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APPENDICES TO THE REPORT OF THE ORISSA  
CAPITAL SITE SELECTION COMMITTEE, 1936

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## ANNEXURE A.

Extract from letter No. 288-H, dated the 28th April 1936, from the Chief Secretary to the Government of Orissa, Home Department, Cuttack, to the Additional Joint Secretary to the Government of India (Reforms), New Delhi.

With reference to your letter no. F. 86 35-G(B), dated 11th March 1936, to the Secretary to the Government of Bihar and Orissa, Reforms (Orissa) Department, I am directed to state below the sites which the Government of Orissa desire that the Orissa Capital Site Committee should examine.

(1) *Cuttack*.- The local Government considers it important that the possible sites in Cuttack should be exhaustively examined, and that only those which are clearly impossible should be omitted. References are to the Map sent with Mr. Mukarji's letter no. 1414-R. C., dated 26th February 1936.

(a) *The Fort Site*- The local Government considers it would be a calamity if the Fort site or the site marked "Cantonment no. 197" were used for the residence of the Governor or Secretariat or the official residences. Similarly there are strong objections to the use of the site near the Gatagaria Temple just to the north of above mentioned site; for, this latter site is partly used for a Mela and moreover, to use it for the Secretariat would mean a serious interference with the amenities of the residential part of the town. It is absolutely essential to preserve the Fort and the Cantonment Maidan as open spaces for the benefit of the population of Cuttack. These sites may, therefore, be ruled out of consideration.

(b) *Tulsipur Site*- The local Government agree that it is impossible to consider this site as a site for the whole of the new Capital; but it is possible that a small portion of the site might be used for a certain number of buildings. Such possibilities might occur in the more highlying portions of this area. The Government of Orissa would like the Committee to examine the possibilities of this.

(c) *Jobra Site*- This site is situated where the canal takes off from the Mahanadi. The possibilities of this site for the location of the Government Press or Accountant General's office may be considered by the Committee. It is hardly convenient or large enough for anything else.

(d) *Chauliaganj*- Though this is by no means an ideal site, the possibility of using it for the Government House and / or Secretariat might be considered.

(e) *Baharbisinabar site*- This is situated in the corner to the west of the Railway on the mouth of the Kathjuri river. I enclose a report \* on this site showing that it has serious disadvantages. Nevertheless, the question whether or not it can be used for quarters or offices, has to be considered.

\* Included in the note on  
Khannagar (Para f.)

(f) *Khannagar sit*- This site is not shown in the large scale map of Cuttack, referred to above. It will be found in sheet No. 73 H/15 of the Survey of India Maps, of which I enclose a copy. It is situated on the north bank of the Kathjuri, below the Railway at a point where the circular road to the east of Cuttack Town joins the Kathjuri river. I enclose a note regarding the possibilities of this site as well as the plan.

(g) *Existing residence and sites belonging to the Government*- The list of sites summarised in paragraph 19 of Mr. Hoernle's note, a copy of which was forwarded with Mr. Mukarji's note referred to above, would also have to be examined.

(h) This exhausts the possible sites of Cuttack, which may therefore be summarised as follows:-

- (1) A small portion of Tulsipur,
- (2) Jobra,
- (3) Chauliaganj,
- (4) Portions of the Bisinabar site,
- (5) Khannagar site, and
- (6) the official residences and sites referred to in paragraph 19 of Mr. Hoernle's note.

(2) *Neighborhood of Cuttack*- The local Government has not considered it worth while to ask the Committee to examine any of the sites immediately north of the Mahanadi or south of the Kathajuri because in the absence of bridges over these rivers, any site on the other side of the river would be as remote from Cuttack as Khurda would be. In the case of the Kathajuri, it would be necessary to carry the bridge over the flooded area to the south of the river; the bridge would be nearly 2 miles long, and at the rate of Rs. 300 per running foot, it is estimated that it would cost nearly 30 lakhs. The cost of a bridge over the Mahanadi would be of the same proportions. The Government of Orissa believes that the Government of India would not contemplate the expenditure of such sums. If there were any possibilities of the Kathajuri being bridged in spite of this high cost, it might have been worth while to examine the possibilities of the hills near Barang Station on the road from Cuttack to Khurda.

(3) *Khurda*- The local Government desires that the possibility of building the Capital near Khurda should be examined. The site, which is considered the best, is that on the north slopes of the Barunai Hills, which is discussed in the note of Messrs. Hoernle and Jefferis, a copy of which was forwarded with Mr. Mukarji's letter referred to above. The local Government is advised that there is no reason to suppose that water will not be available here, but the finances of the Province of Orissa are not such as to permit of expenditure on expensive test-boring operations before the Committee meets, even if there were time to undertake them. It may be noted that the Public Health Engineering Department reports that water could be made available from the Daya river for less than 1 lakh if tube-well water were found to be unobtainable.

(4) *Berhampur*- The local Government desires that one of the possible sites near Berhampur should be examined by the Committee. Three sites have been suggested by the local officers, and I shall be able to report about the middle of May which of these three sites should be examined by the Committee, and I will at the same time, send a detailed report of the information which has been collected about it.

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Copy of letter No. 262-H. P., dated the 20th May 1936, from the Chief Secretary to the Government of Orissa, to the Joint Secretary to the Government of India, Reforms Department.

I am directed to refer to para 4 of my letter No. 288, dated the 28th April 1936, and to forward as promised, a copy of the report of the District Officer of Ganjam, with its enclosures, on the Rangailunda Site near Berhampur, which the local Government desire should be examined by the Site Selection Committee.

## APPENDIX B

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Note by Mr. E. Roskilly Smith, Superintending Engineer, Health Circle, Bihar on the question of water supply and drainage of Cuttack.

### WATER-SUPPLY.

There is at present no public water-supply at Cuttack except from a few taps in the near vicinity of the Municipal Office, which are supplied with water from a 9" tube-well sunk in the Municipal Office compound. The question of a water-supply to the new Capital, if located at Cuttack, does not present any serious difficulty; a source of supply would be available either from tube-wells or from the Mahanadi river.

(i) *Tube-wells*- A number of tube-wells, approximately a dozen, have been sunk at various places in Cuttack and all were successful. In particular 5" tube-wells were sunk by Government at the General Hospital (150 ft deep) and the Ravenshaw College (189 ft deep) in the years 1927 and 1930 respectively; these are operated by electrically driven pumping plant and are being maintained by Government. The rest subsoil water level varies from about four to six feet below G.L and the yield of the tubes is about 4,500 gallons per hour with a depression of about 3 to 4 ft. Since these tube-wells were constructed the yields from them have shewn no signs of diminishing, and the water extracted from them is excellent in quality. Original reports, dated 30th and 31st May 1936, on the bacteriological and chemical analyses of water from both these tube-wells are attached from which it will be seen that in both cases the water is bacteriologically "very satisfactory" and chemically "satisfactory". The water drawn from these tube-wells is neither purified nor sterilised, and in the case of a public supply from tube-wells neither purification nor sterilisation would be required, and only single pumping would therefore be necessary.

(ii) *Mahanadi river*- Alternatively a water-supply would be available from the Mahanadi river on the north of Cuttack; due to the anicut just below the Jobra Workshop there is always an abundance of water up-stream of it, and water is available at all seasons of the year close in against the right bank of the river on the northern boundary of Cuttack, from Jobra to the westward (up-stream) for a distance of 2<sup>1/2</sup> to 3 miles. A water-supply from this source would require purification and also sterilisation, and for this reason it would be cheaper to maintain a supply for domestic purposes from tube-wells, but water pumped from the tube-wells should not be used for irrigating gardens, as raw river water could be supplied more cheaply for that purpose.

### DRAINAGE.

The whole question of surface drainage in Cuttack presents a difficult problem; Cuttack is protected from the flood waters of the Mahanadi and Kathajuri rivers by high embankments, and it may be

stated at once that anything in the nature of a comprehensive drainage scheme would involve pumping when these rivers are in flood. The main outfall drain of the town which runs along the south bank of the Taldanda Canal discharges into the Kathajuri river at Matgajpur, about 5 miles from Cuttack in an easterly direction; this outfall is fitted with a sluice to prevent the waters of the Kathajuri backing up the outfall drain when the former is high.

2. No contour map of Cuttack is available but contour plans of \* Plan No.4 the Jobra \* and Chauhiaganj + areas have been + Plan No. 3. supplied by the Principal of the Orissa School of Engineering; Cuttack. From these plans it seems that in the Jobra area (above the Mahanadi anicut) the average ground level is about 74 R.L., whereas the top of the protecting embankment on the river bank is shown as 79. Also from cross-sections in the Tulsipur area (about 3<sup>1/2</sup> miles up-stream) supplied by the Executive Engineer, Public Works Department, Southern Division, it appears that the H.F.L of the Mahanadi is 82.6, and the crest of the Mahanadi embankment is 91.07; it is likely that at times of high flood the level of the Mahanadi would be about 4 feet lower at Jobra due to surface slope.

3. At Chauhiaganj from a cross section supplied by the Executive Engineer, Public Works Department, Southern Division, Cuttack, it appears that the average ground level is about R.L 71-72, whereas the H.F.L of the Mahanadi is R.L 74.5 (1933) and that of the Kathajuri R.L 75.56 (1933). Any surface drainage from this area could therefore only gravitate to the low-lying paddy fields to the north, south, and east (Cuttack town being to the west).

4. It is clear, therefore, that when monsoon conditions prevail, and the storm drainage from the town area is at its maximum, no gravity drainage into the Mahanadi or Kathajuri rivers is possible; the main outfall drain is unable to discharge into the Kathajuri, and back flow from the river is prevented by sluice gates.

5. It is true that there are some small isolated surface drainage systems in Cuttack, but the discharges from these are unable to leave the town area when the two rivers are high, and as a result there is standing water and stagnating sullage at various places in and around the town during and just after the rains. If the whole of the Orissa Capital were to be located in one area in Cuttack, or even if only Government House, the Secretariat and the council Chamber, with the necessary attendant buildings were to be constructed at Jobra, I consider

that arrangements would have to be made for pumping storm water and sullage away during the monsoon period.

## SEWERAGE

It is presumed that if the Capital were located in Cuttack a water borne sewerage system for the various buildings would be considered necessary; owing to the sandy nature of the soil at Cuttack, and the high sub-soil water level, deep sewers would be very difficult to construct, and consequently it would be necessary to have a considerable number of liquefying tanks, discharging their effluent into one common sump, from which it would have to be pumped away throughout the year; if the buildings were to be scattered to any large extent it might be necessary to have two or more collecting sumps and pumping stations. There are at present two sewerage installations in Cuttack, one at the Ravenshaw College and the other at the General Hospital (adjacent to the Jobra site) and in both cases the effluent in the collecting sumps is pumped throughout the year to filters located on the bank of the Canal between the Railway bridge and the nearest Canal bridge, and the discharge from the filters gravitates into the main Municipal Outfall drain which, as already stated, discharges into the Kathjuri at the Matgajpur sluice outfall.

## REMARKS.

If it is decided to have the Capital of Orissa at Cuttack it will be probably be considered essential that public water-supply and town drainage schemes be carried out; an outline scheme for water-supply, based on tube-wells as a source, was prepared in 1925, and the estimated cost was about Rs. 10 lakhs. I have no information regarding a drainage scheme for Cuttack but the cost would probably be somewhere in the region of Rs. 8 lakhs, and pumping would have to be resorted to during the monsoon period if the accumulation of storm water and the stagnation of sullage from the town is to be prevented.

## APPENDIX C.

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Note by Lt. Col. J.A.S Phillips, C.I.E, I.M.S, Inspector General of Hospitals, Bihar,  
on the question of public health and sanitation in Cuttack.

*Climate-* The climate of Cuttack is oppressive and enervating in the summer when shade temperature frequently reaches 110<sup>0</sup> and a maximum temperature of 113<sup>0</sup> is sometimes recorded. This is tempered to some extent by a south or south-western breeze felt more particularly over the southern portion of the town.

The humidity varies at this time of the year from 75 in April to 79 in June.

With the onset of the rains the humidity increases, and the climate is very trying especially during long breaks in the rains in August and September-November, December and January are moderately cool.

The following table shows the average monthly temperature, humidity and rainfall:-

Months	Average maximum	Average minimum	Average relative humidity	Average rainfall
January ..	83.3	60.1	81	0.27
February ..	88.7	65.3	80	0.76
March ..	96.6	72.4	78	1.11
April ..	101.3	77.7	75	1.15
May ..	101.2	79.7	74	1.98
June ..	95.2	79.8	79	10.08
July ..	90.0	78.6	83	11.71
August ..	89.2	76.2	84	13.66
September ..	90.1	78.1	83	9.57
October ..	89.9	74.7	81	5.20
November ..	84.9	66.3	78	1.11
December ..	81.0	58.7	78	0.28
Average annual	90.9	72.5	79	59.28

*Vital Statistics:-* The population of Cuttack at the last Census taken in 1931 was 65,263.

The following table gives the average vital statistics for the five years 1930 to 1934 per mille of population.

Birth rate	Death rate	Death rate Cholera	Death rate small pox	Death rate fever	Death rate dysentery and diarrhea	Death rate respiratory diseases	Death rate all other causes
14	9.65	0.64	0.23	2.68	1.1	0.6	4.4

It will be seen that both the death rate and birth rate are very low- lower than any other town in what used to constitute Orissa before the new province was created. The returns of vital occurrences are compiled in the Civil Surgeon's office

from figures supplied by the police. There would appear to be considerable doubt as to the accuracy of the reporting.

Cholera breaks out every year in the town, and dysentery and enteric fever occur annually in the summer and rains. Culex mosquitoes swarm at all seasons of the year, and Filariasis is common. There is not much malaria in the town itself.

*Water-supply:-* The main source of water-supply in the town is from shallow surface wells which are liable to contamination from the numerous cess pits and from the defective drainage system. Some of the people near the two rivers obtain their supplies from the river – and there are deep tube-wells in Ravenshaw College, the Cuttack Medical School and Hospitals, the Jail and the Training College, which supply a chemically and bacteriologically satisfactory water to these institutions. Recently the Municipality has sunk a tube-well in the municipal office compound the water from which is also said to be good.

The whole town however is in need of a good wholesome water-supply, and if there is any question of putting the Capital at Cuttack a water scheme and a drainage scheme for the town must form part of the programme of construction. It would be very little use spending money on the sanitation of the new buildings, if the rest of the town were left in its present insanitary condition. Water could be obtained from tube-wells or from the Mahanadi river.

*Drainage:-* There is no regular system of drainage in the town and as stated above any scheme for the construction of buildings for the Capital at Cuttack should include a complete drainage scheme for the whole town. At present the only areas where any attempt has been made at drainage are the Ravenshaw College area and the Medical School and Hospital area.

*Sullage* water in the town is collected in cess pits which at present are breeding grounds for culex mosquitoes. The Health Officer reports that there are 5,913 such pits in the town. The contents of the cess pits are partly removed by sullage carts to the dumping ground. A large portion of it is allowed to run into borrow pits or roadside kutcha drains.

A drainage scheme for the town would remove this nuisance.

*Hospital and dispensary:-* There is a modern and up-to-date hospital which is well equipped and is run in connection with the Medical School. This would certainly be a great asset if the Capital were at Cuttack. There is plenty of spare land enclosed within the Hospital walls which would allow of a great deal of expansion.

## APPENDIX H.

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Note by Mr. E. Roskilly Smith, Superintending Engineer, Health Circle, Bihar, on the question of water-supply and drainage of Berhampur (Rangailunda).

### WATER-SUPPLY.

There would be no difficulty whatsoever about a water-supply for a New Capital at this proposed site. The area is bounded on three sides by the 11<sup>th</sup> distributary of the Public Works Department Rushikulya canal system, the Singinatham branch of which feeds a lake called the Narla tank about a couple of furlongs beyond the northern boundary of the site; the Executive Engineer, Public Works Department, Ganjam Division, informed us that this lake can be fed with water at all times of the year except during the four months from March to June, and that if the New Capital were to be located on this site arrangements could be made to supply water during nine months of the year, so that it would be necessary to provide storage for only 3 months' supply to the Capital, and as this can easily be done, as shown below, this lake could conveniently be used as a source of supply.

2. The Collector of Ganjam, in his report on this site dated the 12<sup>th</sup> May, 1936, states that the capacity of the Narla tank is 29.16 million gallons, which I am assuming to be correct, and he has taken the population of the New Capital to be 5,000; the map supplied by him shows this tank as being 10 ft. deep which I am also taking to be correct. Assuming the very liberal allowance of 50 gallons per head per day, including requirements for water-borne sanitation and water for garden irrigation purposes, the total supply for 3 months would be 22 ½ million gallons, and storage for this amount of water would be required. The lake is said to have a storage capacity of 29.16 million gallons or say 30 million gallons, of which there would always be about 25 per cent or say 7 ½ million gallons remaining in the lake which could not be used. The storage required would therefore be:-

Remaining in lake	....	..	7 ½ million gallons
3 months' supply	....	..	22 ½ ditto.
			—————
			30
Add for a loss of say 1/3 <sup>rd</sup> of the total Storage by evaporation, and Percolation.			15 ditto
			—————
			45
			—————

The present capacity of the lake is about 30 million gallons, and the depth about 10 ft., which is an average of 3 million gallons per foot of depth, so that for a total storage of 45 million gallons the depth of the lake would have to be increased by 5 feet, which could easily be done by increasing the height of the impounding bund on the east and strengthening it, and constructing bunds on the other three sides. The average of 3 million gallons per foot of depth mentioned above is a very liberal assumption because there is more water per foot of depth in the upper portions of

the lake than in the lower, and therefore the raising of the level of the lake by 5 ft. is very much on the safe side.

3. As regards the question whether water from the canal would be able to gravitate against this extra head in the lake, it is only necessary to state that at the time of our inspection, on the 14<sup>th</sup> July 1936 the water level in the canal on the northern boundary of the proposed site was given by the Executive Engineer, Ganjam, as R.L 87 and that in the lake as R.L 50; there was therefore 37 feet of fall from the canal to the lake at that time.

4. If it be considered that a supply based on 50 gallons per head of population per day is not sufficient to allow for an adequate supply of water for irrigating the Government House gardens and grounds, a further allowance of 30,000 gallons daily may be assumed or 2.7 million gallons for a 3 months supply; allowing for evaporation and percolation, extra storage would be required for about 4 million gallons which would add only about 16" to the depth of the lake.

5. Water for domestic purposes would require purification and sterilisation and therefore double pumping would be necessary; the purification works could conveniently be located close to the lake. Raw water could be supplied for irrigation purposes.

#### DRAINAGE.

The proposed site for the new Capital is all on high ground and there is ample fall towards a creek which is in close proximity on the east, and which discharges into the sea, and there would therefore be no difficulty about draining the site.

#### SEWERAGE.

For the reason stated above the construction of a sewerage installation with gravity disposal would be a simple matter.

## APPENDIX I.

Note by Lt. Col. J.A.S Phillips, C.I.E, I.M.S, Inspector General of Hospitals, Bihar, on the question of public health and sanitation of the Rangailunda site near Berhampur.

*Climate:-* No meteorological records are available for the proposed site. Records are taken at Berhampur which is six miles further inland, and some records unavailable for Gopalpur on the Sea and 3 ½ miles south-east of the site. The records for Gopalpur are taken for purposes of this report, as they are more likely to approach conditions prevailing on the site, than those of Berhampur.

*Statement showing the average monthly meteorological conditions at Gopalpur.*

Months	Average monthly maximum temperature.	Average monthly minimum temperature	Average monthly relative humidity percent.
January .. ..	80.3	62.3	79
February .. ..	83.3	67.4	78
March .. ..	86.8	73.1	78
April .. ..	87.9	77.7	82
May .. ..	90.1	80.1	82
June .. ..	87.2	80.4	83
July .. ..	87.7	79.2	82
August .. ..	87.6	78.9	86
September .. ..	88.4	78.5	85
October .. ..	88.0	74.7	82
November .. ..	83.7	67.3	79
December .. ..	79.9	61.0	77
Average annual ...	85.9	73.3	81

The maximum temperature recorded at Gopalpur in 1935 was 94<sup>0</sup> F and this temperature was reached on a few odd days in September. The maximum temperature reached during May and June was 93<sup>0</sup> F and this was on two days in May.

The lowest minimum temperature recorded at Gopalpur in 1935 was 52<sup>0</sup> towards the end of December.

A strong breeze from the sea is said to blow throughout the hot weather, and a light breeze during the months of July, August and September, which are probably the worst months in the area. Only on one day in August 1935 no breeze was recorded at Gopalpur.

*Rainfall:-* The normal annual rainfall at Gopalpur is 45 inches.

*Health and vital statistics:-* Detailed vital statistics for the site itself are not available. The Health Officer of the Ganjam District has supplied some statistics for 16 villages in close proximity to the site and including the village of Rangailunda

which is on the site itself. They deal only with births and deaths, for the year 1930/34. They may be summarised as follows:-

Village	Population.	Average birth rate per mille for 1930/34.	Average death rate per mille for 1930/34	Spleen rate
Rangailunda ..	257	44.3	24.9	43%
Average of 16 villages.	720	40	24.5	1.5%

Some figures are given for cholera and small-pox, but they are almost negligible. The spleen rate is very low and would indicate that there is very little malaria.

More detailed statistics are available for the town of Berhampur, but this town is six miles from the site and conditions in it are very different to what obtain on the site itself. The statistics, however, are given for what they are worth.

*Vital statistics for the town of Berhampur- population 37,750.*

The figures given are the average for the five years 1930 to 1934 and per mile of the population.

Birth rate	Death rate	Cholera	Small pox	Fever.	Dysentery and diarrhea	Respiratory disease	All other causes.
1	2	3	4	5	6	7	8
38.95	21.24	0.35	0.09	5.34	2.36	3.15	9.95

The incidence of cholera in the town is reported to have decreased considerably since the introduction of the piped water-supply.

The malaria survey was carried out in the town in 1928 to determine how far malaria was responsible for the high incidence of fever reported. The conclusions arrived at, after the investigation, were that malaria was not endemic at Berhampur, and that except for a few sporadic cases of malaria, the bulk of the fever cases was apparently due to Filariasis.

*Hospitals and dispensary:-* There is the usual Sadar Hospital at Berhampur with accommodation for sixty patients (42 beds for males, 14 for females, and 4 for infectious diseases). There is also a Zenana Hospital. Both these institutions are on sites that are already overcrowded. The Sadar Hospital might possibly expand across the road on sites now occupied by District Board and other offices, but serious objection from these bodies would probably be raised to any such

expansion. Berhampur is six miles from the site and it is desirable that there should be a hospital on, or near, the site itself. It need not be a big one to begin with, but the site chosen should have room for expansion. A cottage Hospital with accommodation for four European patients and a hospital with twenty beds for Indians (8 beds for female patients) with a maternity ward and labour room and an operation theatre would suffice to begin with.