Roy, S.C. 1969. Hydraulic investigations on behalf of Hooghly estuary. Mitteilungen des Franzius. Inst. für Grund-und-Wasserbau der Technischen Uni Hannover: 149.
- 6.O'Malley, L.S.S. 1914. Bengal District Gazetteers: 24 Parganas. 1998-reprint, Government of West Bengal, Calcutta: 408.