3097 — 3176

22

(1) பக்கங்களின் எண்ணிக்கை 44

(2). புதுக்கித் திருப்பிய நாள் -1-92

(3) ஆதாரங் குறிப்பவர் சுருக்கொப்பம்

# தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

P.W.D துறை.

| | |
|---|---|
| அரசாணை எண். 3098 | அச்சகம் |
| மு. கோப்புத் தாள் எண். | பலவகை |
| நாள் : 1.12.1893 | 199 |

My

மடிக்கவோ கண்டபடி கையாளவோ கூடாது.

1st December 1893, No. 3098 W., Public Works.

3098/1

GOVERNMENT OF MADRAS.

## PUBLIC WORKS DEPARTMENT.

### Buildings and Roads.
### Civil Works.

Read—the following papers :—

From J. N. ATKINSON, Esq., Acting Collector of the Kistna District, to the Chief Secretary to Government, dated Masulipatam, 12th August 1893, Dis. No. 777-Eng.

I have the honour respectfully to draw the attention of Government to the apparently exceptional facilities that exist for making an inland harbour in the Upputeru river which separates the Kistna from the Gódávari district.

2. My attention was first called to this river by Mr. Chatterton, the Executive Engineer of the Gudiváda Division, and at my request he has drawn up the note that accompanies the present report. This note sets out very briefly the engineering aspects of the scheme, the existing conditions, the problems to be met, and the probabilities there may be of satisfactorily solving those problems.

3. I forward two maps, one showing the physical characteristics of the surrounding country, and especially the various lines of communication converging on the Upputeru river, and the other showing on a large scale the configuration of the suggested port with the depths at various points recorded by Mr. Chatterton as the result of our personal observation.

4. The waterway of the Upputeru for about two miles from its mouth is included in the Gódávari district within the limits of Perupalem, a sub-port of Narsapur. Above this two miles the whole breadth of the main stream is included in the Kistna district. I have obtained statistics of the trade of Narsapur and its sub-port Perupalem during the last five years. They are as follows :—

| | Value of imports. | Value of exports. |
|---|---|---|
| 1888-89 | ... | 3,615 |
| 1889-90 | 4,267 | 6,713 |
| 1890-91 | 127 | 5,100 |
| 1891-92 | 90 | 3,017 |
| 1892-93 | *Nil.* | *Nil.* |

5. This is sufficient to show that this port is unpopular with shippers. The main reason of this lies, I think, in the topographical characteristics of the port.

6. Narsapur and Antervedi really form one port, and their direct communication with the sea is by the Vasista Gódávari, which has all the drawbacks of river ports on the Eastern Indian seaboard. To it I need not further refer.

7. Perupalem, the sub-port of Narsapur, with Mutyalampalli, another sub port, communicate with the sea directly through the mouth of the Upputeru. But this mouth is, as I can testify from personal experience, very perilous for sailing craft. The deep water river channel is about 200 yards broad, and on either side are sand banks with a heavy surf constantly breaking. A sailing vessel can get in or out of the river, only when the wind is fair, except at great risk, and therefore during the monsoon months the river is practically closed to sea-going vessels, while the entrance is at all times troublesome and risky. A note which I have from the Sea Customs Superintendent at Narsapur says of the Upputeru, "Native craft vessels leaving the port generally in ballast voyage in the earlier part of August of each year to Chittagong and occasionally to Narayanaganj. There they take freight to Dacca and back serving the purpose of cargo boats on the river Hughli and finally leave the place laden to any of the southern ports in the Madras Presidency. After discharging the cargo, they return again empty to this port in the earlier part of the year, viz., between January and March. Immediately after their arrival here, the same vessels once more take, if sufficiently available, animal bones to Colombo and again enter the port in ballast in or before April." If the entrance were made navigable at all times of the year, whether by removing the bar or by providing a steam tug to take ships in and out, I have no doubt that a large trade would soon spring up.

8. There are other reasons which detract from the convenience of Perupalem and Mutyalampalli. The eastern branch of the Upputeru which runs past these villages is shallow, with a maximum depth, at the date of our visit, of 9 feet as compared with 22 feet on the Kistna side. It is a narrow and tortuous channel with, even in its contracted space, many shoals to further obstruct navigation. Why trade should have neglected the Kistna branch to establish itself at Narsapur and Mutyalampalli, I will briefly indicate.

9. In the first place what trade now exists is but the remnant of the palmy days of Narsapur, when it formed the emporium of a number of flourishing towns. This prosperity has now been diverted to Cocanada.

10. A second reason is the advantage secured by the Gódávari district in having its delta system of irrigation and navigation worked out many years in advance of the Kistna delta. The Narsapur canal was dug and the Mogaltur lock completed in or about 1852, while those parts of the Gudivada and Bunder taluks lying on the opposite bank are even now entirely undeveloped. There are 18,000 acres of waste land immediately adjoining the Kistna bank of the Upputeru. The country is at present a vast plain uninhabited except by a few fishermen, uncultivated, treeless, and almost verdureless. Up till 6 years ago there was no means of communication between the Upputeru and the rest of the Kistna district.

11. It is scarcely to be wondered at therefore that such small export and import trade as made use of the Upputeru river should belong entirely to the Gódávari district. Indeed, the only use made of the western or principal branch of the Upputeru has been as a fishing ground wherein the neighbouring villagers earn their livelihood.

12. This state of affairs has now been entirely altered. By the opening of the Tadivada lock in 1886 and of the Lakshmipuram lock in the present year, the Upputeru river has been thrown open to the rest of the Kistna district. A glance at the map will show that through these locks the whole of the Kistna Eastern delta comprising the taluks of Bunder, Gudiváda and half each of Nuzvid and Bezwada is put in direct water communication with the Upputeru. So on the Gódávari side direct access is afforded by the Yelurpad and Mogaltur locks to the three delta taluks of Bhímavaram, Narsapur and Tanuku. In fact, the Upputeru has become the main artery for all trade communication between the two deltas.

13. Already there are indications of the quantity of traffic that will hereafter pass over the waters of the Upputeru. The following figures have been furnished to me by the Tahsildar of Bunder taluk as an approximate estimate of the quantities carried :—

3098/2

| Bags per month. | Item. | Value per bag. | | | Total. |
|---|---|---|---|---|---|
| | | RS. | A. | P. | RS. |
| 15,000 | Paddy ... ... ... | 3 | 4 | 0 | 48,750 |
| 2,000 | Gingelly ... ... .. | 10 | 0 | 0 | 20,000 |
| 20,000 | Cocoanuts ... ... ... | 3 | 0 | 0 | 60,000 |
| 3,000 | Castor seed ... ... ... | 8 | 0 | 0 | 24,000 |
| 1,000 | Bengal gram ... ... ... | 8 | 0 | 0 | 8,000 |
| 1,000 | Black gram ... ... ... | 9 | 0 | 0 | 9,000 |
| 2,500 | Horsegram ... ... ... | 6 | 0 | 0 | 15,000 |
| 1,500 | Green gram ... ... ... | 6 | 0 | 0 | 9,000 |
| 4,000 | Rice ... ... ... | 7 | 0 | 0 | 28,000 |
| ... | Total .. | ... | | | 2,21,750 |

At the Cowtaram locks, the traffic registered is as follows :—

| | 1891-92. | | 1892-93. |
|---|---|---|---|
| Tonnage ... ... ... ... ... | 14,051 | ... | 17,587 |
| Value ... ... ... ... ... ... | Rs. 6,95,844 | | Rs. 8,46,964 |

These figures show how rapidly trade is developing in this corner of the district. A large quantity of the goods passing Cowtaram is intended for export either by rail from Bezwada or by sea from Masulipatam. Given better means of export, the eventual cost to the consumer would be diminished.

14. But obviously these figures represent only the local traffic between the adjoining taluks or such small part of the produce of the Gódávari delta as finds its way *viâ* the Upputeru to Bezwada or Masulipatam for export. If it be found possible to establish an inland harbour in the Upputeru, exporters will be attracted from an enormous area. It would be superfluous for me to venture on any estimate of the limits of such a trade. Our belief is that by a small expenditure this Upputeru river may be thrown open to vessels of large size. Even now, if once the bar be passed there is nothing whatever to hinder a vessel drawing 18 feet from lying at the bank and taking her cargo in from cart and canal boat simultaneously. The temptation to enlarge on the prospects of such a harbour is very great.

15. The one all-important question is of course that of the bar. If that present no insurmountable obstacle, I believe that in the Upputeru this Presidency will be provided with a port, whether regarded as a commercial emporium or as a harbour of refuge, such as cannot be found on this side of India. I solicit the attention of Government to the latest chart on this piece of coast line, that entitled "Preliminary Chart—India—Bay of Bengal, Kistna River to Sacramento Shoal," embodying the result of the "Investigators" survey in 1892. That chart shows the three fathom line at about half-a-mile distance from the mouth of the Upputeru. The information which I obtained from a ship tindal of Mutyalampalli was that there were 9 feet of water on the bar at low tide (corresponding exactly with the $1\frac{3}{4}$ fathoms shown on the chart), that the bar is only a ship's length broad, and that immediately beyond it the water deepens to 21 feet. Some fishermen whom the Tahsildar of Bunder sent out in May last to take soundings reported to him that on the bar there were 8 feet of water, that the deep water channel was 30 yards broad, and that the bar extended for 40 yards, that immediately beyond the bar the depth was 15 feet, and 100 yards further 30 feet. This information coincides very closely with the soundings given on the chart.

16. Mr. Chatterton in his note has indicated our reasons for believing that the bar is no very formidable difficulty; but as our observations thereof were imperfect, and since the best available opinion is in such matters indispensable, I have the honour to request that Government will be pleased to order an inspection of the Upputeru river by a competent Engineer. It would also be of immense assistance if he were given the services of a light draught steamer drawing not more than 8 or 9 feet, so that he would not be impeded or delayed in inspecting both the bar and the many miles of navigable waters above it.

## Enclosure.

### Note on the proposed port on the River Upputeru.

Between the deltas of the Gódávari and Kistna rivers is the Colair lake, a shallow depression some 240 square miles in area which receives the drainage of about 2,000 square miles of hilly country lying to the north. The streams draining this tract are dry for the greater part of the year, but after heavy rain pour down, large quantities of water which are received and stored in the lake causing its level to rapidly rise. Besides this natural drainage, no inconsiderable quantity of water is passed into the lake by the surplus works and drains of the two great systems of irrigation canals which water the adjacent deltas. On the south side of the lake, a number of channels or kanamas, as they are locally called, take off from the lake and unite into one single broad and deep river. This river is the Upputeru and forms a natural boundary between the two deltas. From its head to the sea its length is about 30 miles. The course is an extremely winding one, and, for the last 6 or 7 miles, is parallel to the coast and separated from the sea by a narrow sand ridge in most places not more than a mile wide. Besides carrying off all the surplus water from Colair lake, it receives the drainage of a considerable extent of land on either bank, so that the total area of the basin drained by this river is probably not less than 3,500 square miles. The mouth is formed by a permanent gap in the sand ridge which runs along the coast. It is about ¼ of a mile wide and the depth of water on the bar is said to be about 9 feet at low tide.

At its head the river is about 150 feet wide and 16 feet deep, increasing, as it approaches the sea, to a width of about 150 yards and to a depth varying from 20 to 30 feet. As soon as it turns parallel to the coast, it opens out into a shallow backwater of considerable extent through which, however, there is a channel 15 to 18 feet deep at low tide. Near the mouth it is considerably deeper. The bar is reported to be a very narrow sand bank with 24 feet of water on either side of it at high tide. The range of the tides averages 4 feet and the tides extend right up to the lake. At Tadivada lock, 3 miles from the head, the tidal range is 3·5 feet when the Colair is low, but when the water in the lake is high the tides do not travel up the river very far.

The sea along this part of the coast is very shallow for a considerable distance from the shore, but opposite the mouth of the Upputeru the five fathom line bends inwards and, according to the latest charts, is not more than a mile from the shore.

As an inland waterway connected by four locks with the navigation systems of the Gódávari and Kistna canals, the Upputeru river is extremely valuable, and there is no doubt whatever that, if the bar at the mouth were removed and a permanent deep water channel maintained, the Upputeru would offer a capacious and convenient port superior to any on the Coromandel coast. In its natural state native craft drawing 9 or 10 feet of water occasionally cross the bar, and it seems to me that by the construction of suitable training works it would be possible to remove the bar and to prevent its recurrence. The conditions in this instance are extremely favorable and it may be well to briefly state them—

(1) The Upputeru as the outlet for the Colair lake and the surplus waters of the Eastern Kistna and Western Gódávari deltas is all but a perennial stream.

(2) The whole course of the river, the extensive backwater near the mouth and the branch up to Mogaltur form a tidal basin of very great area, which is filled and emptied twice a day, ensuring, even when there is no fresh water flowing down the river, a very considerable current in and out through the mouth which if, properly directed, would be a most valuable agent in removing the bar.

(3) The river from its head to near the mouth flows through a stiff black alluvial clay and the channel is consequently sharply defined and permanent. The mouth is a gap in the sand ridge which runs along the coast, but there is no sign that it is ever likely to shift its position. From the marine surveys the bed of the sea along this part of the coast appears to be soft mud and it is probable that the effect of any dredging operations which might be undertaken in the neighbourhood of the mouth would be permanent.

(4) *The remarkably small variations in the daily flow of water over the bar.*—From observations made during the floods of last year, I estimate that the maximum discharge of the river was about 50,000 cubic feet per second, during which time tidal action was practically suspended as the river rose up to high tide level in the backwater and flowed out through the mouth in a nearly constant stream. This is the maximum, and the minimum is at neap tides towards the end of the hot weather when there is no water passing into the river and the ebb and flow of the tide alone have to be taken into account. Approximately the current then would be 20,000 cubic feet per second with brief periods of nearly still water at the turn of the tides.

(5) *The almost complete freedom of the river water from solid matter in suspension and the consequent absence of silt deposits at the mouth of the river.*—This is a matter of great importance as it removes from the problem of how to get rid of the bar a factor which is usually extremely difficult to deal with. So far as I am aware the bar is entirely due to wave action and it would seem that if the entrance to the river were narrowed by the construction of two masonry piers running out into deep water considerable scour would be induced and the bar removed. The wave action which threw up the bar would no longer be able to produce any effect in the

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deep water at the end of the piers. What effect the construction of such piers would have upon the littoral drift of sand up and down the coast, I am unable to say. Probably the result would be not dissimilar to that which has been produced by the piers forming the Madras harbour. Inside the bar there is at present a channel from 20 to 25 feet deep at high tide and comparatively little dredging would be necessary to enable ships and steamers of large size to proceed up the river to Chinna Gollapalem where the natural conditions are most favorable for the establishment of a port. In the absence of exact surveys of the river, it does not appear to me that any useful purpose would be obtained by entering into details of the works which would be necessary, but I cannot forbear pointing out one serious disadvantage of the situation due to the fact that there is no building stone whatever within a radius of at least 40 miles. The Bezwada quarries are 73 miles distant by the canal and river, and the stone they yield is unsuitable for sea works and it is probable that quarries would have to be opened up the Kistna which would make the lead for materials over 80 miles and would add very largely to the cost of any masonry works constructed. It does not appear impossible to remove the bar by simply dredging it away, and that once removed the scour of the river and the tidal scour might be sufficient to prevent it growing again. On so small a bar a single sand pump dredger would work with great advantage and might attain results of great value.

As matters stand at present, the port of Masulipatam is daily deteriorating, and great and growing inconvenience is experienced in dealing with the trade. The creation of a new port at Chinna Gollapalem would enable steamers to lie about 1 mile off the mouth of the river, and the boats could cross the bar at any state of the tide. If dredging operations proved successful, the small coasting steamers might cross the bar and inside would be able to lie up in perfect safety in bad weather. At present, the advantages of the Upputeru are apparently unknown, but I think there can scarcely be any doubt that once recognized they would be appreciated by the native merchants in whose hands the whole of the Kistna export and import trade now is. A comparatively small expenditure judiciously incurred would render the mouth of the Upputeru superior to Masulipatam as a place of call for steamers, and in no very long time the trade of the port would so increase as to render it justifiable to spend a considerable amount of money on the construction of works for the improvement of the entrance, so that ships of the largest size in the Eastern trade would find inside it a safe and convenient anchorage.

(Signed) A. CHATTERTON,
Executive Engineer, Gudiváda Division.

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No. 1527, Marine.

Referred to the Chief Engineer, Public Works Department, for favour [illegible]rks.

(Signed) J. F. PRICE,
Chief Secretary.

Ootacamund,
31st August 1893.

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### Office-note from the Chief Engineer for Irrigation, dated 15th September 1893.

I have read the report by Mr. Chatterton on the advantages of making the Upputeru a port for the Gódávari and Kistna districts. Everything depends primarily upon keeping open the bar at the mouth, and as a tentative measure I would suggest that the Steam Dredge "Wenlock" now lying at Cocanada, and which is of very little use there owing to the local conditions of that port, should be sent down to work on the Upputeru and note what results are effected thereby before any expense be incurred in training walls, &c., or other harbour improvements. It may be found that occasional dredging during the ebb tides will be all that is required for keeping the tidal basin and estuary within open at all times for traffic.

2. As regards the difficulty in procuring stone for any work contemplated, I would suggest the use of Coignéts Beton described at p. 681, Trautwine's Pocket Book Edition, 1887, as a substitute.

As regards a light steamer any one of those in use in the deltas would serve the purpose perfectly.

ORDER—dated 1st December 1893, No. 3098 W., Public Works.

His Excellency the Governor in Council desires that the site of the proposed port be inspected by the Presidency Port Officer in company with the Superintending Engineer, II Circle, and that a joint report on the measures necessary to carry out the project be submitted for the orders of Government.

2. The effect of the north-east monsoon on the bar should be carefully noted, and the question of the carriage of stone for such works as may be proposed or the manufacture of an efficient substitute should be considered.

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Superintending Engineer, II Circle, with two plans.
" Chief Engineer for Irrigation.
" Marine Department.

Exd. C. A. Munisawmy.
Spare Copies

3098/4

BUILDINGS AND ROADS.
CIVIL WORKS.

**Govt. of {1893} Madras.**
**PUBLIC WORKS.**

Dated December, 1st.

Recd.

Encl.

**G.O., 1st Dec. 1893, No. 3098 W.**

**DECEMBER.**

## Harbour

Passing orders on the project for the construction of a — at the mouth of the Upputeru river, Kistna district.

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Curt) 6521

Dw 3098/[illegible]

No papers on the subject of the Upputeru river can be traced in S.I. office, but it will be seen from the file put up that the subject was brought to notice by Mr Webb when he was Collector of the District — vide papers with his 11944 d/11.5.86.

The present Collector suggests that the river might be inspected by a competent engineer.

The current might perhaps be referred to S.E. II Circle for remarks.

Cg
9.9.93

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OFFICE
OF THE
COLLECTOR & MAGISTRATE,
MASULIPATAM,
KISTNA DISTRICT.

12th August 1893.

3098/8

…inson Esqre

Collector,

Secretary to Government,
Marine Department
Ootacamund.

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BUILDINGS AND ROADS.
CIVIL WORKS.

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Dated December, 1st.

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**G.O., 1st Dec. 1893, No. 3098 W.**

DECEMBER.

## Harbour

Passing orders on the project for the construction of a — at the mouth of the Upputeru river, Kistna district.

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W.   3098/1

For orders. I think file should be sent to C.E. IV for his remarks —

To go into the question thoroughly would take the whole time of an officer for probably a couple of weeks —

I don't know where the light draft steamer is to come from —

As Mr. Chatterton has already entered on the question, he might perhaps

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CURRENT No.

OFFICE
OF THE
COLLECTOR & MAGISTRATE,
MASULIPATAM,
KISTNA DISTRICT.

12th August 1893.

…inson Esqr.   3098/1

Collector,

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**G.O., 1st Dec. 1893, No. 3098 W.**

DECEMBER.

**Harbour**

Passing orders on the project for the construction of a — at the mouth of the Upputeru river, Kistna District.

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be deputed to
give a full report
on the subject,
with plans &
drawings ~~when~~ after
he is relieved of
the Godavari
S. by Mr. Wait.

This is no new
scheme – vide
Mr. Smith's letter
with No. 1194 W
dd 1st May 1886

13.8.93

I think these papers shd. be
sent with I.G.'s note [illegible]
the Presidency Port-officer
should be asked to inspect
the place with S.E. who
should submit a report
with proposals. JH 16.9

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3098/1893

W

I have read the report by Mr Chatterton on the advantages of making the Upputeru a port for the Godavari & Kistna Districts. Everything depends primarily upon keeping open the bar at the mouth, and as a tentative measure I would suggest that the Steam Dredge "Wenlock" now lying at Cocanada, and which is of very little use there owing to the local conditions of that port, should be sent down to work on the Upputeru, and note what results are effected thereby, before any expense be incurred in training walls &c, or other harbour improvement. It may be

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CURRENT No.

199

OFFICE
OF THE
COLLECTOR & MAGISTRATE,
MASULIPATAM,
KISTNA DISTRICT.

12th August 1893.

3098/1893

tkinson Esqre.
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Secretary to Government,
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*Dated December, 1st.*

*Recd.* *Encl.*

**G.O., 1st Dec. 1893, No. 3098 W.**

**DECEMBER.**

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Passing orders on the project for the construction of a — at the mouth of the Upputeru river, Kistna district.

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1579/93

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CURRENT No.

No. 3098/4 P/1

OFFICE
OF THE
**COLLECTOR & MAGISTRATE,**
**MASULIPATAM,**
KISTNA DISTRICT.

12th August 1893.

FROM,

J. A. Atkinson Esqre

Acting Collector,

3098/4

To,

The Chief Secretary to Government,
Marine Department
Ootacamund.

SIR,

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2 My attention was first called to this river by Mr. Chatterton, the Executive Engineer of the Gudivada Division and at my request he has drawn up the note that accompanies the present report. This note sets out very briefly

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I have obtained statistics of the trade of Narsapur and its sub port Perupalem during the last 5 years.

They are as follows:—

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| 1892 – 93 | nil | nil |

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om the convenience of Perupalem and
Mutyalam . The eastern branch of
Upp which runs past these
is sh low, with a maximum
, at of our visit, of 9 feet,
compared wi 22 feet on the Kistna
. It is a narrow and tortuous
nnel with, even in its contracted
shoals to further obstruct

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3098/18

navigation, Why trade should have neglected the Kistna branch to establish itself at Narsapur and Mutyalampalli, I will briefly indicate.

9 In the first place what trade now exists is but the remnant of the palmy days of Narsapur, when it formed the Emporium of a number of flourishing towns. This prosperity has now been diverted to Cocanada.

3098/66

10 A second reason is the advantage secured by the Godaveri District in having its delta system of irrigation and navigation worked out many years in advance of the Kistna Delta. The Narsapur Canal was dug and the Mogalturu lock completed in or about 1852, while those parts of the Gudivada and Bandar Talugs lying

on the opposite bank are even now entirely undeveloped. There are 1800 acres of waste land immediately adjoining the Kistna bank of the Upputeru. The country is at present a vast plain uninhabited except by a few fishermen, uncultivated, treeless, and almost verdureless. Up till 6 years ago, there was no means of communication between the Upputeru and the rest of the Kistna District.

11. It is scarcely to be wondered at therefore that such small export and import trade as made use of the Upputeru river should belong entirely to the Godavari District. Indeed the only use made of the western or principal branch of the Upputeru has been as a fishing ground wherein the neighbouring

3098/19

villagers earn their livelihood.

12. This state of affairs has now been entirely altered. By the opening of the Tadinada lock in 1886, and of the Lakshmipuram lock in the present year, the Upputeru river has been thrown open to the rest of the Kistna District. A glance at the map will show that through these locks the whole of the Kistna Eastern Delta comprising the Taluqs of Bandar, Gudivada and half each of Nuzvid and Bezwada is put in direct water communication with the Upputeru. So on the Godavari side, direct access is afforded by the Yelurpad and Mogaltur locks to the three delta Taluqs of Bhimavaram, Narsapur and Tanuku. In fact the Upputeru has become the main artery for all trade

3098/19

communication between the two deltas.

13 Already there are indications of the quantity of traffic that will hereafter pass over the waters of the Upputeru. The following figures have been furnished to me by the Tahsildar of Bandar Taluq as an approximate estimate of the quantities carried:—

| Bags per month | Item | Value per bag | Total |
|---|---|---|---|
| 15000 | Paddy | Rs 3-4 | 48,750 |
| 2000 | Gingelly | Rs 10 | 20,000 |
| 20000 | Cocoanuts | Rs 3 | 60,000 |
| 3000 | Castorseed | Rs 8 | 24,000 |
| 1000 | Bengal gram | 8 | 8,000 |
| 1000 | Black gram | 9 | 9,000 |
| 2500 | Horse gram | 6 | 15,000 |
| 1500 | Green gram | 6 | 9,000 |
| 4000 | Rice | 7 | 28,000 |
|  |  |  | Rs 2,21,750 |

At the Kowtaram lock the traffic registered is as follows:—

|  | 1891-92 | 1892-93 |
|---|---|---|
| Tonnage | 14051 | 17587 |
| Value | Rs 695844 | Rs 846964 |

3058/12

These figures show how rapidly trade is developing in this corner of the District. A large quantity of the goods passing Kowtaram is intended for export either by rail from Bezwada or by sea from Masulipatam.

Given better means of export, the eventual cost to the consumer would be diminished.

14 But obviously these figures represent only the local traffic between the adjoining Taluqs or such small part of the produce of the Godavari Delta as finds its way via the Upputeru to Bezwada or Masulipatam for export. If it be found possible to establish an inland harbour

in the Upputeru, exporters will be attracted from an enormous area. It would be superfluous for me to venture on any estimate of the limits of such a trade. Our belief is that by a small expenditure this Upputeru river may be thrown open to vessels of large size. Even now, if once the bar be passed there is nothing whatever to hinder a vessel drawing 18 feet from lying at the bank and taking her cargo in from cart and canal boat simultaneously. The temptation to enlarge on the prospects of such a harbour is very great.

The one all important question is of course that of the bar. If that present no insurmountable obstacle I believe that in the [illegible] this Presidency

3098/17

3098/17

will be provided with a port, whether regarded as a commercial emporium or as a harbour of refuge, such as cannot be found on this side of India. I solicit the attention of Government to the latest chart on this piece of coast line, that entitled "Preliminary chart India Bay of Bengal, Kistna River to Sacramento Shoal" embodying the result of the "Investigator's" survey in 1892. That chart shows the three fathom line at about half a mile's distance from the mouth of the Upputeru. The information which I obtained from a ship Tyndal of Mutyalampalli was that there were 9 feet of water

tre .. ar at low tide (Corresponding
actly with the 1½ fathoms shown
n the chart) that the bar is only
ship's length broad, and that
mmediately beyond it the water
eepens to 21 feet Some fishermen
whom the Tahsildar of Pounder
sent out in May last to take
oundings, reported to him that on
e bar there were 8 feet of water, that
the deep water channel was 30 yards
broad and that the bar extended
for 40 yards, that immediately
beyond the bar the depth was 15 feet,
and 100 yards further 32 feet. This
nformation coincides very closely
with the soundings given on the
hart.

17. Mr Chatterton in his note has indicated our reasons for believing that the bar is no very formidable difficulty, but as our observations thereof were imperfect, and since the best available opinion is in such matters indispensable, I have the honor to request that Government will be pleased to order an inspection of the Upputeru river by a competent Engineer. It would also be of immense assistance if he were given the services of a light draught steamer, drawing not more than 8 or 9 feet, so that he would not be impeded or delayed in inspecting both the bar and the many miles of navigable waters above it.

I have the honor to be,
Sir,
Your most obedient Servant,

for Acting Collector

Copy

1893.

R. W. CURRENT No. 1654

FROM,

THE COLLECTOR,

KISTNA DISTRICT.

TO,

THE Chief Secretary to Govt

Marine Department

Ootacamund

Dated 12th }
Despd 17th } Aug 1893
Recd: 21st }

21 AUG 93

d 6. 9. 93 Enclosures 3

No.

Subject.

Requesting to order inspection
the Upputeru river which
parates Godavery and Kistna
istricts by a competent
ngineer in order to see
hether an inland harbour
n be made and

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p. 13

No 1527

Referred to the Chief Engineer, Public Works Dept. for favor of remarks.

Fredk Price
Chief Secretary

To Mar. W. Dept.

Ootacamund }
31st Aug 1893 }.

No. 661C of 18-2-86
" 1343C - 2-4-86
" 1194W - 11-5-86
" 1591W - 22-6-86
" 4379 - 24-7-86

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# Note on the proposed port on the River Upputeru

3098/12

3098/12

Between the Deltas of the Godavari and Kistna rivers is the Colair Lake, a shallow depression some 240 square miles in area which receives the drainage of about 2000 square miles of hilly country lying to the north. The streams draining this tract are dry for the greater part of the year but after heavy rain pour down large quantities of water which are received and stored in the Lake causing its level to rapidly rise. Besides this natural drainage no inconsiderable quantity of water is passed into the Lake by the surplus works and drains of the two great systems of irrigation canals which water the adjacent deltas. On the south side of the Lake a number of channels or Kanumas as they are locally called, take off from the Lake and unite into one single broad and deep river. This river is the Upputeru and forms a natural boundary between the two deltas. From its head to the sea its length is about 30 miles. The course is an extremely winding one and for the last 6 or 7 miles is parallel to the Coast and separated from the sea narrow sand ridge in most places not more than a mile wide. Besides carrying off all the surplus water from Colair Lake, it receives the drainage of a considerable extent of land on either bank so that the total area of the basin drained by this river is probably not less than 3500 sq miles. The mouth is formed by a permanent gap in the sand ridge which runs along the Coast. It is about ¼ of a mile wide and the depth of water on the bar is said to be about 9 feet at low tide.

At its head the river is about 150 feet wide and 16 feet deep increasing as it approaches the sea to a width of about 150 yards and to a depth varying from 20 to 30 ft. As soon as i[illegible]ns parallel to the Coast it opens out [illegible] a shallow backwater of considerable extent through which however there is a channel 15 to 18 ft. deep at low tide. Near the mouth it is considerably deeper. The bar is reported to be a very narrow sand bank with 24 ft of water on either side of it at high tide. The range of the tides averages four feet and the tides extend right up to the lake. At Padinada lock 3 miles from the head the tidal range is 3.5 ft when the Colair

S(P-1)

is low but when the water in the Lake is high the tides do not travel up the river very far.

3098/141

The sea adjoining this part of the coast is very shallow for a considerable distance from the shore but opposite the mouth of the Uppateru the 5 fathom line bends inwards and according to the latest charts is not more than a mile from the shore.

3098/141

As an inland waterway connected by 4 locks with the navigation systems of the Godaveri and Kistna canals the Uppateru river is extremely valuable and there is no doubt whatever that if the bar at the mouth were removed and a permanent deep water channel maintained the Upputeru would offer a capacious and convenient port, superior to any on the Coromandel Coast. In its natural state native craft drawing 9 or 10 ft. of water occasionally cross the bar and it seems to me that by the construction of suitable training works it would be possible to remove the bar and to prevent its recurrence. The conditions in this instance are extremely favourable and it may be well fly state them

1. The Upputeru as the outlet for the Colair Lake and the surplus waters of the eastern Kistna and western Godavari Deltas is all but a perennial stream.

2. The whole course of the river, the extensive backwater near the mouth and the branch up to Mogaltur form a tidal basin of very great area, which is filled and emptied twice a day ensuring, even when there is no fresh water flowing down the river, a very considerable current in and out through the mouth which if properly directed would be a most valuable agent in removing the bar.

3. The river from its head to near the mouth flows through a stiff black alluvial clay and the channel is consequently sharply defined and permanent. The mouth is a gap in the sand ridge which runs along the coast but there is no sign that it is ever likely to shift its position. From the Marine surveys the bed of the sea along this part of the coast appears to be soft mud and it is probable that the effect of any dredging operations which might be undertaken in the neighbour-hood of the mouth would [illegible]

4. The remarkably small variations in the daily flow of water over the bar. 20/8/17

20/8 From observations made during the floods of last year I estimate that the maximum discharge of the river was about 50,000 c.ft. per second during which time tidal action was practically suspended as the river rose up to high tide level in the backwater and flowed out through the mouth in a nearly constant stream. This is the maximum and the minimum is at neap tides towards the end of the hot weather when there is no water passing into the river and the ebb and flow of the tide alone have to be taken into account. Approximately the current then would be 20000 cft per second with brief periods of nearly still water at the time of the tides.

5. The almost complete freedom of the river water from solid matter in suspension and the consequent absence of silt deposits at the mouth of the river. This is a matter of great importance as it removes from the problem of how to get rid of the bar a factor which is usually extremely diffic[illegible] with. So far as I am aware the [illegible] is entirely due to wave action and it [illegible]ould seem that if the entrance to the river were narrowed by the coast

of two masonry piers running out into deep water considerable scour would be induced and the bar removed. The wave action which threw up the bar would no longer be able to produce any effect in the deep water at the end of the piers. What effect the construction of such piers would have upon the litteral drift of sand up and down the coast I am unable to say. Probably the result would be not dissimilar to that which has been produced by the piers forming the Madras harbour. Inside the bar there is at present a channel from 20 to 25 ft deep at high tide and comparatively little dredging would be necessary to enable ships and steamers of large size to proceed up the river to Chinna Gollapalem where the natural conditions are most favourable for the establishment of a port. In the absence of exact surveys of the river it does not appear to me that any useful purpose would be obtained by entering to details of the works which would be necessary but I cannot forbear pointing out one serious disadvantage of the situation due to the fact that there is no building stone [illegible] within a radius of at least 40 m[illegible] wada Quarries are 73 miles distan[illegible] the canal and river and the stone the[illegible] is unsuitable [illegible] sea works and it [illegible]

would have to be opened up the Kistna which would make the lead for materials over 80 miles and would add very largely to the cost of any masonry works constructed.

It does not appear impossible to remove the bar by simply dredging it away and that once removed the scour of the river and the tidal scour might be sufficient to prevent it growing again. On so small a bar a single sand pump dredger would work with great advantage and might attain results of great value.

As matters stand at present the port of Masulipatam is daily deteriorating and great and growing inconvenience is experienced in dealing with the trade. The creation of a new port at Chinna Gollapalem would enable steamers to lie about 1 mile off the mouth of the river and the boats could cross the bar at any state of the tide. If dredging operations proved successful the smaller coasting steamers might cross the bar and inside would be able to lie up in perfect safety in bad weather. At present the advantages of the upper river are apparently unknown but I think there can scarcely be any doubt that once recognized

recognized

would be apprecia by the native
merchants in whose han the whole of the
Kistna export and import de now is.
A comparatively small enditure judi-
cio y incurred would der the mouth
of the Upputeru superio Masulipatam
as a place of call fo teamers and in
no very long time the t de of the port
would so increase as render it justi-
fiable to spend a consi rable amount
of money on the const tion of works
for the improvement of a ntrance so that
ships of the largest siz the Eastern trade
would find inside it afe and con-
venient anchorage.

(Sig Alfred Chatterton
Executive Engineer
Godavari Dn

P.W. 7634/1

True Copy

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P. W. DEPARTMENT.

READ the following:—

Letter from the Collector, Kistna Dt: of 12 Aug 1893.
Endt: on the Marine Dept. No 1527 of 31 Aug 1893.

3098/20

3098/20

FOR ORDERS.

An office note by the Chief Engineer for Irrigation is also submitted.

The Presidency Port officer may perhaps be asked to inspect the place in company with the Superintending Engineer in view to a joint report with proposals being submitted for the orders of Government.

MM
16.9.93

1819

I don't believe in the project. The Chief Engineer's suggestion may be adopted.

19 Sep.

Circ

I think the project sounds very promising. Let the P.P.O. & Supt Engr inspect the locality by all means & report soon. The effect of the work, however, on the bar shd be carefully watched. If works are carried out stone wd be more cheaply floated down the canals from Bezwada than by any other means.

W
19 Nov

23/9/93

I wish to know if any proposal has reached Govt in relation to irrigating a large extent of land in by pumping the water

RA

xxx

from the Uppateru [illegible]
it is fresh. Also, [illegible]
like to see them. A [illegible]
Pattinam, at Beyond a [illegible]
me he had sent in [illegible]
to take up the whole [illegible]
& supply it with water [illegible]
means of pumps. [illegible]

The C. for Harbours [illegible]
25 Sep.

[illegible] please [illegible]
C No 762.

Ack 9
Nov 18 9
[illegible]

Harbour at the
Mouths of the Uppateru
River – Kistna Dt.

~~The [illegible]~~ I
H. E. the Governor.

3098 W

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No. 3098 W d/ 1 – 12 – 93 PUBLIC WORKS DEPARTMENT.

Civil Works

## PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

Letter from the Collector, Kistna Dt. No. 777 English d/ 12th Aug. 1

Endt. thereon in the Marine Dept. No. 1527 d/ 31st Aug. 1

Office Note from the Chief Engr. for Irrigⁿ. d/ 15th Septr. 1893

3098/21

His Excellency the Governor-in-Council desires that the site of the proposed port be inspected by the Presidency Port officer in company with the Suptg. Engineer II Circle, and that a joint report on the measures necess to carry out the pro ject be submitted for the orders of Government.

2. The effect of the North East Mon

3098/21

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(60—3,000—12-5-93.

ow on the bar
ould be carefully
ted; and the question
the carriage of
one for such works
may be proposed
the manufacture
an efficient
bstitute should
considered.

Oll
1/11/93

2/11

28/11/93

CHIEF SECRETARY
2 NOV 93

DESPATCHED
16 DEC. 93

DESPATCHED
16 DEC. 93

Despd
16/12/93 S.a.

To
The S. E. II Circle with 2 plans.
" Chief Engr for Irrn
" Marine Department

c.s. 27/11

3098/22