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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	2779	(9)	Press
B.P. No.			Mis
Dated	29-9-		1874

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
29th September 1875.*

No. 588. Read the following letter from Major J. BEATTY, R.E., District Engineer, Godavery, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Dowlaishweram, 2nd March 1875, No. 2,734—

I HAVE the honor to submit, herewith, the plans, estimates, and reports on the

- | | |
|---|---|
| 1 General Report by Lieutenant Langley. | Biccavole Sub-section of the village drainage scheme ordered by Government in G. O., No. 1,980, of 15th April 1874. |
| 1 Do. by Lieutenant Wilkieson. | |
| Sent by Langley. | |
| 27 Plans. | |
| 15 Estimates, and | |
| 13 Reports. | |

2. The group of villages now reported on was selected by the Collector. It is situated in the north-east corner of the Ramachendrapur Taluk. The surveys were carried out under the direction of Lieutenant C. B. Wilkieson, I.C.E., and after his removal from the district under Lieutenant L. Langley, R.E., who has completed and reported upon them. The latter officer has furnished a separate report on each village and a general report on the group.

3. The out-door work of the surveys was commenced at the end of August, and finished at the end of November; the preparation of the plans and reports was completed on 23rd January, but it has been considered necessary to delay submitting them in order to obtain additional information on the subject of levels. Lieutenant Langley had not explained the values of his levels with reference to mean sea level; this has now been done by a note on each plan.

4. As in the case of the Ralli Sub-section, already reported on, it is proposed to form minor street drains by sectioning the streets from the sides to the centre, and providing main drains into which the street drains would discharge; the main drains again discharging into some natural or artificial channel or tank of the delta. In three cases masonry works have been found necessary in order not to interfere with existing roads and channels.

5. The reports which accompany the plans describe, in detail, what is proposed, which is more briefly as follows:—

(1.) Oolapilly is to be provided with two main drains leading to an under-tunnel which is to carry the drainage across an irrigation channel, below which one main drain carries the drainage into the Tooliabaga. Part of the village on the eastern side will be drained into an irrigation channel on that side.

(2.) Biccavole, an existing drain, is to be cleared to lead off the drainage by means of the side channel of the Biccavole and Chintapilly road into the old Biccavole drain, one of the three principal natural drainage lines of the Eastern Delta.

(3.) Balabhadrapuram; two new main drains lead drainage through existing culverts into the Samulcottah Canal.

(4.) Pandalapaka; one new main drain is to lead the drainage of this village to the Tooliabaga.

(5.) Kykavole; this village is close to the Tooliabaga, into which the main drains discharge.

(6.) Gandreda; four short main drains lead the drainage of this village into existing irrigation channels near it.

(7.) Poddapudi; this village is to be provided with one new main drain to carry its drainage into one of the branch drains of the delta, a tributary of the great Biccavole drain.

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(8.) Gollalamamidada; two principal drains are provided for this village which meet below it, thence forming one main drain, which carries the drainage by a culvert under a punta or cross road into an existing branch drain, and this branch drain flows into the Poddada tank.

(9.) Peddabramhaderam; it is proposed to provide this village with three main drains, one of which crosses a punta, and a culvert is estimated for at this place; these three drains unite near an existing road culvert on the Samulcottah road by which the drainage is discharged into the canal.

(10.) Poddada; it is proposed to furnish this village with two main drains, one to the east and the other to the south and west to carry drainage into the village tank.

(11.) Medapad; it is proposed to discharge part of the drainage of this village by an existing culvert into the Samulcottah Canal, and to provide one main drain for the rest of the village, which will carry the drainage through another existing culvert on the Samulcottah road into the canal.

(12.) Komarapriem; this village does not require drainage works of any kind, as it stands high, with good streets, and has no swamps or hollows near it.

(13.) Latchminarsapuram; it is proposed to furnish this village with two main drains which would discharge the drainage into existing irrigation channels.

6. Eleven of these villages, Nos. 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, and 13 are no worse off as regards drainage than they would have been if no ancient works had been constructed, and villages in the upland taluqs are quite as much entitled to be drained at the cost of the State as they are. The work proposed is small in quantity and cost.

(1) Rupees	980
(8) ..	3,100
Total ...	4,080

7. The remaining two villages, Oolapilly (1) and Gollalamamidada (8), are so closely surrounded by irrigation, and the natural drainage of their sites

is so obstructed, that in their case some drainage works are necessary, and I should consider the cost fairly chargeable to Imperial Funds.

8. Lieutenant Langley was informed at Poddada that the inhabitants do not suffer from fever, that they do not desire drains, and request to be left alone. At Balabhadrapuram also it was reported to him that there was no fever, and that the people do not desire drains. At Komarapriem nothing is wanted, and no works are proposed. In the remaining seven villages of the group the Munsifs reported that the inhabitants did suffer from fever, and that they desired drainage.

9. The plans and estimates now submitted are accompanied by a sketch map showing the relative positions of the villages in the group to the principal canals in that neighbourhood and in reference to one another.

10. The total cost of the works proposed is Rupees 6,390, and, as already explained, I recommend that Rupees 4,080 be charged to Imperial Funds, and the balance, Rupees 2,310, to Local Funds under "Sanitation."

11. I send also, for your information, a report made me by Lieutenant Wilkieson, R.E., when about to leave the district, on the subject of these village

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drainages, on which he had been employed for about two months, and giving the general ideas he was led to form about it.

From Lieutenant C. B. WILKIESON, R.E., Assistant Engineer in charge of Eastern Delta Drainage Scheme, to Major J. BEATTY, R.E., District Engineer, Godavery, dated Camp at Chintapilly, 30th October 1874, No. 49.

Report by Lieutenant Wilkieson on the Village Drainages.

BEFORE I hand over charge of this office, I think it advisable to make the following remarks and suggestions:—

This drainage scheme was undertaken in consequence of the reports received by Government of the great prevalence of fever in the deltas. I have made many inquiries with reference to these reports, and have come to the conclusion that this epidemic arises more from the habits of the inhabitants than from the locality of their dwellings.

I may remark here that, though there is a good deal of fever, the most general complaint is *ague*.

Now it seems surprising that this latter complaint (*ague*) is not more prevalent than it is when one considers that the greater number of the inhabitants of these villages spend a large portion of their time during the day in the midst of their fields, these fields being submerged several inches. Thus, for several hours, a man is wading about in water; he then goes back to his village, the path leading through (not over) several channels from 2 to 4 feet deep; he reaches his house towards evening, when a damp mist arises from the whole country; the submerged fields reach to the very wall of his compound; the whole house is regularly penetrated with damp; here he sleeps in his damp clothes, and then returns in the morning to his work in the wet fields. How is he to avoid *ague* and such complaints arising from exposure to damp? His illness does not arise from the defective drainage of the village so much as from its damp position and the amphibious nature of his life.

I therefore think that this drainage scheme will not attain the end required.

All the villages are built on rising grounds. The houses in the middle of the village will, no doubt, be benefited, but those on the borders will be as bad as ever.

To make the villages as healthy as possible, it will be necessary to forbid wet cultivation within a quarter of a mile of the outskirts of the village, which will thus be well removed from the miasmas which are inseparable from a water-covered land. The space between the villages and the fields I would propose to plant with jack trees, mango trees, and other shrubs which partake of the nature of the *Eucalyptus globulus* in absorbing a large quantity of moisture.

The only fields which are not used for cultivation or building purposes are two or three within the boundaries of each village. These are used as latrines; and to a person entering the village, the odour is such as to create great nausea. There can be no doubt that such an odour must be very unhealthy to those living near, and, therefore, it will be necessary to make some arrangements for suppressing this nuisance, such as erecting properly built latrines on the dry earth system.

For the above reasons, I feel it my duty to represent to you that, unless the Government are prepared to go a good deal further in this matter, they will be spending a great deal of money with very inadequate results.

The cost of the surveys alone of the villages in the Ramachendrapur Taluq will come to Rupees 7,000 at least. The cost of the carrying out of the plans will be much more than ten times this amount.

From what I have seen of drains in these parts, I should say that common earth-work ones, such as are now being estimated for, will last at the best about a year; in the course of which time, the lines of, perhaps, eighty coolies may be saved. Therefore, each cooly's life will cost the Government about Rupees 1,000.

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Now, there is a well-known calculation to the effect that each British Soldier is worth £ 100 or Rupees 1,000.

I doubt much whether each Indian cooly is worth as much as a British Soldier.

Report on the Biccavole Sub-section of the Eastern Delta Godavery Drainage Scheme.

PRELIMINARY REMARKS.—This sub-section originally consisted of twelve villages chosen by the Collector, W. Foster, Esq. Lieutenant Wilkieson, R.E., who was in charge of this sub-section from August till the end of October 1874, added the village of Litchaminarsapuram, which is a hamlet of Gollalamidada, to the original number. These villages have apparently been chosen simply from their proximity to Biccavole, and without any regard to their size, importance, or capability of being drained. A list of the villages giving the amount of the estimate for each and the total amount of the estimate of the sub-section, &c., is given at the end of this report. The villages have been numbered for convenience of reference. Three of them, viz., Nos. 3, 9, and 11, are not in the delta, being on the north bank of the Samulcottah Canal.

ON THE PROPOSED METHOD OF DRAINAGE.—The streets of the villages in this delta generally slope from the sides towards the centre. It is proposed to drain the streets along their centres, but the slope which they usually have from the sides towards the centre has not been allowed for in the estimates, the cross section of the streets having been taken as a plane. The estimates have been arrived at in this way:—Take a street of 20 feet broad; lay off 5 feet from each side of the centre line; dig a drain 6 inches deep at the centre, and sloping up uniformly to the edges of the 5 feet laid off on each side; then pile up the excavated earth on either side, and you have the cross section of the street as in the figure. This gives a slope on each side of 1 in 10, and an average depth of 6 inches for the drain. The breadth of the streets varies, and in some cases it is necessary to dig a drain with a greater average depth than 6 inches, and the side slopes would be steeper, but the principle is the same in all cases, and in every case the street would drain itself. It is considered that the constant traffic through the village streets would fully consolidate the earth, and that, if the work was carried out in the hot weather, the streets would be properly cross-sectioned by the time the rainy weather set in. As many streets have already a slope towards the centre, there would not be much to do in the way of cross-sectioning, and the street drainage should be done easily within the estimates. In many villages catch-water drains going round the village have been provided. They vary in section from 6 to 12 feet according to their length, the amount of drainage they have to carry off, and the slope of the ground. In three cases the village drainage is taken into an old drainage channel called the Tooliabaga, which discharges itself into the Dowlishwaram and Cocanada Canal just below the Chintapilly Lock. The three villages north of the Samulcottah Canal, Nos. 3, 9, and 11, have been drained into that canal. For the drainage of these villages there are already culverts leading into the canal, and the village drainage has been conducted to the culverts. For the other villages, one is drained into the Biccavole drain, two into branch drainage channels, one into a tank, one requires no drainage, and the remaining two have been drained into irrigation channels.

The method of draining a village must depend on the capability the village has of being drained. In cases where it was easy to drain a village into a drainage channel or a canal, I have so drained it; but in cases where a village has been surrounded by irrigation channels, I have preferred taking the drainage into them, to taking it under them, into the nearest drainage channel. I do not see any objection to draining villages into irrigation channels where the levels admit of it, as it saves the expense of constructing under tunnels and long lines of drainage, and the drainage water from the villages would probably help to fertilize the land. Villages Nos. 6, 7, and 10 cannot at present be drained satisfactorily. They are surrounded by a net-work of irrigation channels; their sites are very low, and they are a long way from the nearest drainage channel.

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No. 7 has a drainage channel which, no doubt, carries off some of the village drainage, but which wants deepening and clearing out. This, however, cannot be done at present, as the water in the drainage channel is used for irrigation.

No. 10 drains chiefly into the village tank. This tank depends for its water-supply on the drainage of another village which runs into it, and the water of the tank is used for irrigation. The inhabitants object to having any drainage operations carried out in their village, as they say they want all the water they can get for irrigation. Only three masonry works seemed absolutely necessary, and these have been provided for.

ON THE WANTS OF THE VILLAGES AS REGARDS DRAINAGE.—The two villages which stand most in need of drainage are Nos. 1 and 8.

Six villages, Nos. 3, 4, 9, 11, 12, and 13, do not require drainage. The remainder would be all the better for being drained, but might do very well without it.

ON THE ADVISABILITY OF THE SCHEME AND THE BENEFITS LIKELY TO BE DERIVED FROM IT.—I believe this scheme has been undertaken with the view of diminishing the fever which prevails more or less in the villages of the delta. I do not think it an advisable one, firstly, because the delta is not yet prepared for village drainage, being not sufficiently well drained itself; and, secondly, because I do not think any sensible decrease of fever will accrue from it. It is a well-known fact in the Godavery District that the time when fever is most prevalent in the delta is not during the months of September and October, when from rain and from irrigation there is a very large amount of the delta under water, but during the cold weather in November, December, and January. The inhabitants of the delta suffer more from ague than from fever. Mortality in the delta is very heavy among the Lork Lascars who are exposed to chills at night. In this sub-section there are three villages on the north bank of the Samulcottah Canal. As they stand very high and drain freely into the canal, any fever which may prevail in them cannot be set down to want of drainage; yet in one of them, No. 11, I was told that eighteen of the inhabitants had died of fever from the beginning of January to the end of November 1874.

From the reports I received in answer to my Circular to the Village Munsifs requesting information with regard to the prevalence of fever in their villages, and their wants as regards drainage, it by no means appears that fever will be found very prevalent in a swampy and ill-drained village, or that a dry and clean village will be free from it.

Ague is produced by cold and damp, and it may be said that, if we drain the villages, we shall remove the damp, and there will be no more ague in the delta. But the amount of moisture which may be removed from the atmosphere of a village by draining the streets and any neighbouring swamps is a mere nothing compared to that produced by the acres and acres of wet cultivation, which in the case of many villages surround them entirely, coming right up to the walls of the houses. The atmosphere of the delta is very damp all the year round, and this must be so as long as the greater part of the land is under wet cultivation; but the inhabitants could stand the damp, if only they had sufficiently warm clothing. In a few years, when the drainage of the delta is properly developed, the villages might be drained much more cheaply and effectually than is possible now; but for the present I think the Government would do much better to spend its money in blankets than in a premature, and, therefore, an ineffectual attempt at village drainage.

If this scheme is carried out, I think some precautions should be taken to ensure fair play to the drainage works. Otherwise, from the natural carelessness of natives to cleanliness and sanitary considerations, the street drains would be choked up with all kinds of filth within a very short time of their construction. The catch-water drains outside the village would also be dammed up in all directions, in order that the water might be used for irrigation. The Village Munsif might be held responsible for keeping the drains in proper repair, and they should be frequently inspected, especially during the monsoon. The total amount of the estimate for the sub-section is Rupees 5,390.

CHINTAPILLY,
23rd January 1875.

(Signed) L. LANGLEY, Lieut. R.E.,
Assistant Engineer, Godavery.

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29th September 1875.*

AGRICULTURAL—ORDINARY—CAPITAL.

ABSTRACT ESTIMATE No. 8.

Taluq, Ramachendrapur; District, Godavery.

WORK.—Drainage of the village of Gollalamamidada.

Quantity or Number	Description of Work.	Rate.	Per Item	Amount.	Total.
		RS. A. P.		RS. A. P.	
5,018	Cubic yards of earth-work ...	0 1 0	C. yd.	313 10 0	
5,589	Do. do. ...	0 1 8	"	582 3 0	
300	Do. do. ...	0 1 6	"	23 2 0	
10,500	Do. do. ...	0 2 0	"	1,312 8 0	
5,278	Do. do. ...	0 1 1	"	357 5 10	
	Clearing drain into Peddada Tank for a distance of $\frac{1}{2}$ mile ...	...	...	50 0 0	
	Clearing noxious jungle on south and west sides of village ...	...	...	40 0 0	
	Contingencies at $3\frac{1}{2}$ per cent. ...	...	...	96 3 2	
	Masonry work as per separate estimate ...	...	...	320 0 0	
	Total ...	...	...	...	3,100 0 0

CHINTAPILLY,
23rd January 1875.

(Signed) L. LANGLEY, Lieut., R.E.,
Assistant Engineer, Godavery.

No. 1,045.

NOTE by the Chief Engineer for Irrigation on the Biccavole Sub-section of the Godavery Eastern Delta Village Drainage Scheme.

THE papers submitted need but few remarks. Major Beatty has carefully summarized the information obtained, and is of opinion that out of the thirteen villages, the condition of which has been investigated, eleven are no worse of than would have been the case had no delta irrigation scheme been carried out, while in the case of two villages (Oolapilly and Gollalamamidada) drainage is required, and from the obstruction caused by irrigation channels is considered to be fairly chargeable to Imperial Funds, and consequently to the drainage system of this part of the delta. The estimate for the former village is Rupees 980 and for the latter Rupees 3,100. For one village, Komarapriom (No. 12), no drainage is required, and no estimate has been prepared. One village, (No. 4) Pandalapaka, is Zemindari; and as probably Government have no intention of draining Zemindari villages, the amount of the estimate, Rupees 310, will have to be deducted.

2. The opinions of Lieutenants Wilkieson and Langley, who have been employed in investigating the condition of the villages in detail, are adverse to the utility of the drainage scheme. Like all sanitary improvements it will do some good; but whether the results will be in proportion to the cost is a question not capable of demonstration. The undersigned considers that in cases like Oolapilly and Gollalamamidada, the provision of the means of carrying off drainage from the outskirts of villages so circumstanced is properly a charge against the delta works, but it is difficult to understand how the sectioning and drainage of village streets can under any circumstances appertain to those works.

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3. The drainage of Gollalamamidada* will be a budget work, and may be entered in part 3 of the estimates for 1876-77. The estimate for Oolapilly, Rupees 980, may be sanctioned as a Minor New Work for immediate execution from the district grant.

* Estimate, Rupees 3,100.
(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 589. ORDER THEREON, 29th September 1875, No. 2,779.

IRRIGATION, No. 53.
Account.

THE Honorable the Governor in Council observes that the general question of the provision of funds for drainage purposes is under consideration in connection with a recent reference from the Government of India, and the papers connected with the Biccavole Sub-section of the Godavery Eastern Delta villages drainage will be taken into consideration at the same time.

2. It is observed that out of the group of thirteen villages included in this sub-section one needs no drainage at all, while for the other twelve the estimates amount to Rupees 5,390 as follows:—

	RS.
1 Zemindari village (Pandalapaka) ...	310
9 Government villages unaffected by the delta works ...	1,000
2 Do. do. affected by delta works ...	4,080

3. There is no necessity for postponing the drainage of the villages admittedly requiring relief from obstructions caused by irrigation works, and the estimates for the two villages so circumstanced will be dealt with as suggested in the last paragraph of the Note by the Chief Engineer for Irrigation. Expenditure will be charged to Capital.

(True Extract.)

Major-General, R.E.,
Secretary to Government.

To the District Engineer, Godavery.
„ Chief Engineer for Irrigation.
„ Controller of Public Works Accounts.
„ Revenue Department.
„ Collector of Godavery.

Exd. A. Grubert.
Spare Copies

No. 1045-

13

note by the Chief Engineer for Irrigation
on the Biccavole sub-section of the
Godavary Eastern Delta. Village drainage
scheme.

Enclosures 4

The papers submitted need but few
remarks, Major Beatty has carefully
summarized the information obtained
and is of opinion that, out of the 13
villages the condition of which has been
investigated, 11 are no worse off than
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irrigation scheme been carried out,
while in the case of 2 villages, Solapilly
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caused by irrigation channels is con-
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perial Funds, and consequently to the
drainage system of this part of the
Delta. The estimate for the former
villages is Rupees 980, and for the latter
Rupees 3,100. For one village Rumarapuram

(No 12) no drainage is required and no estimate has been prepared. One village, No 4, Pandalapattur is Zemindary, and as probably Government have no intention of draining Zemindary villages, the amount of the estimate Rs 310 will have to be deducted.

2. The opinions of Lieutenants Willkinson and Langley who have been employed in investigating the condition of the villages in detail are adverse to the utility of the drainage scheme. Like all sanitary improvements it will do some good, but whether the results will be in proportion to the cost is a question not capable of demonstration. The undersigned considers that in cases like Colapilly and Kollalamamiddada the provision of the means of carrying off drainage from the outskirts of villages so circumstanced is properly warranted against

the Delta works, but it is difficult to understand how the sectioning and drainage of village streets can under any circumstances appertain to those works.

Estimate
Rs 3100
1955

3. The drainage of Kollalamamiddada will be a Budget work, and may be entered in part 3 of the estimates for 1876-77. The estimate for Colapilly, Rs 980, may be sanctioned as a minor dev. work for immediate execution from the District grant.

Colundunlin Leathell R.
Chief Engineer for Irrigation.

Colacaminund
8th Sept 75

To The Secy: Government
S. P. B.

S. W. 1875 Sept

From No. 6286

The Chief Engr.
for Irrigation.

Dated 8 Sept. 1875.
Recd. 1 Oct. 1875.

G. S. No. 1045. E. 4.

Note on the Biccavale
Sub-section of the Godavari
Very Eastern Delta -
Village Drainage Scheme.

S. 6. 2779. 25-9-75.

No. 2779 S.W.

Pro. of the Madras Government
Under date the 29 Sept 75
Read the following

The Ch. Engr. } (H. E. S. 1045) 8 Sept 75
for Irrigation }

The Honorable the
Governor in Council
observes that the general
questions of the provision
of funds for drainage
purposes is under con-
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tion with a recent
reference from the
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papers connected with
the Biccavale sub-section
of the Godavari Eastern
Delta villages drainage
will be taken into

Letter No. 212 dated 20 July 1875.

ML
27/9

consideration at the
same time.

2- It is observed that out of the group of 13 villages included in this subsection 1 needs no drainage at all, while for the other 12 the estimates amount to Rupees 5,370 as follows.

1 Zemindary village (Pandalapataka) Rs 310
 9 Government villages unaffected
 by the Delta works " 1,000
 2 do villages affected by Delta works " 4,080

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Q 16
two villages so circum-
- stanced will be dealt
with as suggested in the
last para: of the note
by the Chief Engineer for
Irrigation - Expenditure
will be charged to Capital

Mar. 14/9 Green

S. I. Enclosure — 95-1015 4 1/2
 Charge for Sugar — 5
 Cont. P. Books 21
 Rec. Dept. 5
 Collection of G. Savary 5

SC 202-19-10-3
 Apr 17

1875

of 1875

PUBLIC WORKS.

St. Supr.

Indaury

29 Sept. 2779.

No. 588 589

588 589

Receipts Subjection of
the Indaury Factor's Office
- Village Drainage when
Passing Orders on Note by
the Chief Engineer for
Amputation on the