CHAPTER II

CYCLONES IN THE NINETEENTH CENTURY
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As it is situated in the coastal belt, Orissa is always prone to flood, famine and cyclone which contribute much to the failure of agrarian economy of the State. But among the above three curses of nature, cyclone is the most perilous one for economic devastation. Even in the years when there was no flood or famine, the ripe crops were damaged by cyclones which caused scarcity of food, and destroyed the property, life and animal etc. Among all natural calamities the tropical cyclone is unparalleled in its violence and devastation. Speaking at the Regional Tropical Cyclone Seminar in Brisbane in 1973, A.J. Shields a leading Australian meteorologist observed that severe drought no doubt caused considerable overall economic loss because of its protracted widespread nature, but no meteorological event had a greater economic and social impact than a major cyclone.

Vulnerable Belts

The eastern coastal belt embracing Bangladesh, Bengal, Orissa, Andhra Pradesh and Tamil Nadu (Fig. 9) is very much vulnerable to repeated hazards of surging sea waves and heavy


Tracks of tropical cyclones (normalized) in the Bay of Bengal, Arabian Sea and Indian subcontinent. (After P. Koteswaram, 1974.)
downpours that accompany spirally moving fierce winds, mostly in the months of October, November and December. About a 25 km. wide belt of the eastern coast of India is vulnerable to cyclonic hazards, the risks being particularly severe in the mouths of rivers. The cyclone-prone districts (Fig. 9) include Midnapur and 24 Parganas in Bengal, Balasore, Cuttack, Puri and Ganjam in Orissa, East Godavari, Krishna, Nellone, Prakasam and Srikakulam in Andhra Pradesh and Chingleput and Tanjavur in Tamil Nadu.

**Frequency of Cyclones**

Most of the cyclones in the Bay of Bengal occur in the post-monsoon period i.e., between September and December and a few take place in the months from April to June in the pre-monsoon period. The tropical cyclones are five times more frequent in the Bay of Bengal than the Arabian sea (Fig.14.2). The eastern coast suffers from the hazards year after year, compared to those borne by the West Coast where northern Gujarat and Saurashtra are the most vulnerable areas. The coastal belt of Orissa suffered most from the cyclones in the 19th century. The series of cyclones which hit Orissa were in - 1823, 1831,

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4. [Ibid.](#)
Causes of Cyclones

The area nearer to the coast is hence affected more due to the depressions arising in the Bay of Bengal. The depressions then proceed to inlands passing over the coast. The velocity of wind on land is maximum at the coast. The accompanying tidal surge is sometimes 6 to 7 metres high which inundates the coastal settlements and results in loss of life, property and crops. Though the mean tract of cyclone exists on the north of Mahanadi delta its effects are profound in the area. During the post-south-west monsoon season, the cyclone phenomena prevail in many parts of the coastal region. It is during August and September when the Kharif crops are in the fields, the cyclone generally occurs and causes the maximum devastation. August and September are the mean periods for the probability of occurrence, whereas the cyclones of the winter season normally do not affect much the Orissa coast. Their effects are mostly felt in Andhra and Tamil Nadu. The intensity of cyclonic storm decreases from the coast to the interior region bringing with

L.S.S.O'Malley, BDG, Cuttack and Balasore, Calcutta, 1907, Several volumes of GARG.
it heavy rainfall. The direction of the cyclonic storms is west-north-west which comes from Bay of Bengal. The intensity depends on the speed of the wind which ranges from 90 to 200 km. per hour. But the speed of 80 to 90 km. per hour can be enough for the destruction of a large number of houses. From this damage done during the high speed, cyclonic winds can be imagined.  

Cyclone Havoc (1803-1851)

During the first two decades, there was no severe cyclone in Orissa. On the 27th May 1823 however, there was a furious cyclone in Balasore district, which was said to have been the third calamity of the kind within eight years. The sea suddenly rose and penetrated six miles inland, carrying with it every living creature in them, not even the vestige of a human habitation being left. On 31st October 1831 a terrible cyclone took place in Orissa. Twenty one lives were lost in Balasore district by the falling of houses and exposure to the gale. The sea rose twenty feet higher than usual, and rushed in a torrent over the country, carrying everything with it. This was not the case in the most exposed situations only, from the Subarnarekha to the Damra river, the country was inundated some places as far as

ten miles from the coast. Between Balasore and Busta the torrent passed over the high Jagannath Road on one estate situated N.E. from Balasore, out of upwards of 300 inhabitants, thirteen only survived. On a property on N.bank of the Burabalang river, 281 and on another S.E. from Balasore, 768 were drowned. The loss calculated may be at least about 15,000 of human lives and 50,000 of heads of cattle in Balasore district.

The irruption of the sea was but partially felt in central Cuttack, and that only five estates have suffered from the visits. Throughout the district, however, the crops would appear to have been damaged to a considerable extent by the violent wind and the excess fall of rain. In central Cuttack 331 human beings were ascertained to have perished the loss of life though lamentably great, was yet small compared to other parts of the coast and the great injury had however been done to property, particularly the lower grounds bordering the coast which were tilled chiefly by Malangies. The sum of Rs. 1,226 were distributed among Malangies alone. The method of granting relief was that of giving a rupee per each family of Malangies,


10. R.D. Mangles, Acting Junior Secretary to the Deputy Secretary to Government, Revenue Department, 9 March 1832.
with a promise of another similar donation on their commencing the manufacture of salt. Another mode of relief was that of permitting a sale at low prices of grain which had been sent from Calcutta. A large sum had been disbursed to clear ponds, to prevent the people dying from diseases which might arise from drinking brackish water. R. Hunter's explanation put emphasis on adequate relief can be granted to the agricultural classes by securing to them the full benefit of any relaxation in the Government demand from proprietors.  

The loss incurred by the Government was as follows:  

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of salt destroyed at its prime cost</td>
<td>53942-8-0</td>
</tr>
<tr>
<td>Advances probably irrecoverable</td>
<td>544-7-9</td>
</tr>
<tr>
<td>Clearing out tanks</td>
<td>1360</td>
</tr>
<tr>
<td>Boats for bringing fresh water</td>
<td>300</td>
</tr>
<tr>
<td>Donations made</td>
<td>1226</td>
</tr>
<tr>
<td>Difference between cost of repairs as by amount estimate and will now be incurred</td>
<td>2226</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Rs. 60,830-15-9</strong></td>
</tr>
</tbody>
</table>

Some damage occurred to Puri district as well. Parts of the walls of the Commissioner's circuit bungalow and the Magistrate  

11. The Board of Customs Salt and Opium Fort William, No.32, 27 February 1832.  
12. Ibid.
and Collector's cutcherry had been damaged and the portico of the former building was nearly blown down.  

The number of those who required assistance at Balasore may be estimated at about the 15,000. The Government gave discretionary power to the Commissioner for the relief of the agricultural classes in the northern division of the province. He had power to extend it throughout his province. The scarcity of food was felt among the sufferings who were suffered under the double loss of property and kindred. The suspensions and remissions were granted to the people but it was not sufficient to meet the needs of the people. The fury and destructions of that late gale of 1831 felt more in Balasore district than any other district.

The distress and difficulties became severe, when a second great gale visited, the Balasore coast in October 1832. It became more violent but the storm wave was less destructive. The pargana Bherah was twice overwhelmed by the sea in the storm of 1831 and 1832. The village entirely swept away and nearly all the inhabitants were perished. The same coast was

15. R.D.Mangles, Acting Junior Secretary to Deputy Secretary to Government, Revenue Department, 9 March 1832.
16. Ibid.
17. L.S.S.O'Malley, BDG, Balasore, p.94.
18. H.Ricketts, Collector of Balasore to the Commissioner of Revenue for the 19th Division, Balasore, 1 January 1835.
also visited by similar gale of the 21 May 1833. On 30th of April 1840, the district of Puri was visited by a disastrous storm. The dalua crops was damaged severely but as informed by the Collector it was confined to a few villages in the vicinity of Puri town. The Collector of Khurda was authorised to make taccavi advances as follow:

<table>
<thead>
<tr>
<th>Taluk Delang</th>
<th>Rs. 2,168</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taluk Kishan Naggar (in addition)</td>
<td>164</td>
</tr>
<tr>
<td>Killa Tulpuddah</td>
<td>105</td>
</tr>
<tr>
<td>Killa Durjepur</td>
<td>38-14-0</td>
</tr>
<tr>
<td><strong>Total cases</strong></td>
<td><strong>2,475-14-0</strong></td>
</tr>
</tbody>
</table>

The districts of Cuttack and Puri were also visited by a severe storm in October 1842 and October 1848.

In the latter case, the damage occurred in the large tributary Mahals of Killa Kujang and Kanika and to certain estates in their vicinity viz., Taluk Pattamundai, pargana Utikan, Nowlbisee, pargana Kaima and Kismat-kaima and Bautara in which

19. H.Ricketts, Collector of Balasore to Capt. G.Young, Secretary to the Military Board, Fort William.

20. BdRP, A.J.M.Mills, Commissioner to the Secretary to Government Judicial Department; No.2424, 12 June 1840.


22. Commissioner to the Sudder Board of Revenue, 7 October 1842, Quoted in P.Mukherjee, *Irrigation, Inland Navigation and Flood Problems in North Orissa during the British Rule*, p.42.
the sarada crops which then covered the low lands were destroyed by the inundation of the sea, some damage was done by the hurricane but it was chiefly confined to trees and buildings. The crops were rather benefitted than otherwise by the rain which fell during the storm as they had previously suffered from drought. The principal damage was sustained in Killa Kanika (Kunkah) where there was also considerable loss of life and cattle. This estate which was under the jurisdiction of the court of wards at the time of cyclone had since been made over to the Raja and half the sudder Jama of the past official year had been suspended under the Boards orders of the 4th ultimo No.53. In Killa Kujang the mufassil balances to the extent of the loss had been remitted as reported to the Board in the letter No.482 of the 10th April last and the Collector had been directed to report whether there was any necessity for suspending or remitting any portion of the Government demand. In Pattamundai taluk the loss of crops in five division was estimated at Rs.14,000. In this estate also half of the sudder Jama had been suspended under orders of the Board and the Zamindars had been allowed to pay the balance due on the 8 pana kist in 2 instants. In Nowlbisee the crops was supposed to have been lost almost.

23. F.Gouldsbury, Commissioner to the Sudder Board of Revenue, No.952, 19 June 1849.
The Collector of Puri also informed that the storm was attended with strong wind and heavy rain. Some damage occurred to houses and trees. But it saved the district from drought. 24 In Balasore during the gale of October last the rice crops appeared to have suffered more or less all along the coast from the Dhamra to the Subarnarekha owing to the irruption of the sea water. But Ankurah and Bherah suffered the most than any other parts of the district. In these two parganas, the sea appeared to have been forced by a strong gale from the N.E. and E. across the low lands into the Kunttai river near the Kanika estate. 25 The large amounts outstanding in Cuttack and Balasore were to be ascribed mainly to the gale of October 1848, inconsequence of which heavy suspensions and remissions of demand had been granted with the sanction of the Government. 26

By the cyclone of April 1850, Balasore was devastated more than any other districts. The local enquiries of the northern parganas were made by a Deputy Collector and the Sirastadar of the Collector’s office while those in pargana Bherah were conducted by a British officer stationed at Bhadrak.

24. F. Gouldsbury, *op.cit.*

25. Sudder Board of Revenue, Misce, Memo No. 851\(\frac{1}{2}\), 1849 (O.S.A. Sl, No. 2087).

26. The Secretary to the Sudder Board of Revenue to J.P. Grant, Secretary to the Government of Bengal Revenue Department, No. 278, Fort William, 15 May 1850.
Lands on the bank of the Muttai river towards the sea was found to be uncultivated which Brown attributed to the calamities of by gone years (for which suitable remission or suspensions have been allowed). The Collector was of opinion that some relief for the current year ought to be given to the zamindar, but the Commissioner could not support such a recommendation. According to him the lands in question were unproductive. In the northern parganas he also recommended the suspension of the estimated losses for the period of one year. In the middle of October there was a fair prospect of a generally good harvest in Balasore, but the gale which occurred on the 22nd of that month and extended all along the coast was said to have done some damage to the standing crops upon the whole. The ryots of Nauanand and Bherah pargana appealed to the Government to inspect the area which were devastated by the cyclone of 1851. The appeal of the people also was given below:

27. F. Gouldsbury, Commissioner to the Secretary to the Board of Revenue, L.P. No.1210, 26 June 1851.

28. BdRP, F. Gouldsbury, Commissioner to the Secretary to the Board of Revenue, L.P. No.2342, 26 November 1841.

Court of the Deputy Collector Hon'ble William Bonesahib, Bhadrak, dt.29.11.1851.

The ryots and general public of parganas Dayananda and Bheda under mauza Birilo have appealed for a thorough investigation into the losses causes of low harvest in 1259 due to scanty rains and the storm in the month of Kartika.

Since the loss cannot be investigated without the permission of the Collector, this copy is being sent for his information and necessary action.

Abhaya Charan Baral
Narahari Das

The Cyclones from 1852-1900

The cyclone of 1864 burst on the 5th October and was of unprecedented violence. It had its origin in the vicinity of the Andaman Islands and travelling northwards and west wards, first struck Bengal on the Balsore coast. The southern and eastern parts of Balasore exposed to the full force of the storm wave and the effect was most disastrous. The Orissa coast suffered to a great extent from the violent cyclonic storms in the first half of the 19th century. It also caused much destruction to the lives, and properties of the area. The frequent occurrence of cyclone devastated the healthy economic life of the people of Orissa. The British Government did not take any systematic long-term measures to protect the people from such calamities. They only granted some remissions and suspensions of revenue. But it

was not sufficient to alleviate the plight of the people. Orissa again suffered from a cyclonic storm in the night of 1st November 1867. Captain A.Bond, Master Attendant of Balasore, who was on his way to Calcutta in tow of the conqueror stated that he did not encounter the storm, which passed him to the north-east. He gives the following readings of the barometer. 31

<table>
<thead>
<tr>
<th>Date</th>
<th>Moon's Phase</th>
<th>7.00 AM</th>
<th>Noon</th>
<th>4.00 PM</th>
<th>Wind &amp; Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>30th October</td>
<td>3½</td>
<td>29.78</td>
<td>29.30</td>
<td>29.77</td>
<td>80 N.light to N.W.</td>
</tr>
<tr>
<td>31st October</td>
<td>4½</td>
<td>29.75</td>
<td>29.74</td>
<td>29.72</td>
<td>76 N.W. very cloudy</td>
</tr>
<tr>
<td>1st November</td>
<td>5½</td>
<td>29.68</td>
<td>29.58</td>
<td>29.51</td>
<td>72 N.rain at noon heavy</td>
</tr>
<tr>
<td>2nd November</td>
<td>6½</td>
<td>29.72</td>
<td>29.78</td>
<td>29.80</td>
<td>75 W. to N. at noon</td>
</tr>
</tbody>
</table>

31. A. Manson, Special Assistant Commissioner, Cuttack Division to the Secretary to the Board of Revenue, L.P.No.907½, Cuttack, 26 November 1867.
"There was no loss of life or property to any great extent". 32

From Baliapal it was reported that some damage had been done to the crops, on the Subarnarekha river and at Busta and Bherah as well. In the north side of Balasore district a few huts, were unroofed, but no life appeared to have been lost in any part. The damage done by the storm was extremely slight. The Assistant Collector of Bhadrak after personal inspection, reported from Kolho to Chandbali the force of the wind on the 1st November levelled the paddy to the grounds in many fields, and the rain which subsequently fell had rolled it. In the fields especially of guru Dhan, the ears had been emptied of their contents, and nothing but chaff remained over this tract between Chandbali and Dhamrah little injury had been done. The injury to the subdivision had been confined to the coast tract. 33

In Jajpur subdivision no accounts of the force or direction of the wind had been received. In Ulabhur some huts were unroofed and from Aul, the crop had been injured to the extent of 4 annas or ¼, and slight injury had been to the sarada crop. The storm waves had inundated Saraswats and jagula in the Bhadrak side of the Dhamrah.

32. E.W. Molony, Famine Commissioner in charge of current duties to the Junior Secretary to the Government of Bengal, No.967, Cuttack, 19 December 1867.

33. Ibid.
At Kendrapara the wind rose from the evening of the 30th October to a gale at about noon of the 31st, it continued with some violence till evening of that day, and subsided entirely on the morning of the 1st November. The storm was accompanied by showers of rain. At both Pattamundai and Kendrapara a few old huts were unroofed. The Assistant Collector wrote from personal inspection, that the parganas Tikal, Utikan, Nowlbissee, and part of Kujang, were most liable to injury from hurricane. In Cuttack town no mischief to life or property occurred. The wind was high both on October 31st and November 1st and blew steadily from the north. The Master of the False Point Light House reported that the storm commenced at 10.00 P.M. and October 31st, and blew from north-north-east until about 8.00 P.M. of November last. "He described it as the severest gale he even experienced. At Puri the wind was heavy but no damage occurred. 34

From the above records it was found some serious damage had occurred to the crops and there were no reports of loss of cattle or human life, but some injury was done to the houses only.

In July 1872 the whole of the coastal belt was completely devastated due to a severe storm accompanied by tidal eruptions. 35

34. E.W.Molony, op.cit.

The cyclone commenced in Balasore from north-west, between 1 and 2 P.M. of the 1st July, and shifted round to north-north-west, north-west, and north-east by 8.30 A.M. The center of cyclone passed over and in the immediate neighbourhood of Balasore town where the very great damage was done.\textsuperscript{36} By the cyclone the loss of human life had been very slight as the cyclone occurred during the day time when the people were able to take care of themselves. The loss of cattle however had been very severe, the heavy losses in Balasore, Soro and Basudebpur were due to the fact that in these places the cattle were taken to graze on the plains near the sea which were treeless and open so that they had no protection. The sea waves which rolled for a short time, killed a large quantity of them. No application for relief had been made on this ground. But the Collector (J.Beames) pointed out that the district was poor in cattle and could not afford to lose nearly five thousand heads. It would be useless to give money as there were no cattle to be brought. But the Government acted liberally by sending some cattle for this distribution from other districts. This would also improve the breed which was very poor indeed. During the cyclone in the 1st July 1872, the death toll of cattle and

\textsuperscript{36} Selections from Divisional and District Annual Administration Reports, 1872-73, Calcutta, 1874, pp.464-465.
human beings is given below:  

<table>
<thead>
<tr>
<th>No. of cows</th>
<th>No. of buffalo</th>
<th>No. of sheep</th>
<th>No. of persons died by fall of walls etc., in the cyclone</th>
</tr>
</thead>
<tbody>
<tr>
<td>3424</td>
<td>1215</td>
<td>6</td>
<td>21</td>
</tr>
</tbody>
</table>

Many schools were also affected by the cyclone severely. The Collector also submitted the list of schools to the Government to grant half the sum required for the following schools:

Barabatte school, Revd. J. Sapart's Girls school, Sundaria school, Balikuti school, Bansdiha school and Soro school, etc.

The Collector before receiving a detail estimate, guessed that a grant of Rs.20 to Rs.40 per school or Rs.160 in all would be sufficient for the repairing of the schools. The Dolaseni school was perhaps repaired out of the funds of the Government Khas Mahals of Nuanand.  

The Collector was outgiving help and relief to the sufferers and laboured incessantly for some days in aiding people to collect their property and get some shelter over their heads. The Burabaling river rose considerably.

37. John Beames, Collector to the Commissioner of Orissa Division, Cuttack, No.432, Balasore 13 August 1872.
38. Ibid., No.360, 20 July 1872.
during the storm and flooded a good deal of low land. As the crops were not sufficiently advance to be much injured and the water passed off speedily, the loss of crop was comparatively small. The storm however, passed in a south westerly direction over Nilagiri, Keonjhar and Pal Lehara and across the hills travelling south towards Bārd Khond Mals, on the Madras frontier. 39

Money was promptly asked for from Government and has promptly granted for relief of sufferers and for rebuilding and repairing the wreck of houses in Balasore. 40 The proposal of the then Collector, John Beames for a wholesale remission of the town tax for 9 months following the disastrous effects of the cyclone, was turned down by the Government on the plea that there must be some rich and well-to-do people in Balasore who could well afford to bear their own town burdens. After all a sum of Rs. 1,500/- was granted as aid to the Balasore Municipality due to its distressed condition, leaving it to the local officers to carry out the partial remission of the town tax as might seem most advisable to them. The charge of Rs. 1,500/- was to be debited to the head of the provincial reserve in the budget of that official year. 41

40. Ibid.
Due to the cyclonic storms, Cuttack and Puri district were affected by a very heavy and destructive flood which inundated the whole country for some days and the Cuttack city was in imminent danger. It was saved by the energy of the engineer staff, who were aided by the military and prisoners from the jail.\(^42\) Some temporary distress occurred during and immediately after the cyclone and floods when supplies to local markets and particularly to Cuttack were cut off.\(^43\)

In 1874, Balasore district was visited by a cyclonic storm which caused extensive damages in the coastal belt of that district.\(^44\) The following account of the cyclone in Balasore district was taken from the report of the Collector, T. Norman. The barometric readings made at Balasore in the day of the cyclone, the preceding and following days, unreduced for temperature, but accompanied by thermometric readings were as follows:\(^45\)

\(^42.\) Selection from Divisional and District Annual Administrative Reports, op.cit.

\(^43.\) Ibid., p.467.

\(^44.\) P.Mukherjee, op.cit., p.47.

Along the coast line, the western limit of the cyclone of the 15th instant, which entered the country from the Bay of Bengal was coincident with longitude 87°85', and almost precisely coincided with the western boundary line of the Baliapal police station jurisdiction. Accordingly, the only portion of the district which fell within the track of the cyclone had been northern most police station jurisdictions and Baliapal and Jaleswar, excluding the pargana of Futiabad on the west bank of the Subarnarekha, which forms of north western corner of the district. A gale, with moderation occurred in the south of the district on the 15th instant, the intensity of the gale continued for six hours viz., from 3.00 A.M. to 9.00 A.M. The direction of the wind was north and north by west. The strength of the gale was only moderate and no damage was done.\textsuperscript{46}

\textsuperscript{46} Report of the Midnapore and Burdwan Cyclone, \textit{op.cit.}
No damage was done in this neighbourhood, except a few walls having collapsed by the heavy driving rain. At Jajpur it was simple bad weather. All the appearances indicate, however, that a heavy storm of a cyclonic character had passed up by the Bay of Bengal, and that it affected an usually large tract as far as breadth is concerned.\(^47\) Baliapal during the period had a population of 69,416 souls and Jaleswar a population of 45,722. Here the ravages of the storm had been almost indescribably disastrous.\(^48\) According to the returns prepared by the police, the number of persons killed by the cyclone was 105 and the number of cattle nearly 10,000. The houses which came within its tract were demolished. The injury done to the standing crops was surprisingly moderate. The houseless people suffered a lot due to the eight or nine days heavy and incessant rain.\(^49\)

The Government gave aid to the people, local subscriptions were raised, and a portion of the sohso relief fund, unexpanded last year, was utilised in helping the people to rebuild their houses. The loss of crops though local was very severe, and the people were still in a very impoverished state.\(^50\)

\(^{47}\) Report of the Midnapore and Burdwan Cyclone, op.cit., p.46.  
\(^{48}\) Ibid.  
\(^{49}\) GARCD, 1874-75, No.433, Cuttack, 17 June 1875.  
\(^{50}\) Ibid.
northern parts of Balasore, and the main tracts affected by
the cyclone, did not enjoy the general immunity from diseases.
The people were weakened by exposure and privation, attendant
on loss of houses and crops fell victims to a very severe
outbreak of cholera, which continued until May. More than
781 deaths were reported. 51

The most remarkable feature of the cyclone on its western
side, was, as Norman points out, the abruptness of the line of
demarcation between the violent and destructive part of the
hurricane and a moderate gale outside.

In the year 1885, the most noticeable storm of the year was
a small but extremely violent cyclone which was generated to the
north west of the Andamans on September 18th and 19th and travelled
rapidly in a north-westernly direction crossing the Orissa coast
on the morning of the 22nd September. The centre of this storm
passed over False Point light house at about 6.30 A.M. 52 It
was accompanied by a storm wave rising to a height of about
22 feet above mean sea-level, which at once submerged the village
of Jambu at terminus of the Kendrapara canal to the north-west.

51. GARCO, 1874-75, op.cit.

of False Point and then rolled on in north-westernly direction till it lost itself in the Brahmani river. But its violence, and by the severe storm-wave by which it was accompanied, did much loss of life at that station and in other parts of Orissa. Some important and severe cyclones in India were given in Table No.2.1.

The cyclone caused serious damage to the crops, and the loss was very keenly felt in the Jajpur and Kendrapara subdivisions. The loss of human life, cattle and destruction of houses and property was very great. Large fruit-bearing trees were blown down, and the crops totally swept away in many parts. The storm wave was 16 to 18 feet high and carried away everything before it. In Jajpur subdivision no less than 2,447 villages were affected and nearly 50,000 houses were destroyed; about 300 human lives were lost by falling trees, walls and homesteads, and 2,973 cattle were killed. Since at that time in the town, the price of common rice was 8 local seers per rupee and daily wage of a coolie was half anna many people were incapable of rebuilding their residence in order to stay therein. The cyclone which

54. RAB, op.cit.
55. GARCD. 1885-86, Pr.24, p.8.
56. L.S.S.O'Malley, op.cit.
Table No. 2.1

Some severe cyclones in India

<table>
<thead>
<tr>
<th>Date</th>
<th>Landfall point</th>
<th>Maximum wind speed (km/hr)</th>
<th>Minimum pressure (mb)</th>
<th>Cyclone Tract speed (km/hr)</th>
<th>Storm surge height (m)</th>
<th>Loss of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>Contai</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>5-10, (Bengal) 1864</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>November</td>
<td>Bakerganj</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>24-Dec, 1, (Bangladesh) 1876</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>October</td>
<td>Balasore</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>31, 1831 (Orissa)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>July</td>
<td>Balasore</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>1st, 1872 (Orissa)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>Sept.</td>
<td>False Point</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>19-23, 1885 (Orissa)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>October</td>
<td>Contai</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>15-16, (Bengal) 1847</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>November</td>
<td>Narasapuram</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>3, 1946 (A.P.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>December</td>
<td>Rameshwaram</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>20-24, 1964 (T.N.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>Dec. 4-6</td>
<td>N.of Cuddalore</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>1972 (T.N.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>Sept.</td>
<td>E.of Contai</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>160, 8-11,1976 (Bengal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>Nov.14-20</td>
<td>N.of Chirala</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>1977 (A.P.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
<tr>
<td>May 5-13</td>
<td>Kilakkarai</td>
<td>3-12</td>
<td>10,000</td>
<td>drowning</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>1979 (T.N.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(drowning)</td>
</tr>
</tbody>
</table>

(Sources: K.S. Valdiya, op.cit., p.357; BDG, Balasore, p.94; John Beames, Collector of Balasore to the Commr. of Orissa Divn. Cuttack, No.432, 13 Aug, 1872; N.N. Banerjee, Report on Agriculture of the District of Cuttack, p.178)
made its headway into this area destroying the ripe paddy crops absolutely, had rendered the people unable to avail rice in a cheap rate. The loss of human life caused by cyclone was computed at about 5,000 in the Kendrapara subdivision which suffered most and two of its pargans viz., Kerara and Kaldip were submerged under the storm wave. The whole of cultivation in Kaldip and about three-fourths of Kerara were swept away and the loss of cattle was estimated at 10,000 heads. These parganas which included 290 villages with a population of about 26,000, suffered more severely than any other part of the district and a total area of about 250 square miles was submerged. Eleven villages were completely swept away. About 150 more villages were levelled to the ground, though a considerable part of the population managed to escape. The Kanika estate, which included a considerable part of the affected sea-board, suffered most severely and many villages then destroyed had not yet been inhabited. The salt deposited on the lands by the tidal wave affected the crops for about five years. A sum of rupees 4,876 was spent in Cuttack for repairs of the river.

57. _U.D._, 3 Sept. 1835.
58. _GAROD_, _op.cit._, p.8.
59. _L.S.S.O'Malley_, _op.cit._
embankments of the Kanika estate. The Muharir in charge of the work with his coolies was swept by the cyclone of the 22nd September last.\(^6^1\)

The cyclone was also accompanied by a tidal wave which swept over False Point Harbour, knocking down all the houses before it, and completely submerging Jambu.\(^6^2\) The locke was drowned with whole family and the dead body of postmaster was found. All others also faced the same disaster. Out of 9 souls only two females and one child survived, who had taken rest in taken rest in two strong buildings there. All the steamers and boats present there were completely destroyed.\(^6^3\) At Jambu, out of a population of 150 only about ten were saved.\(^6^4\)

At Batighar (Light House) the velocity of wind was too intense and sea water intruded but it was a matter of happiness that no life was lost. The Government meteorological calculations predicted about this storm a day before. That day the rain and thunder storms started which violently intensified on 22nd morning but not human life was lost. One ship had been thrown

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61. GAROD, 1885-86, Pr.140, p.31.
62. L.S.S.,O'Malley, op.cit.
63. U.D., 26 August 1885.
64. Ibid., 3 Sept., 1885.
into the jungle but no sailor died. A rice loaded French ship had completely been destroyed.  

No trace of the remains of the houses, which stood at Hookeytola had been found. Along the coast hundreds of dead-bodies were lying along the sea-face. The bodies of seven monks were discovered some 40 miles away from Hookeytola. The cyclone of the 1885 had done little mischief in Balasore except in the south-east corner of the district. The Grant's (Collector of Balasore) report gave detailed damage caused by cyclone on the northern twenty miles of the coast of his district. According to the Collector it was found that the estate Birso had lost most of crops and cattle than any other parts of Balasore. Half of the crops of this estate was lost, about one-fourth of the whole seemed safe and the rest was doubtful. Credible persons affirm that Erem was not safe. After the crops had been harvested it appeared that most of the tenants in Government State (Birso) had lost whole crop or at least three-fourth of it.

65. U.D., 3 Sept., 1885.
66. Commissioner Office, Orissa Division, to Under Secretary, Government of Bengal, Revenue Department, No.940, 7 May 1886.
67. GAROD, 1885-86, Pr.29, p.10.
68. Letter of Commissioner of Orissa, op.cit.
69. Ibid.
In the small portions of the Basudebpur and Chandbali thanas, where the wave managed to penetrate inland of the canal, the loss was put at about half of the crop. The mischief done to the district as a whole was very slight indeed as regards the crops. What they felt most was the loss of cattle, for the wave came while the cattle were on the sea-face grazing grounds and about 14,000 heads were destroyed in all. The district escaped very lightly from what would have been a most grave calamity had it not been for the coast canal embankment.  

According to the report of the Khas Tahasildar, Nuanand also suffered from the effects of the cyclone. But there was very little loss of paddy crops in this estate. The pargana Ankurah and Bherah of district Balasore suffered most by the effects of the late cyclone and stormy waves of the year 1885. The average loss of crops in this area was about 14 annas and the loss of cattle was also more than ¾ of the whole. Many houses were damaged and only 6 lives had been lost; others narrowly saved their lives by utmost care. From the east bank of coast canal down to the embankment raised by Zamindars there was not a single paddy plant because all were decomposed by the effects of the sea waves. The cattle suffered much from want of fresh water.

70. GAROD, 1885-86, Pr.29, p.10.
71. Letter of Commissioner of Orissa, op.cit.
The great cyclone of September did not affect much the Puri district except Dandimal which suffered a little.\textsuperscript{73} The storm also passed into the Garjats travelling into Keonjhar at Nilagiri. Due to the pass of gale, the destruction of trees were many which completely blocked the road.\textsuperscript{74}

Immediately after the disaster the Government officials visited the devastated area and distributed food to the survivors.\textsuperscript{75} Measures were taken with the advice of Commissioner for the relief of the surviving distressed people by sending down rice for gratuitous distribution and for establishing grain depots. Taccavi advances were also given to enable the people to reconstruct their houses and purchase cattle. These advances were made available from the funds of the Kanika ward's estate.\textsuperscript{76} Two depots were established at Hansua and Rajnagar, from where allowances were doled out at the rate of \(\frac{1}{4}\) a seer for each adult and \(\frac{1}{2}\) seer for each child.\textsuperscript{77} It was found from records that 564 bags of rice had been sent directly to Rajnagar.\textsuperscript{78}

\begin{itemize}
\item \textsuperscript{73} GAROD, 1885-86, Pr.21, p.7.
\item \textsuperscript{74} Letter of Commissioner of Orissa, \textit{op.cit.}
\item \textsuperscript{75} C.E.Buckland, Bengal under the Lieutenant Governors, Calcutta, 1901, pp.822-23.
\item \textsuperscript{76} GAROD, 1885-86, Pr.25, p.8.
\item \textsuperscript{77} N.N.Banerjee, \textit{op.cit.}, p.178.
\item \textsuperscript{78} Board of Revenue Loose Records, No.424/2, Sept. 1885.
\end{itemize}
The storm wave of the September, did serious damage at Kujang and left many ryots homeless and destitute. In this devastation they were mainly assisted in money by the officials of Court of Wards. But the Maharani of Kujang did not spend a single rupee or relieved a single ryot. The distressed peasantry would hardly be inclined to deny that the Court of Wards on that occasion stood forth as the landlord in responsible possession of the estate.79

In Balasore district less damage was done by the storm wave. It was stopped by the embankment of the sea-coast canal which thus saved hundreds of square miles of country from being submerged by salt water. As a protection against similar visitation, a strong place of refuge was constructed on the highest ground available at False Point.80

In the way of relief the people of Birso asked for firstly the remission of the interest for the fasli year 1293 (1836), secondly the postponment of the unpaid 3 annas kist for the year 1292 (1885); thirdly, a taccavi advance of Rs.1,000 at the time of harvest. Of these proposals T.J.C.Grant admitted to second proposal and the Commissioner of Orissa also agreed with

79. H.J.S.Cotton, Secretary to the Board of Revenue, L.P. to the Secretary to the Government of Bengal, Revenue Department, No.3584, 5 May 1886.
him that it would be unexpedient to grant remission of past arrear on account of unforeseen prevailing calamities which at best were only temporary in their effects. The first and the third proposals were recommended to the Board for sanction on 18th March last.  

The Governor-General in Council expressed regret for the considerable suffering and the great loss of life caused by the cyclone in Orissa. But the prospects of the present seasons were greatly excellent due to the steps taken by the Lt.Governor and by the officers acting under His Honour's order to alleviate distress. The efforts made by private charity for the relief of distress were extremely gratifying.  

The public health suffered from the effects of the seaway and cyclone on 22nd September 1885. The following Table No. 2.2 shows the total registered mortality from different chief diseases in Cuttack district occurred during the year 1384 and 1885.  

81. Letter of Commissioner of Orissa, op.cit.  
82. C.S.Bayley, Under Secretary to the Government of India, Revenue and Agriculture Department to the Secretary to the Government of Bengal, No.Fam.2-43, Calcutta, 8 January 1886.  
83. GAROD, 1885-86, Pr.31, p.11.  
84. Ibid., Pr.32, p.11.
Table No. 2.2
Rate of mortality in Cuttack district during the years 1884 and 1885

<table>
<thead>
<tr>
<th>Year</th>
<th>Cholera</th>
<th>Smallpox</th>
<th>Bowel complaints</th>
<th>Fever</th>
<th>Injuris</th>
<th>Other causes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1884</td>
<td>7,482</td>
<td>1,014</td>
<td>4,045</td>
<td>15,964</td>
<td>905</td>
<td>9,236</td>
<td>38,646</td>
</tr>
<tr>
<td>1885</td>
<td>10,307</td>
<td>826</td>
<td>4,208</td>
<td>15,520</td>
<td>3,127</td>
<td>7,729</td>
<td>41,617</td>
</tr>
</tbody>
</table>

The mortality from cholera, bowel complaints and injuries probably occurred in coastal tract due to the damage of food and salt water after the storm wave. The Commissioner also visited the affected tracts and consulting with the Magistrate of the district, adopted measures to prevent the spread of these diseases by having the tanks emptied and filled in with fresh water. The tanks were also dug and medicines supplied to the sufferers. Some thousands of people were washed away and from statistics it was known that the number of deaths swelled from 905 to 3,127.85 In Balasore district fever and cholera had broken out due to the injuries done by the cyclone.86

85. GARCP, 1885-86, Pr.33, p.11.
86. Ibid., Pr.40, p.13.
Casuality of lives due to diseases in Cuttack District in 1884 & 1885

Number of deaths (Thousands)

- Cholera
- Small pox
- Bowel compl
- Fever
- Injuries
- Other cause

1884
1885

Fig. 10
The unprecedented disaster of the cyclone altered the condition of the people living in the southern and south-western parts of the district of Cuttack and Balasore. The sea wave carried away several thousands of people and the survivors were left in a most miserable condition from the total or partial loss of their houses, cattle and the implements of agriculture. In parts of the country, especially in the Kanika wards estate of the Cuttack district, where the effect of the seawave had been most seriously felt, the people were still in need of help. 87

The Commissioner extended his all possible help to the distress people. The rice distributed amounted to one hundred mahanas daily and the Commissioner was expecting to continue it to the end of the harvesting time. He also suggested to extend the relief works to the distressed people of Kanika for the whole year. 88

Though natural calamities are a recurrent feature of coastal Orissa, the 1885 cyclone was not as devastating as the famine of 1866. However, besides loss of many human lives, the damage done to the cattle, paddy, houses etc., were quite extensive.

87. GARCD, 1885-86, Pr.40, p.13.
88. U.D., 21 November 1885.
The cyclone of 1888, struck the Orissa coast at False Point, near the present day port of Paradeep in Orissa, at about 8.00 A.M. on September 16. Here a barometric pressure of about 28.8 inches indicating the lowest reading was recorded. The violent winds raised a storm surge. It caused very heavy rain in Orissa. The Collector of Cuttack informed that the biali crop (Autumn paddy) which was in ripening stage was damaged while the sarada crops (Winter paddy) growing on the low lands was submerged in rain water. The injury done to the biali crop was variously estimated at different places ranging from 2 to 12 annas.

The thatched roofs of houses were blown off. Many police out-posts also had lost their thatches. The country boats had been wrecked or sunk in many places, some with cargo. The subdivisional officer of Jajpur reported that six boats laden with dhan, rice etc., had been wrecked at Jenapur and 4 ferry boats had been lost at Dharmasala. In Banki the loss to the Mahajans caused by the wreck of boats was reported to be about Rs.2,000. By the fall of houses in the interior of Jagatsinghpur and Tirtol, 8 human beings and a cow were crushed to death.

89. The Statesman, 17 September 1888.

90. The Collector of Cuttack to the Commissioner of Orissa, No. 1423G, Cuttack, 27 October 1888.

91. Ibid.
At False Point the tripod beacons in the harbour and the anemometer in the light house were blown off.

In Khurda of Puri district, the cyclone blew furiously and innumerable trees were blown down or damaged. There was a heavy rainfall of six inches, which did more good than harm, because the prospects of crops in the subdivision which were facing almost famine conditions, were improved. But on the other hand the Government did not extend any helping hand towards the people. So the people of coastal belt suffered a lot.

Again the year 1889, on the 19th and 20th November, Orissa was devastated by the storm. The cyclonic storm of November seriously damaged the crops of the Cuttack and Puri districts. The Collector of Cuttack reported on 26th November regarding the damages done, to the crops that the rabi crops, the biri, mung and jaba had suffered considerable damage, with 10 to 12 annas being totally lost. Somehow the crop kulthi had been benefited. About the paddy, 4 annas of laghu sarada and 6 to 8 annas of guru sarada crops in Cuttack district were destroyed.

92. The Statesman, op.cit.
93. GARCD, 1889-90, p.4.
94. J.A.Hopkins, Offg. Commissioner of the Orissa Division to the Secretary to the Government of Bengal, Revenue Department No.2205R, Cuttack, 9 December 1889.
Though the rainfall was normal throughout the whole of Balasore district, yet it was heaviest in the south-eastern parts. The bumper harvest expected in Bhadrak and Chandbali was reduced to the category of an average one. The poor crop in Sadar subdivision became poorer. It was reported that the ripe crops had been thrashed out by the rain and the flowering crops had already lost their productiveness.  

The seawaves in the coast of Puri rose to a height of 15 to 20 feet. The Chilka lake was swollen and inundated the agricultural fields. In Paikerapur village in pargana Bajrakote all the inhabitants left for Parole in the Ganjam district. In Malud, Bajrakote and Parikud, the private embankments had been partially destroyed and so submerged the fields. In the Khurda subdivision and Chilka tracts some lives were lost. On the sea shore and in the Chilka tracts loss of cattle was very heavy. Immediately after the storm the Collector visited the affected areas and took steps to alleviate the suffering of the inhabitants as far as possible. All communications were interrupted for two days; no mofussil carts which were supplying rice to the town, could not come there. So the merchants closed their shops.

95. J.A. Hopkins, Offg. Commissioner of the Orissa Division, op.cit.
96. Ibid.
The year was marked by an unhealthy situation due to the increase in mortality in each district and the list is given below:\textsuperscript{97}

Table No.2.3
Increase of Mortality in Orissa Division during the Years 1887 and 1890

<table>
<thead>
<tr>
<th></th>
<th>1887-88</th>
<th>1888-89</th>
<th>1889-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puri</td>
<td>27,833</td>
<td>18,460</td>
<td>43,767</td>
</tr>
<tr>
<td>Cuttack</td>
<td>30,708</td>
<td>36,892</td>
<td>51,413</td>
</tr>
<tr>
<td>Balasore</td>
<td>22,772</td>
<td>20,751</td>
<td>36,604</td>
</tr>
</tbody>
</table>

The heavy rainfall and the high prices of food grains were the main cause of the general unhealthiness of the year.

The number of deaths increased in Puri district due to the excessive rainfall, which accompanied the cyclone in November. In the Puri town small-pox broke out after the November cyclone and 54 patients were admitted to hospital.\textsuperscript{98} The material condition of people was not prosperous in the year 1889. More or less the landless classes suffered from high prices of grain. The condition of the people of southern Chilka tracts deteriorated due to the reduction of the salt trade, loss of half of their crops and a number of their cattle in the November cyclone.\textsuperscript{99}

\textsuperscript{97} GARC\textsuperscript{2}, 1889-90, p.5.
\textsuperscript{98} Ibid., pp.5-5.
\textsuperscript{99} Ibid., pp.6-7.
Mortality rate due to Unhealthy Situation

Number of deaths (Thousands)

Balasore
Cutack
Puri

1887-88
1888-89
1889-90

Fig. 11
There was no evidence available to show that the Government took any preventive measures to alleviate the distressed condition of the people from the effects of cyclone. Again in 1890 a storm wave caused considerable injury to the lands lying between Jambu and other creeks to the north of the Kendrapara Canal. The standing crops had been swept away, and all the tanks and wells were filled with brackish water. After four months of tidal wave, the Manager of the estate reported that nearly nine-tenths of the people had remained in distressed condition because they had lost the power of purchasing grain. Many people migrated to other places with a view to seeking employment. Taking this view into consideration the Government sanctioned for constructing bunds which might protect an area of 12,000 mans of this tract liable to sea-water inundation.

Another cyclone hit the Orissa coast on the 4th and 5th November of 1891. The cyclone commenced at Puri at 10.25 P.M. of the 4th and lasted till 1.30 P.M. of the following day. It was violent along the shore from False point down to Puri. The height of the storm coincided with low water and it rose high enough to sweep the low parts of the country as far as Tikri, the headquarters of Kujang Estate in Cuttack district. It

100. P.Mukherjee, _op.cit._, p.42.
101. N.N.Banerjee, _op.cit._, p.179.
caused damages to the paddy fields near the mouth of the river Devi and breached some embankments in Parikud and Malud in Puri district. 102

The storm struck down thousands of trees and numerous houses. In Balasore the doors and windows of the light house the roof of the godowns, dwelling houses, thermometer shed, and other out-offices in Shortt's Island were seriously damaged. In Cuttack district, the outpost office buildings of Erma, Mohakalpara, Shamagole, Pawhpalli, Balikuda, Nuagaon and the out-houses of Tirtol and Jagatsinghpur Police Stations were blown down. The dak bungalow at Taludunia and the Kujang estate office at Tikri had been laid in ruins and all the kutcha buildings at Hookitolla and Jambu were blown down away. In Puri districts Astrang outpost, Gop Canungoe's office, post office, police station Balighai, public works bungalow, out-houses of the town station, Kakatpur Canungoe's office, police outpost, post office and Oldhar Canungoe's office came down and some records in the record room and the treasury buildings were damaged by rain water and the anemometer and the storm signal were blown down. 103

102. The Commissioner of Orissa Division to the Chief Secretary to the Government of Bengal, No. 2192R, Cuttack, 12 December 1891.

103. Ibid.
About 343 human beings and 3592 heads of cattle in Cuttack district and 205 human beings in Puri district were reported to have lost their lives, while no casuality relating to loss of life was reported from Balasore district. The Board sanctioned Rs.4,050/- out of the Burdwan Ward's Estate to the sufferers of the Cuttack district. The Collector of Cuttack issued parwanas to the Zamindars to postpone the collection of rent from ryots. The application of the Zamindars for the postponement of the next kist was to be considered favourably if it was proved that they had helped their ryots. The District Board also sent a civil hospital assistant with drugs to visit these affected tracts. The crop of course suffered most wherever the sea-water came in and in affected tracts, not more than 4 anna crop was expected to be harvested. 104

In the year 1893 again Orissa coast suffered from a cyclonic storm. The storm lasted for 4 days i.e., from 23rd to the 26th May. Owing to its effect, the rain was heavy in Bhadrak and Chandbali. No loss of human life or cattle was immediately noticed. About 5000 old houses were reported to have been destroyed, mostly in Dhamnagar and partly in Basudebpur thanas. 105

104. The Commissioner of Orissa Division to the Chief Secretary to the Government of Bengal, No.2192R, Cuttack, 12 December 1891.
105. From the Subdivisional Officer, Bhadrak to the Collector of Balasore, No.412, 18 June 1893.
The rainfall was very heavy in Cuttack district. The velocity of wind was high along the coast and heavy wind caused the mud walls to collapse. Several rivers were flooded too. The river Gobri at Kendrapara was in high flood and great part of Kendrapara town was submerged. A few cattle were drowned in the floods or killed by the fall up mud walls. The crops in low lands were heavily injured. The roads and bridges in Kendrapara subdivision had been damaged. At False Point the cyclone was severe but fortunately no damage occurred. In the Kujang estate the Cutcherry houses were very much damaged by the cyclone of May 1893. No work was done for several days and postal communication was disrupted. In Kanika estate paddy stocks suffered.

The Government spent a sum of Rs.24,000 in the Kanika estate in Cuttack for the repairs of the embankments which were destroyed by the cyclone. A scheme of complete embankments on the sea side of the Kujang estate was prepared with the approval of the Irrigation Department.

A severe cyclonic storm occurred on the Orissa coast in November 1901 and the rainfall accompanying it was more in

106. G.Stevenson, Collector of Cuttack to the Commissioner of Orissa Division, No.1018G, 7 June 1893.

107. Supplement to Calcutta Gazette, October 24, 1894, p.2395.

108. Ibid.
quantity than what ordinarily fell i. November. As far as rainfall was concerned, False Point reported about 10 inches, Gopalpur 7 and Puri 4. As a result, heavy loss was confined to Orissa coast.\textsuperscript{109}

Hence from the above analysis, it is clear that throughout 19th century Orissa suffered from cronic disease of cyclone. No doubt, the colonial Government took some measures to redress the moribund condition of the people, but that was meagre in quantity as per the requirement. They did not take any long term measures to protect the country from the severity of the cyclones. Being repeatedly devastated by it each and every year, the people of Orissa were mortified to see their economic condition deteriorated day by day and made little efforts to cope with the hazard. At the same time, the geographical position of Orissa also contributed a lot to the occurrence of frequent cyclones and the destruction of lives and crops in its wake.

\textsuperscript{109} Supplement to Calcutta Gazette, December 18, 1901, p.2064.