

Natural Disasters and its Impact on the economy of the coastal region of Midnapore district in the nineteenth century

Lakshman Chandra Ojha

Assistant Professor

Prabhat Kumar College, Contai, Purba Medinipur

Abstract

Bengal, especially the lower portion of south-west Bengal, as one of the most flood-prone regional areas in the world along with its backwardness, was allegedly becoming an outcome of the annual ravages caused by the river spills and standing crops and habitations remain submerged underwater for several days. Correspondence was also disrupted and inhabitants were often forced into distressing migration. The economy thus became uncertain and consequently, as it has been observed about the settlement of bandhs and pools as an important aspect of the administrative system in the nineteenth century. During the colonial period, ensuring revenue collection became the primary focus of the East India Company. Henceforth, by introducing the Permanent Settlement, it took an essential step and helped as an institutionalized form to flood control and embankment construction. The company presumed that the zamindar would sit at the apex of a new agrarian order and affirm private properties, generate economic surpluses, and ensure political stability and act accordingly.

Keywords: Bandh, East India Company, Embankment, Inundation, Chak, Revenue, Ryot, Zamindar

Introduction

To define such natural disasters like cyclones, storms, flood or drought as these are geophysical, atmospheric or hydrological and unexpectedly worrying events that have the potential to cause harm or loss, while a natural disaster is the occurrence of an extremely hazardous event that impacts on communities causing many damages, disruptions and casualties and leaving the affected communities unable to function normally without even a single outside assistance. Natural Disasters may be taken as a combination of the consequence of hazardous natural or social (man-made) phenomenon and environmental conditions at the place of occurrence. For the natural,

tropical cyclones and for the 'social' two different types of occupations viz. agriculture, fishing and salt production, as these are affected by the former in the coastal region of Midnapore district. The plains along the coastal areas were prone to cyclones and storms, which often flooded the region. The lack of adequate embankments and lack of maintenance of existing ones and improper drainage system compounded the difficulty severely. Government reports on storms and floods of 1807, 1823, 1831, 1832, 1833, 1864, 1867 and 1874 deserve special mention. This article focuses on natural disasters and their effects on people of the Midnapore district due to natural calamities, famine, loss of lives and properties.

Cyclone and its effects on the coastal region

The October cyclone of 1737 in Calcutta is the first record of cyclone hazard for the entire eastern coast of India. The next cyclone on record after a gap of 70 years is reported to have affected the port of Khejuri in Midnapore with a devastating consequence on March 10, 1807. India Gazette of the time focused hazards in Khejuri and Sagar Island. The May cyclone of 1823 inundated the coastal territory of Midnapore upto 6 to 7 miles inland following a collapse of the embankment by accompanying storm surge. Destruction was on all counts e.g. damage of the port of Khejuri, loss of records in the Collector's Court at Contai, loss in agriculture that year added by loss in productivity for the following years due to saline ingression and loss of life in agricultural communities due to sickness after the cyclone.

In 1823 cyclone embankments were swept away and a greater calamity occurred. Seawater penetrated to a great extent to the land area, actually this sandhills which made a natural barrier used to check the shock storm wave and provided protection against the direct action of the sea were destroyed by the construction of embankment and protective works made by British Government and salt agent increased the difficulties and hardships to the local people.¹ Sea embankments were reconstructed with 11 feet height and 30 feet base again swept away by the great cyclone that occurred in October 1831. The storm wave top the 15 feet embankment made it weak and breaches occur in some parts of the embankment though damages were not so great. In April 1850 and in October 1851 two severe storms hit in the sea dyke and brought considerable losses in Contai and Hijili areas. The sea dykes sustained an injury in south Hijili, Doro Dumnán and Jadgree which brought little damages to those areas.

The 1864 cyclone could easily be referred to as the disaster of the century received attention from various corners both Government and non Government. Lieutenant colonel J.P. Beadle who Was the Chief Engineer of Bengal to the Secretary to the Government of Bengal at that time prepared a note not only on the progress of cyclones at different places of coastal West Bengal, but also prepared a comparative discussion on different theories of cyclone characteristics by Maury, Alexander Thorn, and of course Piddington taking this cyclone as an object of investigation. This report was published in the Calcutta Gazette. First he examined the general patterns of the whirling motion of wind in cyclonic circulation and then concentrated on specific cyclones regarding their origin and track, passing of lull through different places at different times along dissipation.

W.W. Hunter was surprised to note that no steps were initiated for remission or suspension of revenue though an assessment of loss was made by the Government.² Remission of revenue to the extent of Rs.85, 678.00 was granted due to loss of paddy by the May 1831 cyclone in Midnapore. In 1831 cyclone it was reported the loss of life of 11,000 people in 300 villages around Calcutta. The October cyclone dated 7th in 1832 repeated the destruction of ripening crops. Storm surges overtopped the 15 ft. high embankment.⁴In Blanford's account the 1832 cyclones were reported to have occurred twice in the month of May and August.⁵The storms of October 1832 and May 1833 completed the devastation. There are now large tracts without an inhabitant; the soil and the injured, alone remain. The commissioner, Mr. Mill's nicely described in 1845:-KusbaHidgelle suffered the most; Doro Doomeean the next greatest injury. The loss of life and property was most deplorable; house washed down; tanks poisoned, bunds swept away, and the greater part of the land was impregnated with salt. The ascertained destruction of life was stated at 2,472 human beings and 17,927 head of cattle.⁶

A pre-monsoon cyclone in the month of May caused considerable damage both in Midnapore and Twenty four Parganas Districts in 1853. The market in Khejuri has washed away and the settlement process in Sagar Island received a setback with a loss of more than 3000 people. Referring to Hurkar, a newspaper Piddington stated that the storm surges reached Calcutta and its surroundings including Dum Dum road. These three successive years of cyclones were followed by an 1842 cyclones at an interval of nine- year. The October cyclone of 1848 is another event that retarded the progress of settlement in Sagar Island.⁷ But its effect was not felt beyond Sagar Island or Khejuri as investigated by Piddington.⁸ The cyclone hit the Orissa coast before coming to Bengal. Blanford theory referred to it as a cyclone of Orissa in his list (1877). But Hunter in his statistical account of Midnapore (1876) recorded remission and suspension of revenue due to the damage of crops by the cyclone of 1848. Midnapore coast was once again affected by a pre-monsoon cyclone in April, 1850.⁹Piddington kept a detailed account of this storm in his Twentieth Memoir about law of storms.¹⁰ Various direct experiences collected and quoted by him revealed the type of effects in the entire coast from Digha in the west to Khejuri in the east. Effects on landforms, the height of storm waves breaching of embankments, damages to houses and roads, the loss of cattle, loss of crops – all were noted carefully along with the physical parameters of the cyclone. Notwithstanding Hunter described loss of crops only in case of indigo and stated that remission of revenue was required since there was no paddy in the field at the time of the cyclone. Being a researcher, Piddington took a keen interest in finding out the track of the cyclone. He described severe nature of the cyclone in Sundarban where it demolished and destroyed everything in its path whether it is a house even a brick-built one or ship on the river, crops and cattle in the field and human lives. He remarked that sudden rise of water (perhaps he meant storm surges) in all the rivers caused such havoc damage and destruction of buildings, loss of cattle, uprooting of trees and moorings, breakage and overturning of country boats and ships on the river Hooghly in Calcutta.¹¹

The untiring effort to settle the Sagar Island since the beginning of the century was repeatedly interrupted by cyclonic invasions. Commencement of setting the island of

Sagar, almost came to a halt with the cyclone of 1864. The port Khejuri in the opposite bank of the Hugli had a similar fate. Changes in the mid-channel how of the river offered no chance for re-emergence of port facilities here giving a death blow to the English settlement, Post Office etc.¹² The entire area upto Diamond Harbour, Kulpi in South Twenty four Parganas district and Tamluk, Mahisadal in Medinipur and the places beyond Uluberia were engulfed in the storm -surges. The interior areas were flooded by the rise of waters in coastal rivers and canals. In almost all the places embankments were overtopped by floodwaters.¹³ Gastrell and Blanford have given an elaborate description of storm waves with the spatial extent and corresponding heights.

The cyclone not only destroyed the crops of that year, but also adversely affected the production of the subsequent years due to saline invasion in the agricultural fields. Loss of cattle, birds, uprooting of trees, damage and destruction of huts and buildings, breaching of embankments, destruction of ships etc. brought life in despair at least for a fortnight. Loss of human lives over a period long after the cyclone due to sickness or starvation was equal or might outnumber the death caused during or immediately after the event.¹⁴ The 1864 cyclone was studied both by official and unofficial personnel and the record covers both physical and social aspects of cyclone hazards. The Collector of Midnapore observed that the condition of the people is very unsatisfactory what with the cyclone and the Cholera following it the losses in 1864-65, were most serve. The crops, the cattle and the houses were destroyed in various degrees. Near Kedgerree they were all but utterly wiped out. Around Contai itself more than half of this property was destroyed, the pergunnahs on the sandhills between Sooburnrekha and Contai suffered somewhat less. Around there was also heavy loss of live and in Majnamoota also (Round Contai) a good many lives were lost, but not so towards the Sooburnarekha.¹⁵

The deputy Collector and Deputy Magistrate wrote "*The Narainpore salt depot golahs sustained a great injury during the cyclone of 5th October of 1864 and large quality of salt was washed away by the heavy rain and inundation at time, the loss thus caused was estimated at mounds 75,00 out of a storage on the day previous of mound 2,00,0045. Many salt laden boat were wrecked in the canal adjoin the cyclone. The materials of the empty golahs which were destroyed by the cyclone, were sold by the public auction for Rs. 1,106-4 and the pokhtan cutcherry houses for Rs. 42-65.7. As reported all the golahs at different ghat of these depots of the south -east Midnapore district were more or less injured by the cyclone. The loss of the salt on this occasion was estimated by the officer in charge at mounds 1,55,168 out of a stock on the preceding day of upwards of eight and a quarter lakhs of mounds.*"¹⁶

The 1874 cyclone is the next one. This occurred on October 13-16 as referred to in Blanford's list .¹⁶ O'Malley again described it as more severe than the 1864 cyclone and added that the storm wave generated by it would have been more destructive had not the sea dyke been completed between Birkul (Near Digha) and the mouth of Rasulpur.¹⁸

Sea-fishing as affected by cyclones in the coastal zones of West Bengal is a subject of inquiry in the present study. The people engaged in this occupation are not to be taken as merely an economic group, rather they deserve to be considered as belonging to the primary producer group of the human ecosystem supplying food as a valuable fish item

to the rest of the society, so that any disruption in the economy is liable to bring about a destabilization spatially and temporally in the distant and near ecosystems. `Despite the introduction of techno centism in the operational process, it is still out rightly a primary activity, practicing a 'hunting and collecting stage' of organization. Based on these facts, some points are taken into consideration. First is the inception of sea-fishing on a commercial basis in the study area. This is related to the survey of cyclone afflictions on fishing in the past. Also, it connects a point of human ecosystem concerning energy fixation in the primary producing level while its commencement is connected with food requirement with the ever-growing population. Second is the nutritional value of fish and its fundamental requirement in the human diet in the study area. The last and the most importanpoint for the present discussion is the impact of cyclones on fishing.

As early as in the days of John Company in the year 1828, the English traders speculated the prospect of marine and estuarine fishing on the Bengal coast. In an analytical paper a detailed description was given on existing fish market in Calcutta, kind of fish intake and purchasing power of the Calcutta people, types of fishing boats and nets, inefficient fish preservation system, poor transport facility by country boats added by little demand and poor market of fish in the vicinity of Sagar and neighboring islands. Such a thoughtful note was published in the Calcutta Gazette (September 22, 1828) following an advertisement in a pamphlet indicating the establishment of a fishery on an extensive scale at the mouth of Hugli at Sagar Island. After examining all the facets some conclusive statements were made that sea fishes, when carried for 12 days' journey, were inevitably brought in rotten condition due to the time taken and improper preservation system.¹⁹

Hunter, as early as in 1872, explained the importance of fish as a highly valuable food for enjoyment to the rich and necessities of the poor (1872, p.160).²⁰ The Government of India selected Bombay as an experimental field for initiating deep sea-fishing after Independence. In case of West Bengal the State Fishery Department, instead of Midnapore coast comprising Contai and the adjacent areas, preferred Sundarban. This may be due to the more fertile estuarine ecosystem than the less fertile open sea area.

Table-1

Mr. Harrison amentioned in his report how the cyclone effected Midnapore district thana by thana and mortality rate in human being and cattles.

	Lose of Human life	Estimated loss of cattle
Contai	175	2,123
Kedgiri	...	279
Nundigram	67	No estimate
Sootahatta
Tumlook	20	70

W. G. Wilson-Report of the Midnapore and Burdwan Cyclone, October 1874, Calcutta 1875 , Page 48.²¹

Mr. H.W.Bamber also mentioned in his report how the cyclone effected Midnapore district thana by thana and mortality rate in human being and cattles.

Table -2

Thana	Loss of human life	Estimated loss of cattale
Panchkoora	52	172
Bhugwanpore	133	329
Contai	175	2,123
Tumlook	20	70
Muslundore	04	27
Nundigram	67	No estimate
Sootahata
Kedgiri	279
Egra	92	1,750
Patspore	62	No estimate
Rogoonathpore	212	1,700
Total	816	6450

W.G. Willson: Report on the Midnapore and Burdwan Cyclone of 15th and 16th October 1974, Bengal Secretariat Press, Calcutta, age-49, 1875.²²

The Revenue department also reported that the cyclone affected the salt business by refund of the salt duty which was lost by boat-wrecked. Since the last cyclone of 5th October, a large number of applications have been presented to the Board for a refund of the duty paid on imported Salt lost by boat-wreck caused by the cyclone. Up to the 28th ultimo, out of sixty six applications for refund of duty on a total quantity of mounds 42,819, twenty applications for refund of duty of rupees 35,230, being the duty on mounds 10,840, have been sanctioned and forty six applications for the refund of rupees 1,03,931 ³/₄, being the duty on mounds 31,070 refused. The board has also sanctioned a refund of the duty paid on mounds 1,000 of Liverpool Salt, which had not been delivered from the ship Alexander John Kerr, which foundered on the day of the cyclone; and redeliveries of Govt. Salt at cost price, amounting to mounds 3,875, the duty on which was rupees 12,593-12-0; one application for the re-delivery of a thousand being refused.²³

As a record, the sales indicate a decrease of 11,856 maunds or 8 percent. According to some mere explanations about this decrease, the commissioner observes that the increase in sales for consumption up to 1,42,124 maunds in 1872-73 was a real increase due to police vigilance, the increase 1872-74 being exceptional and that the sales during the year under review would have been about the same as those in 1872-73. Had it not been for the cyclone of 15th October last, which inflicted considerable injury on the saline tract and cholera, which aided the cyclone in paralyzing the trade of Contai.²⁴

Flood and its effects of coastal region

Flood, caused by the sudden rising of the rivers as well as from heavy rainfall, are common in the southern and eastern portions of the district. Within the present century, severe floods occurred in the years 1823, 1831, 1832, 1833, 1848, 1850, 1864, 1866,

1868, all of which disastrously affected crops. For the protection of the land against inundation, there are several important embankments, maintained by the Public Works Department. Being a researcher I here pass on to a brief mention of principal inundations that have affected the southern and eastern parts of Midnapore (which compose the Hijili portion of the District) The Statement is condensed from Mr. Bayely's Midnapore Survey Report-

- (1) In March, 1823 a flood occurred which swept away the whole line of embankments. The area was so inundated that the flood broke into the collector's Court at Contai (Kanthi) and washed away the records. The arable land was greatly injured from the effects of the salt water. An injury was made into the losses sustained by the flood. Much sickness was caused, and numbers of the agriculture population died or were so incapacitated from labour as to seriously throw back agricultural operations for that and the following years.
- (2) A second flood occurred in October 1831, when the winter rice crop was well grown. The whole line of embankments was washed away, and the rice crop, which was well advanced, was almost totally destroyed
- (3) Again in October 1832, a destructive flood occurred which did great damage to the ripening crops and which overtopped embankments fifteen feet in height.
- (4) A more devastating flood occurred in September 1834, in which more than half the crops were swept away; 7112 persons drowned, or half the population of the flooded tract; and 865 villages inundated. A letter from the Board of revenue to Govt., dated 9th May 1837, thus speaks of this flood. These calamities were no light or common kind, and their consequences were of no transient or temporary character. The agriculturist had not to suffer merely the occasional losses of an unprosperous season and a bad harvest to be repaid by succeeding year's fertility and abundance.
- (5) Other floods occurred in January 1839 and May 1840, in the latter of which, although the sea embankments stood very well, the country suffered by the bursting of the interior embankments.
- (6) Again in August 1845, floods did severe damage to the Kalmijol and Midnapore embankments, the fiscal Division of Mainachura, Sabng and Kasijora were totally inundated, and the rice land injured
- (7) In October 1848, a flood did much damage to the embankments, which were overtopped and breached in many places. The crops were much damaged.
- (8) In April 1850, another inundation overtopped and broke away the embankments in the sea board Fiscal Division and along the banks of the large rivers. Fortunately, no crops were on the ground, except indigo, and no remissions or suspensions of revenue were considered necessary.

In 1833 the sea spread over the Hidgelle district, by which 596 villages were flooded and 12,228 houses were destroyed and 2,967 human beings and 8,233 head of cattle perished.²⁵

The main loss of life on the 6th October 1964 was caused by the cyclonic storm wave. Actually the death by the storm was not numerous but in Midnapore district the estimated losses were much in the consequence of the inundation (due to gust of water) and swept away and drowned of boat and boatmen and fishermen in the river by the rush of the water. After laps of a few days inundation invited in much scarcity of food, clothing, shelter and particularly drinking water. Putrid vegetation and unripened body and carcasses made water impure adulterated food and spread waterborne disease which actually put the life of common people under great measuring, not only that the acute hardship acting on people already under severe mental frustration from the loss of their relation and property made them fatal and overwhelmed.

The Teraparrah about 132 persons as recorded were drowned and 615 people were death by sickness. In Mysadul about 3,740 persons were drowned and more than 4,243 were death by sickness. The southern part of the Rasulpur river (Southern Hijili) was deeply flooded by storm wave and much of the land submerged was uncultivated. The total loss in this area was really great. *Colonel Short writes,— ‘‘The fury of the Cyclone caused a fearful destruction of the villages to the interior; indeed the raised plateaux, on which many stood, were swept clean, and the consequent misery must have been great. It appears that the people believing the lull in the storm [the passage of the central calm] to be the sign of its having passed over, proceeded to bring in their cattle, and whilst so engaged they were overtaken by the waters, which, topping the lowest parts of the dyke or entering through the breaches, drowned man and beast ; while many standing on the high ridges separating the Gelds, were, during the height of the Cyclone, literally swept into the water and drowned. A small isolated circuit of embankment bordering on the Russoolpor River encloses about half a square mile of cultivated land in the midst of the salt lands to the rear of the second line of sand hills. Over this the wave swept unimpeded, and within the circuit, including cattle, must have been carried away, surrounded as they were by a sea breaking 6 to 8 feet high over the land, and lashed by the Cyclone.’’*²⁶In Bahareemootah to the exterior of the embankment, the destruction was very great over an area of 56 square miles and greater than inside the embankment, as the villages are larger, more numerous and better populated. To the west of the Peechabunnee Khal the loss of life was comparatively terrifying, but the violence of the storm caused great destruction in the villages. Many cattle were drowned as evidenced by the numerous skeletons heaped together at certain localities along the dyke.

The result of Mr. Rattray’s enquiries in the two floods in his subdivision is very distressing, 27, 598 houses utterly destroyed, 667 head of cattle killed and the almost certain loss of the entire harvest for the year in this area. The loss of paddy destroyed in the granaries is estimated at 35 to 40 percent in Doobdajheel and at 20 to 30 percent in the Meergodahpergunah. It is satisfactory to find that, notwithstanding the recent disasters, a fresh crops is expected in Hijili. The almost entire absence of any loss of life especially amongst helpless women and children appears to me almost incredible²⁷.

Famines of coastal region

The district is not especially liable to famines. Droughts are not of frequent occurrence, nor, when they do take place, are they usually of so serve a character as to cause a

general destruction of the crops. Much depends on the quantity and distribution of the rainfall and the situation of the lands under cultivation. If the monsoon sets in early with very heavy rain, the crops on the lower lands cannot be grown at all or are damaged by submersion, while, if it sets in late or ceases prematurely, the crops on the high sites suffer from drought. When, however, the rain falls in moderate quantity throughout the season, the crops of all parts are good and an abundant harvest is the result.

There have been five famines or periods of scarcity during the time of British Administration, viz, in 1766, 1792, 1851, 1866 and 1897. Of the first three there is little record; in 1851 there was a loss of nearly five eighths of the rice harvest, which is main crops of the district. The worst famine of which there is detailed information was that of 1866, that great Orissa famine, from which Midnapore suffered more than any district in Bengal outside Orissa.

In October, 1864, due to the hazardous cyclone, a great irruption of the sea ravaged a large extent of crops in most of the Eastern and Southern parts of the undivided Midnapore district, especially in Hidgelle and Tamlook sub-divisions. Next year in the month of September another calamity was manifested itself in the same region by the occurrence of grain robberies. In Doro and Goomghurpergunahs where at least third fourth of the population had been swept away by the last year's devastating cyclone, the price of the crops began to increase and consequently a shadow of famine covered the surface of that particular region. After the inundation, the Mahajan wanted to preserve a huge amount of crops for themselves without selling it. It was also reported by the then Deputy magistrate of Tamlook that one fourth of the fertile land of Doro pergunah was left uncultivated only for the want of farmer caused by the emigration due to the effect of cyclone. Though the contemporary Deputy Magistrate claimed that there was a great arrangement of relief fund for the distressed people during such inundation as well as drought throughout the year, only 1000 cyclone-affected people were benefited by this charitable support in the month of November. On the next September, the Deputy Magistrate of Nugwan was very anxious about the prevailing high price of rice which might cause great famine in the surrounding areas. To get rid of this deplorable situation an excellent agenda of harvesting was anticipated by the DM, but it was not utilized due to lack of money as well as the rainfall in this year. Day by day the devastating drought had grasped villages after villages and the rumor of forthcoming famine had spread everywhere there. On the other hand, the Mahajan refused to help the poor class farmers who were the extreme sufferer of this horrible situation. Though a large extent of rice was imported during this terrific drought from Balasore, the high price of the rice became another obstacle to the poor farmers. As a result, few deaths were reported in Hidgelle sub-division. After this dreadful incident, all the Deputy Magistrates of those affected region reported to the Commissioner of Burdwan division to make some arrangements for the distressed people. The commissioner took some agreements regarding the decrease of the price of the rice as well as an understanding between the Mahajan and the farmers. All these initiatives were anticipated in favor of the natural disaster induced poor class family. But in the meantime the natural catastrophe became more dangerous as there was no rainfall and the drought grew incessantly. Beside this, the agreements taken by the commissioner

were not fruitfully utilized by the other governmental authorities. All the original reports regarding the fatality rate in those region due to the great famine were misinformed by the then Collector. Consequently the poor class family affected by the great famine was deprived of all governmental facilities and became the victims of the ongoing catastrophic famine.²⁸

On the 21 August collector laid before a meeting of the central Committee a carefully prepared statement showing- *That for charitable sale purposes, the Committee might, as an experimental measure, estimate the probable number of purchasers at all the depots in the district, where it was proposed to sell rice, at 8,150, excluding the depots of contain and Tamlook, where such sales were not considered necessary. It was not improbable, however, that before the end of the month to which the estimate referred, the number of purchasers might be doubled.*'²⁹

Deductions

In view of the different archived records summarized above we can note the following points:-

- The repeated cyclonic storms throughout the nineteenth century and the resultant inundations of the low-lying areas of Midnapore, barely protected by the weak dams and dykes, wreaked havoc in terms of devastating the agriculture and economy of the area by destroying the very backbone of the production and distribution system.
- The misery was further aggravated by different non-liberal policies of the British administration. His adversely affected the Salt-production and agricultural economy which were the main stays of sustenance of the people of the area.
- Apart from the aspects of economy, Trade and commerce, areas remaining water-logged for prolonged periods posed serious health-hazards for the inhabitants as evident in the periodic outbreak of epidemic diseases.
- The policy of allowing foreign-salt industry to enter the Indian market struck a deadly blow to indigenous salt-industry and people of the coastal region, cutting across creeds and castes, had to change their vocations – they had to take up fishing as their profession, notwithstanding the dangers posed by a not-so-friendly sea.
- The coastal region also witnessed the mass migration of the Malangis, engaged in salt-production, to other parts of the province in search of new vocations.
- This brought about a significant demographic change – the basic structure of the society of the area was broken and fragmented in such a way that it could never be revived again.

Conclusion

In this article, with the records and minute details provided above, it can be concluded that natural disasters are seen as a function of a specific natural process adversely affecting economic activity. The changes in variables such as annual agricultural output, effects on social sectors such as the population, housing, health and education, service infrastructure like drinking water, and sewage and communication and

production sectors like agriculture, salt production and fishing, have been examined in order to measure the natural disaster's impact on socio-economic conditions. The disaster led to an enemical coastal environment in which a significant proportion of the population was acutely vulnerable to death, disease and disruption of livelihood over a prolonged period of time. The governance of such a coastal environment was usually very weak with the limited resources to mitigate the sufferings of the population or to provide adequate levels of protection. The momentary value of total or partial destruction of physical assets and infrastructure in disaster-affected coastal areas, expressed as replacement and repair cost. In the agriculture sector, damage is considered in relation to standing crops, irrigation system, livestock shelters, fishing boats, pen and ponds, etc. Threats to human food chain appeared in many different forms, such as trans-boundary plant, forest, animal, aquatic and zoon tic pets and diseases, dam failures, etc. A serious disruption of the functioning of a community or a society at any scale due to hazardous event interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the human, economic and environmental loss and impacts. One of the most direct ways in which natural disasters affect the sector is through reduced production. This results in direct economic loss to farmers, which can cascade along the entire value chain, affecting agricultural growth and rural livelihoods. Natural disasters and protracted crises often overlap, aggravating impacts. This was further aggravated by the famine in the coastal area of Midnapore district in nineteenth century. The triple adversity of Flood, Famine and Natural Disasters led to mass displacement of coastal people ushering in a demographic change.

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