CHAPTER EIGHT
CYCLONES AND TOURISM

8.0. INTRODUCTION

Ordinarily, tourist centres have to satisfy some spatial attributes which are the primary stimulants of an ordinary place having been upgraded to become the centre of tourists’ attraction. These may be anything like places of historical importance, adventurous experiences, desirable climate or just the scenic beauty. Coastal resorts, nevertheless, fulfil the last two criteria and are likely to have a perennial tourist-flow.

But the tourists’ cerebration and preference about choosing the place/ before setting a tour programme are considered as most important when the resort is situated in a cyclonic coast. Other conditioning factors evolved mainly from vacational restrictions may supercede their actual desires of time for travelling. Nevertheless from the specific standpoint of our objective we have selected the places which are endowed with natural beauty of the coast in West Bengal.

8.1 TOURIST CENTRES

Digha in Medinipur (fig. no.2.2) and Bakkhali (fig no.2.3) in South Twenty Four Parganas are the two principal resorts in West Bengal coast for our consideration. Of the two other centres, Ganga Sagar (fig no.2.3) as pilgrim centre at the Hugli mouth and Sajnekhali as Tiger sanctuary in the eastern part of the South Twenty Four Parganas do not satisfy the criterion of beach-tourism and are not considered for the present research.

The thin perennial flow (though not very significant) of tourists in Ganga Sagar are primarily the pilgrims who visit the place in other times only to
avoid the over-crowding at the fixed time of the year for annual religious worship at the temple of Kapil Muni. The state government wants to develop Ganga Sagar as a full-fledged tourist centre. But the place fails to receive tourists' attraction to a considerable extent perhaps due to some hazardous indicators (crossing the river by ferry launch) in communication as perceived by the Kolkata-based tourists and especially due to the shortcomings embedded in the coastal beauty with short sea-waves, very flat slope and less bluish colour of sea-water.

People go to Sajnekhali to see the crocodile project amidst jungle and to enjoy neither the maritime climate nor the beauty of the sea. Diamond Harbour, situated approximately 46km. inland from the land-water boundary and at the tip of the Hugli mouth, enjoys a reverine beauty of its wide stretch but it cannot be treated as a beach resort. Especially, it is well connected with Kolkata both by bus and train services, so that the tourists can leave the place immediately after receiving the cyclone news. However an overview of the tourist centres in the West Bengal coast reveals that only Digha and Bakkhali match the purpose of the research and these are given an introduction.

8.2 AN INTRODUCTORY NOTE ON DIGHA AND BAKKHALI

We have used the term beach-tourism in our study. But the specific site for tourism may inherit physical vulnerability due to different erosional and depositional processes of marine action. From this perspective, both Digha and Bakkhali need a historical account pointing to their physical layout and developing as tourist centres as well.

8.2.1 Digha

Digha tourist centre is stretched between $21^\circ 37' 15"$ N to $21^\circ 37' 20"$ N lat and $87^\circ 31' 17"$ E to $87^\circ 31' 30"$ E long. It forms the southernmost part of the Digha police station and the Kanthi sub-division as well extending westward up to the border of Orissa. The east-west extension of this stretch of land is about
4 km and the width from south to north varies within one km (fig no. 8.1 and 8.2). An extensive beach backed by sand dunes with a cover of casuarina (Plate No. 8.1) characterizes both the eastern and western parts of Digha. But the east-central part i.e. known as Old Digha has lost all of its grandeur due to beach erosion.

8.2.1.1 Tourism potential and vulnerability of Digha

That the vulnerability is embedded in a coastal situation is a known fact and it is also known that this varies with spatial and temporal framework. But Digha tourist centre or the earlier health resort of Birkul which was in the south of Digha in the 19th century has been facing the erosional phase of sea since that time.

Birkul, as found in different names in different historical reports (as Noricool in the map of Valentijn, 1664 A.D. in chart of Thomas Bowrey, 1688 A.D., as a river named Bitecool in the pilot chart of 1703) was in a high esteem as a potential health resort for the Europeans. Towards the earlier part of the 18th century, in 1718, Bengal Gazette suggested for the development of Birkul as a health resort.

To Warren Hastings, it was a sanatorium and Brighton of Calcutta potentiated with “deer stalking, hunting and fishing” available in the neighbourhood. To Charles Chapman (1796), the beach was “certainly the finest in the world and the air such as to preclude any inconvenience being felt from the heat”. He expressed the hope to make another trip in the next year. Bayley (1852) also praised the soothing climate with phrases like “a delicious sea breeze in the summer” (O’Malley, 1911, pp. 205-06).

The fact that was ignored by them was that Birkul was already in a state of erosional process. The bungalow in Birkul, which was used by Warren Hastings was washed away and an Inspection Bungalow had been erected by the Public Works Department, at a place, quarter of a mile inland, at Digha.
DIGHA POLICE STATION

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- STATE
- POLICE STATION
- VILLAGES (MOUZA WITH J.L. NUMBER)
- POLICE STATION HEADQUARTER
- URBAN AREA (DIGHA TOURIST CENTRE)
- STATE HIGHWAY
- AREA OF ENCROACHMENT BY HOTELS (NOT TO SCALE)

The history of the next hundred years is not known. In the next phase, Digha drew attention for development as a coastal resort. The sole credit is likely to go to the administration for constructing the first cafeteria around 1962, establishing tourist lodge and ‘Saikatabas’ (fig no. 8.2) as first accommodation for tourists. It also started investigation for the sources of fresh drinking water (Mitra, D., 1982, pp.27-30) and built-up infra-structure to make Digha a large tourist centre. Towards the late seventies of the last century, a bridge was constructed over the river Haldi to encourage tourism by shortening the time distance from Kolkata and its suburbs.

But as Digha started to develop as a tourist centre, the erosional problems no longer remained unnoticed by the developers. From the fifth report of the committee on government assurances regarding prevention of erosion at Digha, presented before the Assembly on the 3rd April, 1974, it is known that Forest Department, Indian Institute of Technology (IIT) and the Irrigation Department had different proposals for preventing erosion and progradation of sea at Digha. The committee however recommended the proposal of the Irrigation Department to raise the height of the beach by boulder pitching and to construct embankment. The present embankment may not be affected by tidal effects but may easily be breached or eroded in a cyclonic situation.

It is surprising to note that the committee advises the government for constructing more hotels and bungalows to attract tourists at the time when the rate of erosion is reported to be as high as 5.49 mt per year, though the boulder pitching was presumed to be a successful measure (Fifth Report of the committee on government Assurances 1973-74, 1974).

According to another report by Rashtriya Barh Ayog, Government of India, the annual rate of erosion in Digha was 10.66mt (1980). Though the rate of
DIGHA TOURIST CENTRE

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A1. RESIDENTIAL
A2. INDUSTRIAL HOUSING
B1. HOTELS
B2. TOURISM COMPLEX
B3. COTTAGES
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B7. MIXED USE (COMMERCIAL/OFFICES/PUBLIC USE)
C1. SCHOOL
C4. AGRICULTURE RESEARCH
C5. HOSPITAL / CLINIC
E. PUBLIC OFFICES / INSTITUTES
E3. WATER WORKS
E4. SEWERAGE TREATMENT
F1. BUS TERMINAL
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G2. CYCLONE HAZARD PRONE AREA (DUE TO NEARNESS TO SEA)

Source: Land Use Planning Cell, Govt. of West Bengal
this erosion figure was almost double compared to that of the previous one in the year 1974, the question ultimately points to the problem of erosion. It is clear in an intensive research work by Bandopadhyay carried on in the Hugli estuary that the rate of erosion accelerates at the place of interference (Bandopadhyay, 1997 pp 1-17). It is not known, however, if this accelerated rate was the resultant effects of the preventive and protective measures already taken.

Presently, the Old Digha is almost devoid of beach materials. Only a cemented pathway is projected towards the sea. Rest of the beach is covered by boulders. In the east of Old Digha, where no such protective measures were taken, an wide stable and smooth beach prevails with a high dunal line and vegetative cover. In the west, though the beach is not so wide the dunes persist with vegetative cover. Accepting the differential rates of erosion in situational difference of space and time, the fact that cannot be denied is that sea is in a state of progradation.

While describing and delineating the Medinipur coast (Chapter-Two) existence of the third dunal line parallel to the coast was mentioned. This inner line of sand dune is a strong evidence of the retrogression of sea in the past. About 10 kms north of Digha, at Mirgoda, an extensive sand dune is found with a considerable height about 2.5m. (fig. no. 2.2). The temple with the deity of the goddess ‘Lankeswari’ meaning the goddess of Lanka i.e. the present Srilanka is an evidence that the place was once exposed to sea.. Once Digha was only an offshore bar which later joined with the mainland by filling up of the water surface with passing of time. Under a natural cycle, the sea may try to go back to its previous position to reach a state of equilibrium(Niyogi, D., 1970, pp. 1-36).

The purport of giving a detailed account of erosional exposure of Digha is only to have a note on the vulnerability of a township like Digha based on tourism industry which has no other resource base other than the coastal beauty and maritime climate.
At the rise of a cyclonic situation, the loss of property is no less formidable in a developing country like us, along with other hazardous consequences suffered by the low-income group people associated with tourism. A similar account is given on Bakkhali in the following section.

8.2.2 Bakkhali & Frasergunj

Bakkhali (21°34'44"N lat., 88°15'55"E long) is the southernmost island in the first promontory of the Hugli estuary in the east of the Sagar Island. The Pitt’s creek debouching to the sea borders the island in the west, the Saptamukhi lies in the east and the Ilatania-Doania or rather a small creek joining Pitt’s creek in the west makes its northern boundary (fig no.2.3).

Bakkhali is under the Frasergunj gram panchayet in the Namkhana Block within the police station of Namkhana. The name of Bakkhali perhaps evolves after the similar name of a creek which traverses the eastern margin of the tourist centre. The actual name of the mouza is Lakshmipur. Lakshmipur, in the name of Bakkhali, extends westward about 4 kms. upto Frasergunj, but only half a km. to the north upto the road parallel to the coast. The northern side of the road is known as Amaravati.

8.3 RESOURCE HORIZON

Just like Digha, Bakkhali is now experiencing an erosional phase with a narrow beach. In the east of Bakkhali a wide beach prevails. A low sand dune and mixed coastal vegetation enhances its beauty. But this is on the outskirts of Bakkhali. In the eastern side of the tourist centre, mangrove vegetation, both natural and man-made, survives. The species are mainly Goran (Ceriops tagal & Co Decandra), Gengwa (Encoecaria agallocha), Baen (Avicennia of icinalis A. alba & A. Marina), Hantal (Phoeniz paludena), Golpata (Nypa fruiticans) etc. But as the sea is invading the land, the matured species of Gengwa (Encoecaria agallocha) is fast disappearing. The remnants of the
stilted roots are scattered over the beach. But gradually these are also vanishing as being cut and collected as fuel by the local people.

According to local information, the sand dunes have been reduced by $\frac{3}{4}$ th of its height in the storm (as they referred it) occurred in 1988. In Bakkhali, at places the dunal sand is flattened and at some other places its height has been raised by 2m to 3m. In an overall impression, the beach in Bakkhali may fail to satisfy the general tourists for its lack of sophistication and attractiveness. But some people may be impressed more with its wild beauty and its association with forest and sea and also with a beach which is not sandy, but sand mixed with mud.

The beach, however, widens towards Frasergunj. Dunal height also increases towards west, but is not continuous throughout. The embankment with a height of about 2.5m substantiates the absence of dunes at places. Unlike Digha, Frasergunj is experiencing a constructive phase. According to local information, erosion in Frasergunj was checked in 1979. The Port Commissioner's office which was constructed at the period of Sir Frazer, still exists on the beach. As reported by the local people, it was washed by sea waves even before 1984 which is taken as the time of commencement of retrogression of sea. Sea water used to come even upto the road where it bends to the east towards Bakkhali. Beach widening process started since 1989. However, Frasergunj deserves a special account from a historical point of view.

8.4 FRASERGUNJ: A HISTORICAL NOTE

The name, Frasergunj denotes the name of Sir Andrew Frazer who was the Lieutenant Governor of Bengal for the period from 1903 to 1908. He had a coconut garden at the present site of the fishermen's colony at Frasergunj. During his tenure, a scheme of reclamation was undertaken with an objective to develop the place as a health resort for the people from Calcutta and its
neighbourhood. Roads and embankments were constructed. Two thirds of the island was cleared of jungle for colonization. But soon the scheme was withdrawn as the reclamation was proved costly enough and agriculture was not considered as remunerative by the cultivators (Mitra A., 1951, Appendix I of Gazetteer p.cii).

Perhaps, in the face of an erosional phase in Frasergunj, the attention was given to develop Bakkhali as a tourist centre in the second term. In 1972, the road from Namkhana to Bakkhali was constructed with this objective and a tourist lodge was set up with government initiative. This thrust persisted till 1977 after which a lull came again. The last drive came with the barge set up at Namkhana on Hatania Doania around 1998 for ferrying large vehicles like, bus, truck, car etc. across the river to attract the tourists and increase their flow. But presently, the emphasis is again given on Frasergunj from the specific standpoint of a potential beach resource. This will be revealed in appropriate section. Tourism and impacts of cyclones on tourism are the specific objectives in this chapter. In that respect, the data base and methods of inquiry are the pre-requisite.

8.5 METHODS OF INQUIRY AND DATA BASE

For obvious reasons, the method in this section is idiographic. The study is based on active data retrieved in field survey.

Important factors involved in impact analysis are who, in what number and how are affected. Target groups in this connection are of two types: tourists who are present there at the period of cyclones and non-tourist groups who depend on tourism.

The numbers of both the tourist and non-tourist groups are not fixed in a long term. In case of the tourists, the primary task is to find out the pattern of tourist-flow throughout the year. A close observation of the variation in
tourist-flow for a few consecutive years (five years may be taken as the minimum) may provide fluctuations in tourist-flow in approximate percentage variation in different times of years. Since it is not possible for a single researcher to keep a close view on tourist-flow for duration of five years, there is no other way but to depend on the opinion of the non-tourist group in this regard.

Relating to impact study of cyclones, the reasons behind the fluctuating tourist-flow are very important. Since the income of the non-tourist people varies with the differential tourist-flow pattern, the persons involved in tourism industry, not only keep a close watch on the incoming and outgoing tourist-flow but also relate them with reasonable analysis on the basis of circumstantial evidences. Perception survey of these people through structured questionnaire schedule (Appendix IIIA) is the main source of data in this regard. The monthwise data of tourist-flow collated by the Digha Development Authority (DDA) have also been considered in computing actual tourists present in the days of normal flow, peak flow etc. The pattern of tourist-flow as obtained from the non-tourist people, has been verified by the perception survey of the tourists (Appendix IIIB).

The number of non-tourist people is very important as they are the resident people even if they are not inhabitants. Questions put to the people in different occupational groups along with active field survey are the sources of data.

Comparing the data retrieved in field survey about the number of people engaged in different occupations in the industry and the total population of the area is likely to point out two different sets of information. First is the dependence on tourism of the people from the mouzas closest to the area and the second is to find out the functional zone of tourism activity or the spatial coverage of this. Census data have also been analysed in this section.
The second one relates to the world view of the tourists about their preference of coastal resorts as well as the seasons and of climate in general and cyclone in particular being the determining factors for setting their tour in a cyclonic coast. A thorough perception survey of more than one hundred and fifty tourists through structured questionnaire schedule (Appendix III B) is the source of data. Our conclusion however is based on the analyses of the seasonality factor and the facts revealed in the perception survey.

The study is likely to be carried on two beach resorts specified in earlier section. But Bakkhali lags far behind Digha in the scale of development. Therefore, our study concentrates on Digha. But first Bakkhali is presented on its own perspective.

**8.6 BAKKHALI**

Bakkhali is an ill-developed tourist centre when its overall tourist-flow and other economic activities related to tourism are compared to that of Digha. The environmental condition of Bakkhali has been elaborated in our earlier discussion. Here a note on tourism is given in order to reveal the impacts of cyclones on it.

The tourist centre of Bakkhali is hardly one km. in length starting from the Government Tourist Lodge in the extreme eastern part to the holiday home of Bank-Co-Operatives. The hotels both for feeding and lodging are set in a linear pattern on two sides of the main road. Apart from six private hotels, a government holiday home of the Labour Development is in east Bakkhali. In between Bakkhali and Frasergunj, one isolated hotel is there. Total number of accommodation in these hotels is 400-450.

At present, Frasergunj is given more emphasis in view of the changes in the character of marine action constituting destruction of shore at Bakkhali and construction at Frasergunj. Within last five years, almost five large hotels including one delux hotel by the Fisheries Department, Government of West
Bengal, have been established at Frasergunj, whereas only vertical development of the old hotels has been carried on at Bakkhali. The attention given to Frasergunj is only to attract more tourists towards the area. However, other economic activities are still concentrated in Bakkhali and these are revealed in the following table.

Table No. 8.1
Showing Tourism based activities and related population figure.

<table>
<thead>
<tr>
<th>Types of Activity</th>
<th>Average no. of employees engaged in a single enterprise</th>
<th>No. of owners or No. of establishments</th>
<th>Total No. of people engaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotels (Govt.)</td>
<td>15</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Hotels (Private) Semi delux</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Hotels (Private) ordinary</td>
<td>5</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Bus Service</td>
<td>4</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td>Trekker</td>
<td>2</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Van-rickshaw</td>
<td>1</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Eating Houses</td>
<td>3</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td>Tea Stall</td>
<td>2</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Shell shop (Permanent )</td>
<td>----</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Shell shop (Temporary )</td>
<td>----</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>229</td>
</tr>
</tbody>
</table>
8.6.1 Tourist dependent population.

The number of people engaged in tourism is 229 which is less than \(1/3\) rd of the total population (781 according to 1991 census) of Lakshimpur (Bakkhal). The number exceeds the total working population of 159 (154 as male and 5 as female in the 1991 census). It is true that not all the working people of the mouza are engaged in tourism only. Its explanation is obtained in the field survey. Some of the hotel staff are outsiders and a considerable number of shop-owners and people engaged in transport services are inhabitants of the mouzas other than Lakshmipur under the Frasergunj Gram Panchayat. Amaravati, Vijaybati may be named among these. In this connection, the varying numbers of tourists visiting Bakkhal in different times of year require an exposure.

8.6.1.1 Tourist-flow in Bakkhal

Normal tourist-flow slightly increases in the week-end holidays and specially in the period when any government holiday precedes or follows week-ends. During the normal days, the total number of tourists, hardly exceeds 50. The flow increases after the rainy season, most often during the Puja holidays. This flow persists till February. Tourist-flow does not cease at all in the rainy season. But the character of the tourists differs from other periods. Mostly the people come with friends in this season.

Of the tourists, 85% come from Kolkata and the greater Kolkata and the suburbs like Belgharia, Thakurpukur, Baruipur, Amtala, Usti etc. and the places from the districts of Howrah, Hooghly, North 24 Parganas and South 24 Parganas.
During the winter, especially in the special holidays, the number of day-trippers for picnic increases considerably. According to the non-tourist people, connected to tourism, in the days before the barge on Hatania Doania came into operation, 85% of the tourists spent nights at Bakkhali. But after the starting of the barge service, about 40% of the tourists return on the same day. But still it is profitable since the total influx has increased. We may now have a look on impacts of cyclones on tourism in this coastal resort.

8.6.2. Cyclone’s effects on tourism
This problem is mainly related to tourists and tourism industry. But impacts on the environment is perhaps the primary basis for assessment. As reported by the owners of the eating houses the sand dunes at Bakkhali have been reduced first in the cyclone of 1972 and secondly in the cyclone of 1988. Almost ¼th sand of the dunes was blown away in the first event whereas all the rest lost their existence in the second occurrence. According to them, the dunes in the eastern part of Bakkhali were considerably high. The temporary structures of the eating houses suffer most from damage. One tea stall was damaged twice and the shop remained closed for four to six months.

In 1988, in the months of September-October many shops were damaged. It is reported that one hotel was repaired at a cost of Rs. 5000/- to Rs. 6000/-. As there is no structured embankment, the way from the bus stand towards the beach acts as a passage of sea water. Sea water however, makes in-roads through this path and engulfs upto the bus-stand. In 1988 cyclone, the place was inundated by one meter. However, tourists’ attitude towards stormy events is another variable in this regard.
8.6.3 Tourists’ behaviour

Most of the tourists in the West Bengal coast are of middle-class mentality with precautionary, non-inquisitive, non-adventurous, normative in behaviour and they are usually not ready to take risks. The Kolkata-based tourists become shaky only to cross the river Hatania Doania by ferry boat which is still the most available transport rather than by the time-bound barge. People usually avoid rainy season for a family tour. In these circumstances, they readily return back as soon as the news of cyclone are forecast. According to a member of ‘Bakkhali Byabsayi Samiti’ (The organisation of the traders of Bakkhali) and the manager of a lodge, the Kolkata-tourists refer to the wind speed of 80 km. per hour as storm which is very much usual at this coastal resort. But meteorologically also, such a speed is not referred to as breeze, rather it is a strong wind associated with stormy events. However, the overall impacts of cyclones as well as bad weather are negative at Bakkhali. We may now proceed to make a similar, rather a more thorough study on Digha tourist centre and the impacts of cyclones on the tourism industry.

8.7 DIGHA TOURIST CENTRE: A SHORT NOTE ON ITS ORIGIN AND DEVELOPMENT.

The origin of Digha tourist centre is not older than forty years. Since Nineteen Sixties the administration started thinking and acting to develop the place as a beach resort. A proposal for formation of a separate Digha police station was under consideration as revealed in the 1971 census (1973). In 1981 census, a separate police station of Digha was shown with 36 mouzas taken over from the Ramnagar police station. Three sea-side mouzas viz, Dattapur (J.L. No. 77), Gadadharpur (J.L. No. 78) and Palsandapur (J.L. No.81) (fig no.8.1) were shown as uninhabited. In 1991 census, Digha Township was shown as a non-municipal (NM) town with the mouzas mentioned above. The fact that should be noted in this connection is that the area of Digha township does not cover the area of Digha mouza (J.L. No. 213- fig no. 8.1).
Digha is now roughly divided into two parts as Old Digha and New Digha. The old settlement in the eastern part is referred to as Old Digha. Digha foreshore road is very close to sea as the sea is progressing towards land. This place is almost saturated by large number of hotels and holiday homes etc. At the face of erosion, the mouza of Gadadharpur (J.L. No. 78) has been narrowed and the hotels have encroached the area of Khadalgobra(J.L.No86)(Fig.No.8.1). There is no clear-cut boundary between the Old Digha and New Digha. But the western part of the casuarina plantation is known as New Digha. The new Bus Stand, Khanika Market, the artificial lake of Amrabati, Avasarika (Holiday Home of Labour Department) are within the complex of New Digha.

However regarding our objective, we have to find out the number of people dependent on tourism in Digha. In doing this, the first step is to investigate and make a list of the types of related occupations and secondly to know the average number of people engaged in each type. It is implied that all types of activities do not require equal amount of investment. Therefore, the activities have been arranged in a scale in order to know the category of the average number of people dependent on tourism. Further, the cyclone-risk may be presumed to be higher for the beach specific economies than the beach-non-specific activities. Taking into concern these perspectives the following table has been arranged according to the scale of entrepreneurs from large to small and also the spectrum of economic activities has been classified into beach-specific and beach-non specific groups.

8.7.1 Spectrum of economic activities –

Surprisingly or not, the arrangement in Table no. 8.2 shows the segregation of larger enterprises as beach-non-specific activities and the beach-specific occupations take their position at the lower end of the table. The flaw lies in grouping the average number of employees in hotels as there are different scale of economies depending on the work type and position held by the employees. The managerial staff must remain at the higher position than the men in room services and the latter may be regarded as belonging to a lower
income group. In other cases, the owner of a shop must hold the position higher than his employee. Since our objective is to find out the total number of population involved in these occupations on the basis of an overall scale of entrepreneurship these flaws have been over-looked. Another flaw is to keep van-rickshaw puller at the lower end of the beach-non-specific activities. They should actually be placed after boatman in the beach-specific occupation according to scale of entrepreneurs. But the placing of the economy is given according to beach-non-specific activities.

Admittedly, the population in non-touring groups, especially in the lower position of the table is not fixed, because some of them do not depend on a single economy and the shifting of occupation may occur with the improvement of the economy. Also, the number may increase or decrease seasonally according to the requirement in the enterprise. The figures revealed in the table may, therefore, be taken as an average. The table is produced below.

**Table No. 8.2**

<table>
<thead>
<tr>
<th>Type of occupation</th>
<th>Average no. of employees in a single business sector</th>
<th>Total no. of entrepreneurs</th>
<th>Total no. of workers engaged including the employers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hotels (private)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delux</td>
<td>20</td>
<td>8</td>
<td>168</td>
</tr>
<tr>
<td>Semi Delux</td>
<td>15</td>
<td>8</td>
<td>128</td>
</tr>
<tr>
<td>Medium</td>
<td>10</td>
<td>40</td>
<td>440</td>
</tr>
<tr>
<td>Small</td>
<td>5</td>
<td>21</td>
<td>126</td>
</tr>
<tr>
<td>Holiday Homes</td>
<td>4</td>
<td>79</td>
<td>316</td>
</tr>
<tr>
<td>Govt. Accommodation</td>
<td>15</td>
<td>13</td>
<td>195</td>
</tr>
<tr>
<td>Transport service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt. sector</td>
<td>78</td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>Private sector</td>
<td>218</td>
<td>33</td>
<td>251</td>
</tr>
<tr>
<td>Type of occupation</td>
<td>Average no. of employees in a single business sector</td>
<td>Total no. of entrepreneurs</td>
<td>Total no. of workers engaged including the employers</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------------------------------------------</td>
<td>----------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Wine shop</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Eating house</td>
<td>5</td>
<td>61</td>
<td>366</td>
</tr>
<tr>
<td>Permanent stall of artifacts</td>
<td>1</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td>Shop of cashew nut</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Studio owner</td>
<td>1</td>
<td>94</td>
<td>188</td>
</tr>
<tr>
<td>Horse owner</td>
<td></td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>S.T.D. Booth</td>
<td>1</td>
<td>45</td>
<td>90</td>
</tr>
<tr>
<td>Temporary stall of conch shell, mat, bag etc.</td>
<td>1</td>
<td>66</td>
<td>132</td>
</tr>
<tr>
<td>Van-rickshaw puller</td>
<td></td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Beach and road-side stall for tea, snacks including prawn fry</td>
<td>2.5</td>
<td>150</td>
<td>525</td>
</tr>
<tr>
<td>Seller of shell products on beach and footpath</td>
<td></td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Photographer</td>
<td>4</td>
<td>94</td>
<td>470</td>
</tr>
<tr>
<td>Boat man</td>
<td>1</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Tube lender</td>
<td></td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Horse rider</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Vendors selling mixed chat of puffed rice</td>
<td></td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Vendors of tea and coffee</td>
<td></td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Table No. 8.2 contd. on page no 163.
Of the economies mentioned in the table no.8.2, the S.T.D. Booth and the van-rickshaw pullers are not totally dependent on tourists but obviously their earning varies with the tourist-flow. Also, the scale of the economies varies on a large scale starting from delux hotel at the top to the vendors at the footpath keeping many intermediaries in between these extremes. Obviously, the nature of inflictions is likely to differ for different economic sectors.

8.7.1.1 Data anomaly.

A great anomaly is revealed when we compare census data of 1991 with the population figure collated in the table no. 8.2. The latter i.e. the working population related only to tourism as 4475 is almost one and a half times of the total population of Digha recorded as 2951 in the 1991 census. It seems to be a complex factor and we may need to go through a population study not for Digha only, but for the mouzas closest to Digha along with the analysis of the facts revealed in the survey to get an answer to this problem.

8.7.2 Population survey on areas of Digha township

In solving the problem, our first step should be to analyse the rate of increase of population in the areas where the hotels are spread at present. Of the three mouzas covered by the township, Dattapur (J.L. No. – 77) was uninhabited since 1951. Previously it was covered with dunal sand and forest, but presently a considerable area has been transformed for the hotels, shops and roads for
the New Digha area. The population of Dattapur is therefore, available since only 1981 as population of the Digha township. But two other mouzas were populated prior to their inclusion in the township. The mouza of Khadalgobra, situated in the north of Gadadharpur, as earlier stated, has been encroached by the hoteliers. Therefore, this mouza is also to be given equal emphasis while analyzing census data for the mouzas included in the Digha township. Below the census data are presented and on the basis of these data we shall analyse the figures.

Table No. 8.3

Showing decadal population of Digha town and the mouzas included in the township and Khadalgobra.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Digha township</td>
<td></td>
<td></td>
<td></td>
<td>894</td>
<td>2951</td>
</tr>
<tr>
<td>81</td>
<td>Palsandapur</td>
<td>26</td>
<td>26</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Included in Digha township(NM)</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>Gadadharpur</td>
<td>122</td>
<td>155</td>
<td>293</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Included in Digha Township(NM)</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>Dattapur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>Khadalgobra</td>
<td>803</td>
<td>1150</td>
<td>1757</td>
<td>1940</td>
<td>2863</td>
</tr>
</tbody>
</table>

8.7.2.1 Increase of population

If we add the population of the mouzas of Palsandapur and Gadadharpur, then the total population of Digha in 1971 stands for 335. Compared to this number, the population of 1981 increases to 2.67 times and it further increases in 1991 to 3.30 times of the population of 1981. The Indian standard of the
The rate of increase of population is 3 times during the span of 40 years from 1951 to 1991. But Digha touches this rate only in one decade. Taking the population of 1951 for the two mouzas, the rate of increase stands for 19.94 times. The population of Khadalgobra also increases by 3.57 times from 1951 to 1991.

Such an excessive increase of population cannot be explained by natural growth rate. The population figure might not exceed 450, if it would have increased in a natural growth rate. Then the rest of the people who register themselves as the inhabitants of Digha town may be taken as outsiders. They have come to live in Digha for some reason which is most obviously for tourism in our case.

However, what has been stated above relates to the registered total population of Digha. But we may require to go deep and more in detail to solve the problem in connection with the number of working population.

An analysis of population survey through census data on Digha and the mouzas closest to Digha may provide some solution. Two aspects are required for analysis. A comparison between the probable workforce and actual working population in Digha is the first step in this regard. Generally 47% of the total population is taken as belonging to the age group 15 to 64 which is the working age group. The probable workforce has been worked out on the basis of this percentage. Sex ratio is also an important factor. Some population aspects of Digha township in the last two decades of 1981 and 1991 are presented first.
Table No. 8.4
Showing some population characteristics in Digha town

<table>
<thead>
<tr>
<th></th>
<th>Total population</th>
<th>Total workforce population</th>
<th>Probable workforce</th>
<th>% of actual workforce to total workforce</th>
<th>% of male workforce to probable workforce</th>
<th>Sex ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data as in 1981 census</td>
<td>894</td>
<td>299</td>
<td>420</td>
<td>71.19</td>
<td>62.14</td>
<td>862</td>
</tr>
<tr>
<td>Data as in 1991 census</td>
<td>2951</td>
<td>1617</td>
<td>1387</td>
<td>116.58</td>
<td>106.06</td>
<td>504</td>
</tr>
</tbody>
</table>

Excessive increase of population (3.57 times in a decade) accompanied by extremely low sex ratio in 1991 along with an abnormal percentage of actual workforce to probable workforce (116.58%) can be explained by only one factor i.e. immigration of male persons from outside areas.

8.7.3 Problems related to workforce

The number of workforce directly related to tourism in our calculation is 4475 which is 2.77 times higher than the total workforce in 1991. In consideration of the trend of increase of population, it might be taken as actual in the year 2001. But the actual number of workers ought to increase more. Because the workforce engaged in tourism, according to our calculation, requires an addition by certain percentage at least 5% to alleviate the shortcomings in our calculation. To this the additional workers engaged in other occupation either related indirectly to tourism or in economic activities other than tourism must
be considered. If 5% of the workforce related to tourism in 2001 is added to this the total number stands at 4698.

Many people among these, dependent on Digha tourism, are temporary inhabitants. The range of duration of their stay may be a week, a month or even a day. The question is the place of origin of these workforce. The data reveal that the tourism industry must have an effect in drawing people towards this. In that respect, the industry may have a role in determining the characteristics of population in the neighbouring mouzas of Digha. Let us examine this with the census data of these mouzas in a similar manner as shown in table no 8.5 has been done for Digha town. Table No. 8.5 is shown in the next page.
Table No.8.5 showing some population characteristics of the mouzas closest to Digha town

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>86</td>
<td>Khadalgobra</td>
<td>1940</td>
<td>2863</td>
<td>483</td>
<td>744</td>
<td>911</td>
<td>1345</td>
<td>53.02</td>
<td>97.10</td>
<td>96.64</td>
<td>911</td>
<td>906</td>
</tr>
<tr>
<td>79</td>
<td>Bhagibrahmapur or Bhagibaharampur</td>
<td>529</td>
<td>636</td>
<td>106</td>
<td>169</td>
<td>248</td>
<td>299</td>
<td>42.74</td>
<td>100.00</td>
<td>92.90</td>
<td>1116</td>
<td>1064</td>
</tr>
<tr>
<td>80</td>
<td>Chnapabani</td>
<td>437</td>
<td>523</td>
<td>91</td>
<td>145</td>
<td>205</td>
<td>245</td>
<td>44.39</td>
<td>97.80</td>
<td>91.72</td>
<td>1071</td>
<td>981</td>
</tr>
<tr>
<td>83</td>
<td>Jatimati</td>
<td>1133</td>
<td>1399</td>
<td>270</td>
<td>382</td>
<td>532</td>
<td>657</td>
<td>50.75</td>
<td>100.00</td>
<td>98.43</td>
<td>963</td>
<td>943</td>
</tr>
<tr>
<td>82</td>
<td>Ratanpur</td>
<td>390</td>
<td>512</td>
<td>84</td>
<td>122</td>
<td>183</td>
<td>240</td>
<td>45.90</td>
<td>100.00</td>
<td>96.72</td>
<td>893</td>
<td>910</td>
</tr>
<tr>
<td>76</td>
<td>Padima</td>
<td>834</td>
<td>1005</td>
<td>174</td>
<td>258</td>
<td>392</td>
<td>472</td>
<td>44.39</td>
<td>95.40</td>
<td>98.84</td>
<td>1029</td>
<td>936</td>
</tr>
<tr>
<td>89</td>
<td>Gobindabasan</td>
<td>277</td>
<td>493</td>
<td>76</td>
<td>146</td>
<td>130</td>
<td>231</td>
<td>58.46</td>
<td>93.42</td>
<td>98.63</td>
<td>1051</td>
<td>910</td>
</tr>
</tbody>
</table>
8.7.3.1 Analyses of the table

The table reveals the following facts.

a) In 1981, except the mouzas of Khadalgobra and Ratanpur, sex ratio was very high in almost all the mouzas with moderately high sex ratio in Jatimati.

b) Percentage of male workers is very high, almost 100% in both the decadal data. But percentage of actual workforce to probable workforce is nearly 50% in 1981 except in the two mouzas closest to Old Digha i.e. in Khadalgobra and Gobindabasan where it reflects the effects of tourism. It is understood by three variables of percentage of actual workforce to probable workforce, percentage of male workers to total workers and sex-ratio. The figures in Jatimati in 1981 show an almost balanced situation.

c) All the mouzas of Bhagibrahmapur or locally called Bhagibaharampur, Chnapabani, Jatimati and Padima show similar types of changes by increase of the percentage of actual workforce to probable workforce and decrease in sex ratio. In this respect, Gobindabasan, situated in the north of the Bapster Colony (fig.no. 8.2) surpasses all other in decrease of sex ratio and increase of workforce. The fact only indicates the change in population characteristics by immigration of male workforce in the area. Of these, Ratanpur is the only exception. It shows an increased sex ratio, although the percentage of actual workforce to probable workforce also increases.

8.7.3.2 Report of field survey

The reports obtained in the field survey also supplement the facts revealed in the census survey. Most of the workers have identified themselves as the inhabitants of Jatimati, Padima, Gobindabasan, Bhagibrahmapur or the distant mouzas of Medinipur, Saripur, Ullaspur, Paya, Daha Daya, Jagadishpur.
Mirajpur, Dakshin Shimulia, Bil Amria, Gherai or even from Ramnagar Kanthi, Negua etc. The workers in hotel business stay at Digha. Almost all the vendors commute from the neighbouring mouzas. Besides, the van-rickshaw pullers, photographers, horse-riders etc. i.e. the people engaged in the lower-income group and beach specific activities are the inhabitants of the other mouzas. A functional zone of Digha can thus be identified. Most of the hoteliers are from Kolkata or the neighbouring police stations. A few of them are the residents of Digha.

The fact that is implied in the above description is that the people belonging to lower income group are vulnerable from two aspects during the advent of a cyclonic situation. Besides the loss in occupational sectors they and their families are affected also in their native places suffering from loss of life and or loss of property and effects on health etc.

8.73.3 Peripheral occupations of tourism

We are concerned about the population dependent on tourism who are likely to be inflicted by cyclone invasion. We have so far made a list of occupations in this regard. But some occupations evolve as spin-offs of tourism. These may include the economic groups of rickshaw-makers, electricians, bulb-makers (local), sweepers, washermen, touts and agents, motor mechanics, owners and employees in petrol pump, job opportunities in road construction and repairing, building construction, shops of bedding and clothes, vegetable shops, grocery shops, fishermen, meat-shops etc. Admittedly, these have not been taken in details.

Notwithstanding, the impacts of cyclones on people dependent on tourism is our next problem.
8.8 IMPACTS OF CYCLONES ON NON-TOURING BUT TOURIST-DEPENDENT POPULATION.

We carried on this investigation with a pre-field notion that the economy in the area is liable to be affected in the cyclone seasons on the cyclonic days. To that end, we went to the people involved in such occupations with questions to mark the days, weeks or seasons of their income variations. They readily associated the days with differential tourist-flow throughout the year that may not always be connected with cyclonic or bad weather incidences. However, on the basis of their information, the days may be marked as normal, dull, peak and highest peak days of tourist-flow. The seasonality factor will be analyzed in the later section. But the present study requires the total number of days in each type carrying different types of tourist-flow in order to get their income variation in different times of year.

8.8.1 Varying tourist-flow

Week-end holidays, government holidays, government holiday preceding or following week-end holidays and the vacations in educational institutions, specially in schools are marked as peak days. Some of the holidays are fixed by dates and months as the 25th December (X-mas day), 23rd January (Birthday of Netaji Subhas Bose) or 26th January (Republic day) etc. But most of the holidays of the Hindu religious ceremonies are not fixed by date but of course by Bengali month. The number of peak days has been computed in the following manner. No. of week-end holidays is 52 weeks multiplied by 2 = 104 days.

Other holidays are listed in table no. 8.6 below excluding probable week-end holidays likely to be included in these.
Table No. 8.6

Showing no. of peak days of tourist-flow in Digha

<table>
<thead>
<tr>
<th>No. of holidays</th>
<th>Week-end days</th>
<th>To be excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 25th December to 26th January in average</td>
<td>15 days</td>
<td>4</td>
</tr>
<tr>
<td>2. Holi in the Month of March, any day</td>
<td>2 days</td>
<td>1</td>
</tr>
<tr>
<td>3. 1st day of Baisakh (Bengali New Year's Day)</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>4. Good Friday, usually within 1st 15 days of April, normally associated with Bengali New Year's Day</td>
<td>3 days</td>
<td>2</td>
</tr>
<tr>
<td>5. After Id (According to its time)</td>
<td>7 days</td>
<td>2</td>
</tr>
<tr>
<td>6. Guru Nanak's birth day. Anyday in the month of November</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>7. Independence day. August 15th</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>8. Mahalaya from last week of September to mid-week of October</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>9. Puja Holidays. Ranging from last week of September to last week of October</td>
<td>6 days</td>
<td>2</td>
</tr>
<tr>
<td>10. Pre-Lakshmi Puja – within the month of October</td>
<td>3 days</td>
<td>1</td>
</tr>
<tr>
<td>11. Pre-Kali Puja (mid October to mid November)</td>
<td>2 days</td>
<td></td>
</tr>
<tr>
<td>12. Summer Vacation (mid May to mid June)</td>
<td>30 days</td>
<td>8</td>
</tr>
<tr>
<td>13. Puja Vacation (ranging from last week of September to mid November) excluding other holidays</td>
<td>19 days</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>95 days</td>
<td>25</td>
</tr>
</tbody>
</table>

The total number of peak days stands for 95 days. In all 25 days are deducted as week-end holidays in order to avoid the double counting of these. Then the number of peak days is (95-25)+104 = 174.
Some of the days out of the peak days have been marked with highest flow of tourists. These are –

<table>
<thead>
<tr>
<th>Month</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 25</td>
<td>2</td>
</tr>
<tr>
<td>January 23-26</td>
<td>4</td>
</tr>
<tr>
<td>Holi</td>
<td>2</td>
</tr>
<tr>
<td>Puja Holidays</td>
<td>6</td>
</tr>
<tr>
<td>Pre-Kali Puja</td>
<td>2</td>
</tr>
</tbody>
</table>

Total 16 days

The number of highest peak days is to be deducted to get the total peak days which stands as (174-16) or 158.

Rainy season is normally dull and the season usually starts after the summer vacation i.e. from mid June. The duration of dull season is, therefore, from mid-June to the end of September constituting 107 days. (15 × 2) or 30 days may be excluded as week-end holidays. Another 7 days from each month in average may be excluded as normal days, except the month of June. Then another (7 × 3) or 21 days require to be deducted. Besides the rainy season, the month of March up to mid April except the days for Holi, Good Friday, 1st day of Bengali year and excluding the week-end holidays accounting for another 20 days may be considered as dull for examinations conducted by schools, Board and Council during this period.

Total number of dull days is therefore { 107-(30+21)}+20 or 76 days

Thus the number of normal days is { 365-(158+16+76)} or 115 days.
<table>
<thead>
<tr>
<th>Type of occupation</th>
<th>Rate of profit per sale of commodity or service</th>
<th>No.of sale and amount of profit</th>
<th>No of employer and employee</th>
<th>Total earning in one day and in all days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Normal days</td>
<td>Dull days</td>
<td>Peak days</td>
</tr>
<tr>
<td>Eating House</td>
<td>Rs.5</td>
<td>30 meal Rs. 150</td>
<td>15 meal Rs.75</td>
<td>55 meal Rs.275</td>
</tr>
<tr>
<td>Studio-owner</td>
<td>Rs 8 per snap from 4 photographers</td>
<td>27 snaps per photographer</td>
<td>5 snaps =5×4×8 =Rs.160</td>
<td>175 snaps =175×4×8 =Rs.5600</td>
</tr>
<tr>
<td>Photographers</td>
<td>Rs.4/- per snap</td>
<td>27 snaps Rs.108</td>
<td>5 snaps Rs.20</td>
<td>175 snaps Rs.700</td>
</tr>
<tr>
<td>Earning per horse</td>
<td></td>
<td>Rs.400</td>
<td>Rs.170</td>
<td>Rs.750</td>
</tr>
<tr>
<td>Tubelender</td>
<td></td>
<td>Rs.150</td>
<td>Rs.50</td>
<td>Rs.250</td>
</tr>
<tr>
<td>Vendors</td>
<td></td>
<td>Rs.80</td>
<td>Rs.40</td>
<td>Rs.125</td>
</tr>
<tr>
<td>of mixture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of puffed rice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell-shop on footpath</td>
<td></td>
<td>Rs.150</td>
<td>Rs.30</td>
<td>Rs.300</td>
</tr>
</tbody>
</table>

Table No.- 8.7
Showing variations in incomes of a few occupations depending on different tourist-flow
AVERAGE TOURIST FLOW AT DIGHA
& NUMBER OF CYCLONE DAYS IN 1891-1990

Fig No. 8.3
How the earnings of the occupational groups vary with the differential tourist-flow, have been explicated in table no. 8.7 by presenting the variations in earnings of a few occupational groups. That the earning drops significantly in the dull days, is clear from the table no. 8.7

Notwithstanding, the numbers of tourists, present at Digha on the days of varying tourist-flow are also a pre-requisite in this study since they are also exposed to cyclone-hazards and are liable to be affected, if they are present there when the phenomenon occurs.

8.8.2 Estimates of tourist-flow

A seasonal estimate of tourist-flow at different rates has been calculated on the following methods.

a) Taking the occupancy rates in the hotels.

b) The estimates obtained from different occupational groups dependent on tourists about differential tourist-flow at different times of year. More than a hundred non-tourists were interviewed in this respect. Lastly, the total accommodation capacity of Digha computed by the Digha Development Authority (DDA) has been consulted for calculating the number of tourists in different flow-pattern.

The annual average rate of occupancy in the hotels varies between 32% to 35%. But it fluctuates on a large scale by different guiding factors. The normal flow varies between 45% to 65%. On the basis of this the average normal flow has been taken as 55%. The peak flow ranges between 75% to 85%. So 80% has been taken as the average peak flow. The tourist-flow in the dull season is usually of two types. During the dull days of rainy season, only a base flow in maintained by 20% rain-loving tourists. During other dull seasons caused
by school examinations, the tourist-flow is around 25%. The highest peak flow starts at its minimum at 95% extended upwards crossing 100% depending on the association of government holidays, ceremonial events etc.

A logical and notional graph has been drawn on the basis of the average percentage of tourist-flow in the normal, dull, peak and highest peak periods.

However, the number of tourists has been computed on the basis of the total accommodation capacity of Digha. Its maximum range is 6074. On the basis of this, the number of tourists present in Digha on a normal day has been taken as 3340 (55% of the total accommodation of Digha), on a dull day with 20% as 1214 and with 25% as 1518. For a peak day, taking the average flow as 80% number of tourist stands at 4859 and for a highest peak day it is 5770, but it may cross that figure on exceptional occasions when it exceeds highest capacity of accommodation in hotels and lodges requiring special and extra arrangement in private buildings, incomplete hotel buildings etc. as occurred on the 23rd January, 1999, the situation arising out of coincidence of holidays of 23rd and 26th January with Id festival.

The higher occupancy rate in a luxury hotel at Digha almost round the year may not be overlooked in this connection. The average occupancy rate in this hotel varies between 84% to 86% the same not falling even in the months of July and August which was more than 82%. The lowest occupancy rate is 65.95 in the month of September. This situation must be considered as being out of norm and may be explained by the hotel's locational and other advantages. It is the only delux hotel located near the sea and the market along with provision of a conference hall for meetings, seminars etc.

8.8.2.1 The explanation of the figure no. 8.3

However, the fig. no. 8.3 requires an explanation. In the fig., the day of "holf" has been shown in the middle of March, but it may occur on any day in the month tending mostly to occur in the first half of the month. Good-Friday and the Bengali New Year's day mostly coincide or fall close to each other between 13th to 16th April. During summer vacation in schools from the third week of May to second week of June, the tourist-flow is high due to the fair
maritime climate and holidays coinciding. The flow certainly varies with weather condition and the association of week-end days with the holiday on the 15th August (Independence day). Therefore, two days on the eve of August, 15, have been marked with different flow patterns. But the flow pattern varies significantly during the Puja Vacation. It absolutely depends on the commencement of 'Puja' holidays because term examinations in schools restrict tourist-flow before the start of the 'Puja' even if the withdrawal of monsoon occurs earlier. Puja i.e. worshipping of the goddess 'Durga' has acquired a special position in the Bengalee culture as being the greatest annual festival and not only a religious ceremony. It may start any time from the last week of September to last week of October regulating the dates of other religious events of this period. The flow pattern is likely to vary throughout this period being dull before the 'Puja' holidays highest peak during the days of Puja, normal on the days after Puja and before Lakshmi Puja and also for the period between the Lakshmi Puja and Kali Puja and being peak again on the days of Lakshmi Puja and Kali Puja and the week end days following this period. The period of Id has not been shown in the fig. no. 8.3, since it has no fixed timing in the year. Another fact must be mentioned in this respect that rainy season has been shown as dull at a stretch, but it is interwoven with peak flow on weekend holidays and normal flow during the rain-free days in the season. Certainly, the intensity of normal or peak flow during rainy season does not reach the same during pre-monsoon seasons.

This design of tourist-flow must remain in correspondence with the behavioural pattern of the tourists. In consideration of climatic environment, Digha is situated in a cyclonic coast. To that end, we require to know for the present study the tourists' awareness about the environment to which they are not much acquainted with. In the first phase, we shall investigate just their opinion regarding choice of place and time and if there are other conditional constraints on factors in arranging their tour programmes.
8.8.2.2 Method of enquiry about tourists on Digha

Perception survey is the best and perhaps the only method to judge the points to be revealed in regard to –

a) how many of the tourists are interested in coastal resort
b) how many of them feel that weather is a determining factor
c) how many tourists take their decision according to weather information

The answers to these questions received from the tourists are to be explained with reference to the place of origin, occupation, age and psychological attitude of the tourists and especially their choice and avoidance of particular seasons. We have interviewed one hundred and ninety tourists in this regard. The questionnaire schedule is included in the Appendix—III-B. An overview of the tourists in Digha is a pre-requisite in the present study. On the basis of perception surveys an account is given on this.

8.9 TOURISTS IN DIGHA : AN OVERVIEW

A table is produced first on some characteristics of the tourists in Digha as revealed in the perception surveys.

**Table no. 8.8 showing the characteristics of the tourists**

The figures are in percentage of tourists preferring coastal resorts.

<table>
<thead>
<tr>
<th>Place of Origin</th>
<th>Age Group</th>
<th>Occupation</th>
<th>Choice of season</th>
<th>Psychological preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolkata - 42.5</td>
<td>20-30</td>
<td>Service</td>
<td>Winter</td>
<td>NB*1 - 72.1</td>
</tr>
<tr>
<td></td>
<td>26.7</td>
<td>-80.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban other than Kolkata - 18.3</td>
<td>31-45</td>
<td>Business</td>
<td>Autumn</td>
<td>DD*2 - 17.2</td>
</tr>
<tr>
<td></td>
<td>42.5</td>
<td>-4.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi - urban 30.0</td>
<td>46-60</td>
<td>Housewife</td>
<td>Summer</td>
<td>AE*3 - 6.6</td>
</tr>
<tr>
<td></td>
<td>20.8</td>
<td>-9.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village 9.16</td>
<td>&gt;60</td>
<td>Others</td>
<td>Rainy season</td>
<td>Solitude-4.1</td>
</tr>
<tr>
<td></td>
<td>10.0</td>
<td>-4.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 – NB – Natural Beauty
*2 – D.D – Relief from Daily Drudgery
*3 – A.E – Adventurous Experience
Of the tourists interviewed, 36.84% placed coastal resorts at their third or fourth choice. Rest of them had choices of coast either in first or in second preference.

In the above table we get the characteristics and opinion of the tourists who initially chose coastal resort by giving it first or second priority. The table however, provides a clear characteristic feature about the touring people that most of them are from Kolkata and the semi-urban areas or the suburbs, belong to the age group of 31-45 and are service holder. Most of them settle tour programme with an urge for enjoying natural beauty first and next getting relief from daily drudgery. Winter is their first preference and next in order come autumn, summer and rainy season.

It may be inferred from the above facts that the tourists in Digha sustains mainly on the people from Kolkata and suburbs. Almost all the tourists belong to the middle income group, engaged in service sector, either in schools, colleges or offices. Rich businessmen do not take much interest to visit Digha as the hotels with the available amenities cannot satisfy their needs as informed by the manager of a luxury hotel, who is also the president of the Hoteliers’ Association of Digha.

About 78.65% expressed climate as a determining factor for visiting a sea resort and also mentioned the season of their choices. Rest of them either gave importance to vacation in schools or availability of leave in their service sector or simply expressed no choice of season for travelling to a coastal resort. The tourists who had specific choice of season stated either directly or indirectly while in discussion that travelling mainly depends on the vacation in schools because almost all the tourists are accompanied by the family members specially their school-going children for a short, two day or maximum three day trip to Digha for enjoying natural beauty and be relieved for a while from the drudgery of daily life.
In this regard the winter season, specially the Christmas days and the holidays in January fulfill both their choice of season and the requirement of holidays. On the contrary in the month of March and in the period from the last week of September to first half of October though climate may be favourable the tourist-flow is not high for the examinations in schools. For the latter case earlier withdrawal of monsoon and the late Puja are to be coincided. This statement certainly does not take cyclone in consideration. The tourists mostly belong to the age group of late youth between 31 to 45. The number of housewives is less not because that they do not tour, but it is simply due to the fact that the questionnaires were served mainly to the male persons or the heads of the family. In some cases, they referred to their husbands, being reluctant to give answers themselves.

However we require to have an exposure of the tourists about their knowledge, experience, awareness and also their preference or avoidance of cyclonic incidences, especially when they come to a cyclonic coast.

8.10 CYCLONES: AN EXPOSURE OF THE TOURISTS

The number of tourists who have direct experience of cyclones hardly exceed 10 out of 190 interviewed. But none of them has such experience at Digha coast. With reference to bad weather season they mentioned rainy season. 41.89% of the persons interviewed expressed their dislike of rainy season for a tour at sea coast while 37.84 % wanted to avoid summer and 18.92% both summer and rainy season.

We, however, put a question to them if they organize their tour programme after considering weather forecast. More then 90% of them answered in the negative. But when they were asked about their liking or disliking about cyclone hazards while visiting seaside resort they answered in different manners. They were specifically asked if they would cancel the already arranged tour programme if they get bad weather forecast, in particular any cyclone forecast at the place of their settled tour. Some of them are very clear
about their opinion stating direct "yes" or "no ". But some others are not very clear in their mindset. The opinions can be arranged into a scale. At the two extreme points there are two extreme views that cyclones are highly desirable phenomena and that cyclones are extremely undesirable at a coastal resort. The other moderate opinions remain on two sides, each one at either of the sides. At the centre prevails an expression of indifferent attitude to cyclones. All the points of the scale require clear explanation from our standpoint.

8.10.1 Cyclones : desirable or undesirable, an explanatory note

i) Cyclones as highly desirable phenomena
It is for those people who like to enjoy the severe beauty of sea waves during (Plate No. 8.6) cyclones and are prepared to take risks. They are specially willing to come to the sea coast to enjoy cyclones. Also, cyclones are desirable due to past experience.

ii) Cyclone is desirable, but not prepared to take risk
These are people who like to enjoy the beauty of sea waves at the time of cyclones as a strange event, but at the same time they are afraid to face them and want to cancel journey to the sea coast after receiving cyclone-warning for the particular days. Persons touring with family members are mainly of this type.

iii) Indifferent
These are people who do not have such desire to enjoy cyclone at a sea coast but they think, if it comes by chance it will be enjoyable. They are also unconcerned about cyclones.

iv) Cyclones as undesirable phenomena
Simply these people do not have any interest to see cyclones while in the sea coast. Also they have no clear idea about this, but also do not have any interest of have experience of a cyclone at a sea coast.
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v) **Cyclones as extremely undesirable phenomena**

These people vehemently state about cancelling journey to sea-coast during the cyclonic days either due to associated risks with cyclonic events or due to previous experience of cyclones rendering sufferings in the earlier days. Analyzing the statements of the tourists according to the above classification, 44.19% stand for cyclone as an undesirable phenomenon, while 15.12% express cyclone as an extremely undesirable one. Only 11.63% of the tourists stand as indifferent to cyclone, it is desirable to 12.79% of the tourists, while it is highly desirable to 16.28%.

Notwithstanding, we must relate the factor of seasonality of cyclone with the pattern of tourist-flow and the tourists' perception about cyclones.

### 8.11 SEASONALITY

The relation of seasonality of cyclones to tourism is to be judged from two aspects. One is the tourist population, the other being the tourist-dependent population.

For the tourist-dependent population, the tourist-flow pattern is the main indicator for ups and downs of income as discussed earlier. The rainy season has been specially marked by them as dull season. The tourists are also usually reluctant to come during rains as revealed in the perception survey, though they are not also much aware about cyclonic incidences.

With reference to the cyclonic characteristics of the West Bengal coast discussed earlier, the rainy season coincides with the monsoon season, when the cyclonic incidences are frequent and regular in occurrences. People from both sides i.e. the tourists and the tourist-dependent people are conscious about these cyclones that are commonly known as monsoon depressions. In consideration of the cyclone data in a hundred years period(Table No. 5.4) it seems that the West Bengal coast is not much prone so far as the frequency is concerned even for the monsoon depressions. But it is to be noted that the number of cyclones has been counted on the basis of the tracks passed through the coast. In this respect, the cyclones hitting only the Medinipur coast are much less in number. But cyclones have an areal extent which is understood
by the area encircled by the outermost concentric circle in the acquired isobaric pattern in the system (fig. no. 5.15). In that connection, the cyclones hitting the Orissa coast up to the delta of the Mahanadi in the west and the South Twenty Four parganas coast or even the Bangladesh coast in the east also affect the Medinipur coast. Thus the number of days affected by cyclones in different seasons in the areas of our interest have been counted. Below a table is produced and on the basis of these data, the days affected by cyclones have been superposed on the diagram of tourist-flow pattern (fig. no. 8.3).

**Table No. 8.9 showing the number of cyclonic days in the Digha coast.**

(1891 – 1990)

<table>
<thead>
<tr>
<th></th>
<th>Total no. of cyclonic days</th>
<th>Average no. of occurrences per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-monsoon</td>
<td>58</td>
<td>0.58</td>
</tr>
<tr>
<td>Monsoon</td>
<td>1040</td>
<td>10.40</td>
</tr>
<tr>
<td>Post-monsoon</td>
<td>69</td>
<td>0.69</td>
</tr>
</tbody>
</table>

The data show that the frequency is negligible in the non-monsoon seasons. Further, on the basis of the hundred years’ data (Appendix no. I-A) and also in consideration of the data in the period preceding than that (Appendix no. I-C) the days absolutely free from cyclonic occurrences may be counted as 90 taking the months of December, January and February. But as the frequency is almost negligible (as only once in a century) the cyclone-free period may be extended up to March thereby adding another 31 days making the total 121 days. Usually, the post-monsoon season is considered as the period of fair weather. Meteorological data also reveal a low frequency in both the pre-monsoon and post-monsoon seasons. But the chance occurrence of cyclones may cause a greater loss. In the following section, we are going to discuss the impacts of cyclones, from both the regular and irregular phenomena on the tourism industry in Digha.
8.12 IMPACTS OF CYCLONES ON TOURISM

Impacts of cyclones on tourism in Digha need to be studied from two different viewpoints. The regular monsoon depressions have an annual effect whereas the cyclones with severe magnitude affect in different manner. This study, however, is made fully on the basis of the perception surveys and the facts revealed from the different occupational groups dependent on tourists in the field survey.

8.12.1 Annual sufferings

These may also be stated as the impacts of bad weather condition since the monsoon depressions are usually associated with nagging rains for consecutive days. In the sea-side area like Digha, it is also associated with gusty winds but not in such magnitude as to do much harm to the life and property in the coast. But such weather condition is not usually preferred by the touring people and the tourist-dependent population suffer economic loss due to inclement weather.

The hoteliers suffer from low influx of tourists. One of the hotel managers stated that tourist-flow goes down to 10% from the 1st week of July to August. Even nil occupancy is not rare. Other business enterprises of eating houses, tea stalls and different kinds of shop-owners suffer similarly. But the most affected occupations are those which are set on the beach or beach side for sale of food or different products and services.

Of these, the horse-riding assistants are engaged on salary basis, though the salary is also fixed at a lower rate as Rs. 700/- per month in lean season compared to Rs. 1000/- to Rs. 1500/- per month during peak seasons. In the days of depressions, the temporary shops may remain closed or may not earn even a coin for less number of tourists. The fate is also shared by the photographers, tube-lenders, boatmen etc. The vendors selling different kinds of items also suffer loss of income in these days. Since these are annual occurrences, they are prepared to accept the loss as they do not have any other option for earnings in these days. But the sufferings increase many times, if the cyclones with greater magnitude occur in the area.
8.12.2 Sufferings from large cyclones

Digha started developing tourism activities since 1960s but flourished at the end of the 1970s. Therefore the people in different economic groups mentioned the events occurred in the decades of the eighties and nineties of the last century. They are not always exact in remembering the definite year and month of cyclonic events. Thus, the cyclone in May, 1989 has been referred by them as to have occurred in April or May 1987 or in 1992-93. Another April cyclone of 1995 has been mentioned by the non-tourist people. However the types of impacts on the physical environment transferred to the society associated with tourism are revealed in the following paragraphs.

8.12.2.1 Sand–blowing

Since both the events were reported to occur in the pre-monsoon season, the sand-blowing and sand deposition of loose, dry sand brought a negative impact on the environment and in turn on tourism. 0.31 metre of sand was deposited in front of one of the sea-facing hotels at Digha. Sand-blowing from the dunes retards beach strolling of the tourists. Sand deposition in front of hotels closes the short cut path to the beach for the tourists. Therefore, the tourists are also affected by reduced opportunities of enjoying sea beach in an otherwise pleasant maritime climate.

8.12.2.2 Other impacts of high speed wind

In May, 1989, in one of the hotels a door was broken in locking condition. Parapet of an old building was damaged. The window-panes of the hotels suffered much damage. The casuarina plantation was damaged and uprooted. Supply of electricity was disrupted and the work of restoration of power took almost a fortnight or even a month according to another report.

8.12.2.3 Inundation by sea water

Sea is close to the Old Digha complex. So, storm surges during large cyclones frequently cross the embankment and inundate the area up to the Nehru Market (fig. no. 8.2). Reportedly, the ground floor of a hotel was inundated by 1 metre of sea water/there was knee-deep water in the generator room.
8.12.2.4 Work-load

The non-tourist people are affected by increase of work-load to restore the normal situation. An automatic responsibility is imposed on the hotel managers and staff to arrange food for the tourists staying in the hotels at the crisis period. Food is supplied, though not free of cost, but its arrangement becomes very difficult as the supply of food items from outside areas is heavily disrupted. Some of the hotels cannot even satisfy the tourists with minimum requirements. Due to disruption of power system supply of water also becomes a problem.

8.12.2.5 Extra financial burden

At present almost all the hotels have arranged generators for the crisis period but the cost of fuel for running the generators for 24 hours is too high because at least four litres of diesel are required to run a generator for an hour.

8.12.2.6 Reduced flow of tourist

In case of the 1989 cyclone, according to the managerial staff in the hotels the tourism industry suffered a closure for a month. Tourist-flow was almost nil and the hotels remained empty. The statements by the owners of eating houses corroborate the report that the tourists from Kolkata which is the main originating place of the tourists stop coming to Digha as soon as the news of cyclones are disseminated through newspapers and broadcasting system. The tourist-dependent population are also affected by cyclones at their native places in the surrounding mouzas. Damage and destruction of buildings, loss in agricultural crops and trees, disruption in communication are the most common incidences. But death also is not rare. The small entrepreneurs of the vendors, van-rickshaw pullers are the most affected groups as their economic base is not sound and they are doubly affected by loss of income and loss of property. Only a few can get work in restoration programme. The van-rickshaw pullers are mostly part-timers. They turn to fishing sector in the monsoon season. But in the pre-monsoon season, fishing is also not practised. Therefore, they also lose the opportunity for the secondary occupation of fishing.
CONCLUSION

Tourism, tourism-based economic activities and growth and development of tourist centres are closely related to urbanization and occupy the highest level in the seral stages of human ecological system. Higher the level lesser would be the predatory role of natural forces on human activities. But tourism, it is still presumed, capitalize on favourable climate, in our case maritime climate. But our observation at Digha and Bakkhali shows that tourists mainly come on week-ends or during vacations when educational centres remain closed at least for one week. Tourist-flow increases if there is a Govt. holiday on Fridays or Mondays.

Shorter time distance between Kolkata and Digha or Kolkata and Bakkhali helps tourists to leave the resorts if there is a cyclone warning. Tourists safely anchored in hotels and holiday homes also enjoy pre and post monsoon cyclones of moderate intensity. Small entrepreneurs particularly vendors in beach have to suffer when cyclones strike the beach resorts. Major findings about impacts of cyclones on both tourists and non-tourist groups have been shown in a self-explanatory model (Fig.No. 8.4) on next page.
Fig. No. 8.4
Showing impacts of cyclones on tourists and non-tourist people.

- Direct impacts on tourists
  - Affected by losing festive, recreational mood and also from fear psychosis.
  - Injuy to health
  - Financial loss due to incomplete tour or ill health.
  - Loss of life

- Impacts on tourists, due to their responsive attitude towards cyclones.
  - Panic-stricken
  - Eager to return back
  - Do not come if news spread through newspapers

Both big and small entrepreneurs affected

Both tourists and big entrepreneurs affected.

- Work load for the people in hotel services for arranging food, drinking water for the tourists.
- Problems of accommodating tourists, supplying electricity and drinking water to them.
- Damage of stalls on beach
- Impacts on physical environment

Both tourists and small entrepreneurs affected.

- Loss of income to stall-owners and vendors
- Loss of income of big entrepreneurs
- Loss of income to beach-specific occupation
- Damage of stalls on beach
- Market-place inundated
- Inundation and/or rainfall
CYCLONES AND TOURISM
PLATES

8.1 A LONE TOURIST
AGAINST A SAND-DUNE
8.2. i TOURIST CAR
   ii HORSE RIDER
   iii BEACH PHOTOGRAPHER
   iv SEA-BATHING

8.3. i A CONCRETE PAVEMENT
   ii TUBES AND TUBE-LENDERS
   iii BEACH CROWD
8.4. i TEA-VENDOR  ii HORSE RIDER

8.5 AN OLD LADY SELLING GARLAND OF KURCHI-SEED TEMPORARY BEACH STALL AND TOURISTS
CYCLONE

ADVENTURE-LOVING TOURISTS ENJOYING STORM SURGE

SUBMERGED BEACH - STALLS