Read the following paper :—

No. 872A.

No. 265. *Note by the Chief Engineer for Irrigation.*

PRIOR to my visit to the Godavery Delta correspondence took place between the District Engineer and this office regarding the appointment of an Anicut Superintendent and the salaries of Delta Superintendents, and on more than one occasion previously the subject of the appointment of permanent Surveyors was mooted, but it was considered advisable then that provision should be made under Temporary Establishments for such work, and this has, up to the present time, been done.

2. During my recent visit opportunity was taken to discuss with the District Engineer and with the Range Officers of the Eastern and Western Deltas also the requirements of the delta as regards Conservancy Establishments, and the results are as follow :—

3. In the first place an *Anicut Superintendent* is necessary. Formerly a Sub-Engineer was in charge and had but little to do beyond what a Superintendent is now required to take up. There is a great deal of work to be done at the anicut and in its vicinity, and it would not be prudent to have this unattended to except by those whose hands are already more than fully occupied. There is so much to be done at Dowlaishweram and in its neighbourhood however, that it is necessary to guard against the Anicut Superintendent being made into a sort of Overseer available for general duties, and so it is to be understood that his employment is to be confined to the anicut and headworks, works connected with the river bed and banks within the limits of the annual charts of the bed, the lime-kilns which are close to the village of Dowlaishweram, the main canal in the Eastern Delta, and concrete experiments. He should not have charge of the quarries which might, and certainly would if properly attended to, engross far more of his time than would be right. As it will be necessary for him to keep himself well informed of, and to lay down upon the charts, all changes in the bed of the river, etc., the Superintendent should be a good Surveyor ; indeed, without this qualification, he would be unable to maintain that continuous record of the work done year by year for the regulation of the river, and of the results which was ordered more than two years ago, but which so far has not been attended to. As the Superintendent's work will all lie within moderate geographical limits, it is not necessary that travelling allowance should be provided for him ; but, as his duties will be important and the qualifications* required considerable, I think a salary of Rupees 120 a month is not too much to give, and I would recommend that this should be provided.

G. O., 3rd February 1871, No. 331, paragraph 5.

* Overseer, Surveyor, and Draughtsman.

4. *Delta Conservancy Establishment.*—There are at present twenty-seven Superintendents, viz., eight in the Eastern, six in the Central, and thirteen in the Western Delta. In the Eastern Delta I found arrangements in force which are objectionable, inasmuch as they lose sight of the proper duties of this establishment, which are—

(1.) The charge of the canals and distribution works and of the regulating works connected with them.

(2.) The complete supervision of the irrigation and drainage with the prevention of all interference and the removal of all obstructions.

(3.) The supervision of the annual clearances and other repairs, and of the construction of minor masonry works and any other constructive work within their charges which will not interfere with their proper duties.

In this range the two Assistant Engineers were not cash disbursers, but two of the Delta Superintendents were so, and these men had the nominal charge of the greater part of the delta between them, the one having four of the other Superintendents, and the other two under him. The two Superintendents of the first class were thus diverted from their proper duties and made to take up the work of the permanent executive establishment. It appears to me that neither press of constructive work nor any other excuse should be accepted for the diversion of establishments from the duties for the performance of which they have been specially appointed. Each Superintendent should have his own separate charge, and should be responsible for everything connected with conservancy and regulation within it. The duties under the first and second heads above noticed involve constant inspections and, in order that Range and Sub-divisional officers may see that these are properly performed, diaries must be kept and submitted at short intervals, perhaps weekly would suffice. Hitherto it would appear that only these Superintendents who draw travelling allowance have kept and submitted such reports, and this should be seen to; the essential thing is to take care that the Superintendents do the work of their appointments thoroughly and systematically; the regulation of travelling allowance is a matter of very secondary importance, and I may here remark that the grant of travelling allowance to men of this class is a mistake; still more so the way in which the grant has been made; for only the first-class Superintendents who draw the highest pay get any, and evidently these require it the least. The appointments involve, as has been already pointed out, constant inspections; they should be held by natives, who are much better fitted for the work to be done than either Europeans or East Indians, and it is not necessary to have a special allowance when there is nothing special by which to regulate it. I beg therefore to recommend that the allowance be continued to present first-class Superintendents, but that it be discontinued to future incumbents.

5. In the Eastern Delta the present nominal charges of Superintendents will, with one exception, do very well; the Junction canal can be added to the Samulcottah canal, of which it is indeed a part, and this will reduce the number of Delta Superintendents from eight to seven, which latter will give on the average an area of about 25,000 acres of irrigation to each Superintendent.

6. In the Central Delta, the present* area of irrigation in which is about 85,000 acres, and the ultimate area expected† but little more, four Superintendents should suffice, viz., one for each of the principal canals, and one for Nagaram. I should have said five, but for the intention to provide Maistries for the river banks and the work connected with these.

* 1871-72.
G. O., No. 1,592, 18th June 1873.

Amalapur	...	...	...	52,466
Nagaram...	...	...	...	32,807
				85,273

† Project provides for 87,251 acres.

Proceedings of the Madras Government, Public Works Department, 22nd April 1874.

7. In the Western Delta the existing thirteen charges should be reduced to twelve by dividing the Nursapore canal irrigation between three instead of four Superintendents, viz., one for that on the left bank, and two for the irrigation on the right bank.

8. The number of permanent charges for Delta Superintendents will then be, in the—

Eastern Delta	...	...	...	...	...	7
Central do.	...	...	...	...	...	4
Western do.	...	...	...	...	...	12
					Total...	23

The District Engineer's proposition to assimilate the pay of Delta Superintendents to that of Overseers on the regular executive establishment has already been negatived, but it may be advisable to consider what the pay of, and the numbers in, each class may properly be. At present the twenty-seven Superintendents are classified thus—

G. O., No. 2,538, dated 17th October 1873.

					Rs.
3 of the First Class, Rs.	70	...	...	...	= 210
7 ,, Second ,, ,,	50	...	...	...	= 350
12 ,, Third ,, ,,	40	...	...	...	= 480
5 ,, Fourth ,, ,,	30	...	...	...	= 150
				Total ..	1,190

I am of opinion that the pay of the first class is ample, and I would make the differences between the pay of the first and second class and that of the second and third class equal, by raising the pay of the second class from Rupees 50 to Rupees 55; and, lastly, the fourth class may with advantage be abolished, as the pay is too low to secure for any length of time the services of men of the qualifications required, and local knowledge is essential to efficiency.

9. Although it is proposed to diminish by four the number of charges for Delta Superintendents, it is not intended to reduce their numbers, because the large amount of survey work and levelling needed yearly in connection with the river banks, etc., and for the extension and regulation of the distribution and drainage, renders it advisable that there should be some permanent Surveyors attached to the delta. It is also very advisable that when the permanent incumbents of charges are either sick or absent on leave, there should be other Superintendents available to take their places, for the charges have been made as large as is consistent with efficiency, and to double them up, even for a short time, would certainly result in the neglect of the daily requirements of both. There should still, therefore, be twenty-seven Superintendents, and I would recommend that they should be divided into three classes, as follows:—

					Rs.
5 of the First Class, Rs.	70	...	...	...	= 350
10 ,, Second ,, ,,	55	...	...	...	= 550
12 ,, Third ,, ,,	40	...	...	...	= 480
				Total...	1,380

against Rupees 1,190 at present.

10. Some of the present Superintendents are by no means efficient. The District Engineer proposes to provide them with employment more suited to their qualifications, and, if such can be found for them, there will be no objection to this

arrangement. It would seem that in the various changes which have occurred in the last fifteen or sixteen years men have been thrown out of employment; and, in the endeavour to avoid hardship to individuals, some have been put into appointments for which they are altogether unfitted, and the statement which the District Engineer has furnished showing the age, period of service, etc., of all the Superintendents shows that the antecedents of some of them would hardly make their efficiency probable. An intelligent performance of their duties, considerable activity, and a complete knowledge of all the works in their charges must be insisted upon, and those who cannot come up to this standard must leave the Conservancy Establishment, whether other employment can be found for them or not. It should therefore be understood that the changes proposed are not for the purpose of giving promotion to men who are not worth the pay they now draw, but to add materially to the efficiency of the establishment by rewarding those who are deserving of encouragement, and by securing the services of others who will be fully equal to the duties to be performed.

11. Another appointment which I find to be greatly needed is a *Superintendent of the floating plant*, who for brevity may be called *Boat Superintendent*. He is wanted on several accounts. First, to ensure that all the floating plant in use is duly repaired and kept in good order, a matter which, notwithstanding former remarks on the state of the plant, has not received sufficient attention, as I shall have occasion, in submitting the memorandum on my tour of inspection, to point out. The out-turn of work done by the plant is materially diminished from this cause, and the wear and tear is seriously increased. Secondly, to regulate the loading of boats with materials at the lime-kilns and several stone wharfs. For want of supervision there are not only considerable delays, but the steamers, which have to take the boats across the river, are kept waiting and have to make the trips without a proper complement of boats. For the most part the Superintendent's duties would be confined to the Dowlaishweram side of the river, but it would be necessary for him to see that no unnecessary delays occurred at the Vijeshweram head on the other bank. The steamers at the close of the day's work should, if intended to be under steam the next day, be visited and examined, both as regards the state of the machinery, and to see that the firewood, etc., for the following day is duly put on board, and other requirements attended to. The boat establishment is a large one, and if it is to be successfully and economically worked, there must be great regularity and punctuality, and that attention to small matters which make so great a difference in results.

As an instance of what is required, the bucket ladders of the dredges have a screw adjustment for lengthening them when the links and link pins become worn, whereby the length of the bucket chain is considerably increased and, if not adjusted, the shoot cannot be kept close enough to receive the dredged material as it falls out of the buckets, and a proportion, sometimes considerable, of every bucket full is discharged outside instead of into the shoot.

I am somewhat in doubt as to the proper salary for this appointment, for the Superintendent should have some knowledge of machinery and be competent to detect any imperfections in the engines of the steamers and dredges, and in the machinery generally of the latter.

On the whole however I think that Rupees 75 a month should suffice, and I accordingly beg to recommend that this be sanctioned.

12. The usual establishments will shortly be required for the new surplus weir at Nundamoor.

		Rs.
From 1st April 1874.	A Superintendent...	8
	A Lascar	6
	Total...	14

The District Engineer proposed three lascars, but this was probably an oversight, as the shutters will be fitted with screw gearing, and the proposed establishment can easily regulate them. For the Gummumpad lock on the Attili canal—

		Rs.
From 1st July 1874.	1 Superintendent	10
	1 Lascar	6
	2 Do. at 5 Rs.	10
	Total...	26

For the Mogultur tidal lock on the Nursapur canal—

1 Superintendent	12
2 Lascars, at 6 Rs.	12
3 Do. at 5 ,, ...	15
Total...	39

13. The District Engineer has in his letter proposed an increase of Rs. 2 to the pay, Rupees 10, of the Superintendent of the head lock and sluice at Bobbalunka, the head of the Central Delta, on the ground that the duties are responsible, and that the Superintendents at the other heads get Rupees 15; the increase is reasonable and may be granted, though it did not appear to me that the present man had been particularly attentive to his work.

No. 2,382, paragraph 3.

14. In his letter, No. 2,383, of the 6th November, Colonel Fischer proposes to transfer certain fourth-class Delta Superintendents to the petty establishment as Maistries, and to use the Rupees 150 thus made available under conservancy for providing three Surveyors. For the latter part of the arrangement, I have suggested means, and while not prepared to recommend that any transfer of members of the conservancy establishment to the petty establishment, irrespective of their qualifications, should be permitted, I am of opinion that the subordinate executive establishment needs strengthening, and that it will be well to sanction the employment, from the Budget provision for petty establishment, of five Maistries for the river works in the delta, being one for the Eastern, three for the Central, and one for the Western Delta, and they would of course be available for employment on other works close at hand, as for instance on the Bank canals; while, as there are very many important masonry works in progress in the Eastern and Western Deltas, and as the great impediment to the progress of improved distribution arrangements, depending mainly on the construction of numerous small sluices, is the want of supervision, it will be of great advantage and, I think, lead to a more rapid extension of irrigation, if three Maistries be sanctioned for general duty in the Eastern, and four for the Western Delta. I consider that for first-class Maistries, of considerable experience on masonry works, a salary of Rupees 30 may be allowed, for the second class Rupees 25, and third class Rs. 20, and I would give two of the first class and five of the second class for general duty on masonry works, and five of the third class for the river works.

15. The usual tabular statement, showing the alterations of conservancy establishments proposed in this note, is enclosed, and I would recommend that the Anicut and Boat Superintendents be sanctioned as early as possible, and the changes in the classification of the Delta Superintendents from the 1st April, for which the necessary provision can be made in the budget estimates now under preparation.

16. I would also recommend that sanction should be given for the immediate employment of the fifteen Maistries, so that full advantage may be taken of the present working season.

BEZWADA, (Signed) J. MULLINS, Lieut.-Colonel, R.E.,
6th December 1873. *Chief Engineer for Irrigation.*

Tabular Statement of the Anicut and Conservancy Establishments of the Godavery Delta as existing and as proposed.

G. O., No. 1,549, dated 11th May 1869.
„ No. 1,712, „ 17th July 1873.
„ No. 2,374, „ 26th Sep. 1873.

No. and Date of Order.	Office to which the Proposition refers.	Nature of Charge.	Present Scale.	Rs.	Proposed Scale.	Rs.	Proposition. Permanent. Increase per Month.	Proposition. Permanent. Decrease per Month.	Proposition. Temporary. Period.	Proposition. Temporary. Increase per Month.	Proposition. Temporary. Period.	Proposition. Temporary. Decrease per Month.	Grounds of Proposition.	Local Government's recommendation.	Orders of the Government of India. P. W. Department. Remarks.	Financial Department. Remarks.	Financial Department. Orders.
							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.					
		Anicut Establishment.			*Anicut Establishment.*												
		1 Maistry, at Rs. 18 each ...	18		1 Maistry, at Rs. 18 each ...	18	...	...	...	...	...	...					
		1 Do. at „ 15 do. ...	15		1 Do. at „ 15 do. ...	15	...	...	...	...	...	...					
		25 Lascars, at „ 6 do. ...	12		25 Lascars, at „ 6 do. ...	12	...	...	...	...	...	...					
		15 Do. at „ 5 do. ...	150		15 Do. at „ 5 do. ...	75	...	...	...	...	...	...					
		1 Writer, at „ 15 do. ...	75		1 Writer, at „ 15 do. ...	15	...	...	...	...	...	...					
		1 Gumasta at „ 15 do. ...	15		1 Gumasta, at „ 15 do. ...	15	...	...	...	...	...	...					
		1 Shroff, at „ 10 do. ...	10		1 Shroff, at „ 10 do. ...	10	...	...	...	...	...	...					
				310	1 Anicut Supt., at Rs. 120 each	120	120	...	...	...	...	...					
						430											
		Irrigation Establishment.			Irrigation Establishment.												
		No. I or Eastern Delta.			*No. I or Eastern Delta.*												
		1 Delta Supt., at Rs. 70 each ...	70		1 1st Class Delta Supt., at Rs. 70 each	70	...	...	...	...	...	...					
		1 Do. at „ 50 do. ...	50		4 2nd do. do. at Rs. 55 each ...	220	...	...	...	...	...	...					
		4 Do. at „ 40 do. ...	160		3 3rd do. do. at „ 40 do. ...	120	...	...	...	...	...	...					
		2 Do. at „ 30 do. ...	60		14 Lascars, at „ 5 do. ...	70	...	...	...	...	...	...					
		14 Lascars, at „ 5 do. ...	70		2 Calingulah Lascars, at Rs. 6 each	12	...	...	...	...	...	...					
		2 Calingulah Lascars, at Rs. 6 each	12		1 Do. do. at Rs. 5 each ...	5	...	...	...	...	...	...					
		1 Do. do. at Rs. 5 each ...	5			497	70	...	...	...	...	...					
				427													
		No. II or Central Delta.			*No. II or Central Delta.*												
		2 Delta Supts., at Rs. 70 each ...	140		2 1st Class Delta Supts., at Rs. 70 each	140	...	...	...	...	...	...					
		4 Do. at „ 40 do. ...	160		1 2nd do. do. at Rs. 55 each ...	55	...	...	...	...	...	...					
		11 Lascars, at „ 5 do. ...	55		2 3rd do. do. at „ 40 do. ...	80	...	...	...	...	...	...					
				355		275	...	80	...	...	...	...					
		No. III or Western Delta.			*No. III or Western Delta.*												
		6 Delta Supts., at Rs. 50 each ...	300		2 1st Class Delta Supts., at Rs. 70 each	140	...	...	...	...	...	...					
		4 Do. at „ 40 do. ...	160		5 2nd do. do. at Rs. 55 each ...	275	...	...	...	...	...	...					
		3 Do. at „ 30 do. ...	90		7 3rd do. do. at „ 40 do. ...	280	...	...	...	...	...	...					
		23 Lascars, at „ 5 do. ...	115		23 Lascars, at „ 5 do. ...	115	...	...	...	...	...	...					
		1 Channel Peon, at „ 6 do. ...	6		1 Channel Peon, at „ 6 do. ...	6	...	...	...	...	...	...					
		2 Do. at „ 5 do. ...	10		2 Do. at „ 5 do. ...	10	...	...	...	...	...	...					
		1 Irrigation Writer, at Rs. 15 each	15		1 Irrigation Writer, at Rs. 15 each	15	...	...	...	...	...	...					
		1 Calingulah Lascar, at Rs. 6 each	6		1 Calingulah Lascar, at Rs. 6 each	6	...	...	...	...	...	...					
		5 Do. do. at Rs. 5 each ...	25		5 Do. do. at Rs. 5 each ...	25	...	...	...	...	...	...					
			727		1 Superintendent, at „ 8 do. ...	8	...	...	...	...	...	...					
				727	1 Lascar, at „ 6 do. ...	6	...	...	...	...	...	...					
		Ellore High Level Canal.				886	159	...	...	...	...	...					
		2 Calingulah Lascars, at Rs. 6 each	12		*Ellore High Level Canal.*												
		7 Do. do. at Rs. 5 each ...	35		2 Calingulah Lascars, at Rs. 6 each	12	...	...	...	...	...	...					
			47		7 Do. do. at Rs. 5 each ...	35	...	...	...	...	...	...					
				47		47											
		Travelling allowance for the above	186½														
				186½	Travelling allowance for the above	186½	...	...	...	...	...	...					
						186½											

Tabular Statement of the Anicut and Conservancy Establish

ments of the Godavery Delta as existing and as proposed.—(Concluded.)

No. and Date of Order.	Office to which the Proposition refers.	Nature of Charge.				Proposition.						Grounds of Proposition.	Local Government's recommendation.	Orders of the Government of India.		
		Present Scale.				Permanent.		Temporary.						P. W. Department.	Financial Department.	
						Increase per Month.	Decrease per Month.	Period.	Increase per Month.	Period.	Decrease per Month.			Remarks.	Remarks	Orders.
						Rs.	Rs.	Rs.	Rs.	Rs.	Rs.					
G. O., No. 1,549, dated 11th May 1869.		Navigation Establishment.			Rs.	Navigation Establishment.					Rs.					
		No. I or Eastern Delta.				*No. I or Eastern Delta.*										
		2 Lock Supts., at Rs. 15 each ... 30				2 Lock Supts., at Rs. 15 each ... 30										
		5 Do. at ,, 12 do. ... 60				6 Do. at ,, 12 do. ... 72										
		8 Do. at ,, 10 do. ... 80				7 Do. at ,, 10 do. ... 70										
		4 Do. at ,, 8 do. ... 32				4 Do. at ,, 8 do. ... 32										
		60 Lascars, at ,, 6 do. ... 360				60 Lascars, at ,, 6 do. ... 360										
		22 Do. at ,, 5 do. ... 110				22 Do. at ,, 5 do. ... 110										
						1 Boat Superintendent ... 75										
			672		672		77	...	...	...	...	...	749				
		No. II or Central Delta.				*No. II or Central Delta.*										
		2 Lock Supts., at Rs. 12 each ... 24				2 Lock Supts., at Rs. 12 each... 24										
		3 Do. at ,, 10 do. ... 30				3 Do. at ,, 10 do. ... 30										
		2 Do. at ,, 8 do. ... 16				2 Do. at ,, 8 do. ... 16										
		21 Lascars, at ,, 6 do. ... 126				21 Lascars, at ,, 6 do. ... 126										
		7 Do. at ,, 5 do. ... 35				7 do. at ,, 5 do. ... 35										
			231		231		...	...	...	...	...	...	231				
		No. III or Western Delta.				*No. III or Western Delta.*										
		5 Lock Supts., at Rs. 12 each ... 60				5 Lock Supts., at Rs. 12 each ... 60										
		6 Do. at ,, 10 do. ... 60				6 Do. at ,, 10 do. ... 60										
		4 Do. at ,, 8 do. ... 32				4 Do. at ,, 8 do. ... 32										
		41 Lascars, at ,, 6 do. ... 246				41 Lascars, at ,, 6 do. ... 246										
		25 Do. at ,, 5 do. ... 125				25 Do. at ,, 5 do. ... 125										
						1 Lock Supt., at ,, 12 do. ... 12										
						1 Do. at ,, 10 do. ... 10										
						3 Lascars, at ,, 6 do. ... 18										
						5 Do. at ,, 5 do. ... 25										
			523		523		65	...	...	...	...	...	588				
		No. IV or Ellore Range.				*No. IV or Ellore Range.*										
		1 Lock Supt., at Rs. 12 each ... 12				1 Lock Supt., at Rs. 12 each ... 12										
		4 Lascars, at ,, 6 do. ... 24				4 Lascars, at ,, 6 do. ... 24										
		2 Do. at ,, 5 do. ... 10				2 Do. at ,, 5 do. ... 10										
			46		46		...	...	...	...	...	...	46				
G. O., No. 1,701, dated 29th June 1863.		*No. V or Rajahmundry Range.*				*No. V or Rajahmundry Range.*										
		Establishment for distributing water from tanks in the Rajahmundry and Peddapur Taluqs.				Establishment for distributing water in the Rajahmundry and Peddapur Taluqs.										
		1 Superintendent, at Rs. 20 each. 20				1 Superintendent, at Rs. 20 each 20										
		3 Do. at ,, 10 do. 30				3 Do. at ,, 10 do. 30										
		3 Lascars, at ,, 5 do. 15				3 Lascars, at ,, 5 do. 15										
		1 Peon, at ,, 5 do. 5				1 Peon, at ,, 5 do. 5										
			70		70		...	...	...	...	...	...	70				
G. O., No. 2,433, dated 23rd Sep. 1871		Yelieru river water distributing establishment 24			24	Yelieru river water distributing establishment 24										
					3,618½		491	80	...	...	...	...	4029½				
						Net Increase...	411	...	...	...	...	...	...				

BEZWADA,
6th December 1873.

(Signed) J. MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

...edings of the Madras Government, Public Works Department,
22nd April 1874.

No. 266. ORDER THEREON, 22nd April 1874, No. 1,038.

IRRIGATION, No. 13.
Establishment.

IN the foregoing note the Chief Engineer for Irrigation, after a tour of inspection in the Godavery Delta, and consultation with the District and Executive Engineers, makes the following proposals for strengthening and rendering more efficient the Conservancy Establishments for Irrigation and Navigation.

(1.) The appointment of an Anicut Superintendent on a salary of Rs. 120 a month.

(2.) The appointment of a Boat Superintendent on Rupees 75 a month.

(3.) The re-arrangement of the charges of the Delta Superintendents so as to admit of four out of the twenty-seven being employed on survey duties, when not required to take the places of the incumbents of the permanent charges.

The reasons for these changes are given fully in the Chief Engineer's note, and His Excellency the Governor in Council is pleased to approve of them, as well as of the details of the arrangements proposed, and a copy of these Proceedings, together with the tabular statement, will be forwarded to the Government of India, with a recommendation that the appointments of Anicut Superintendent and Boat Superintendent may be sanctioned at once, and the changes in the classification of the Delta Superintendents from the 1st April. The additional establishments for the Nundamoor surplus weir and for the Gummumpad and Mogultur locks, which are under construction in the Western Delta from Loan Funds, should be sanctioned from the dates named, or from such dates as the works may be ready to be brought into use.

2. Looking to the importance of the Delta works, and being desirous of affording to the Range Officers such assistance as the means at the disposal of the Government will admit, His Excellency sanctions the immediate entertainment of twelve Maistries, as recommended by the Chief Engineer for Irrigation, from the provision for Petty Establishments, viz. :—

		Rs.
2 of the First Class, at	... ...	30
5 ,, Second ,, at	... ...	25
5 ,, Third ,, at	... ...	20

3. The District Engineer will be careful in making the appointments to entertain only such men as are fully qualified for the work which they are to do; the name is an index to the qualifications required, and all should be men who have had practical experience of the kind required.

Ordered also that the following letter be sent :—

(Here enter No. 1,039, dated 22nd April 1874.)

(True Extract.)

(Signed) ~~C. W. WALKER~~, Colonel, R.E.,
Officiating Joint Secretary to Government.

To the District Engineer, Godavery.
,, Chief Engineer for Irrigation.
,, Officiating Controller of Public Works Accounts.

Exd. E. C. Shunker.
Spare Copies

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Govt. of {1874} Madras.

PUBLIC WORKS.

To

THE DISTRICT ENGINEER GODAVERY,

&c., &c., &c.

Dated April 22nd.

Recd. *Encl.*

G. O., 22nd April 1874, No. 1,038.

APRIL.

Nos. 265-266

Establishment.—Passing orders on the proposals of the Chief Engineer for Irrigation for strengthening and rendering efficient the Conservancy Establishments for Irrigation and Navigation in the Godavery Delta.

Proceedings of the Madras Government, Public Works Department, 6th May 1876.

Read the following :—

No. 31 W.

No. 67-A. *Note by the Chief Engineer for Irrigation.*

In September last the Executive Engineer in charge of the Kistna District transmitted an estimate, amounting to Rupees 29,040, for the construction of huts for the accommodation of lock establishments, together with a statement showing the present accommodation. This estimate was compared with the standard arrangement for Police huts which, it is considered, is appropriate for navigation establishments, and it was found that a considerable reduction of the estimate for the latter was probably feasible. Information on the subject of the navigation was likewise asked for.

No. 72, 20th September 1875.

No. 1,161, 5th October 1875.

2. As a result the estimate has been reduced to Rupees 20,850, the cost of the units being as follows :—

	Rs.		Rs.
Hut for Lock Superintendent	250	Head Constable	234½
Do. for do. Lascar	200	Constable	175½

The difference is not greater apparently than the rates of the Kistna and of the standard estimate for Police huts would account for, and the accommodation in the revised plan submitted is not in excess of the requirements of moderate comfort and decency.

Dated 15th December 1875.

3. The present huts of the lock establishments are very wretched, and their renewal is unavoidable. The mortality also has been abnormal, and the miserable, squalid, dirty, and ill-drained dwellings of these men should, it is considered, be replaced by neat huts, such as are provided for the Police, for Government establishments ought not to be lodged, as at present, in a manner so opposed to the arrangements which are being introduced under considerable pressure among the urban and rural population.

4. The statement of the financial position of the navigation in the Kistna Delta does not appear, however, to warrant an addition of some 2,000 Rupees annually to the debit side of the account, and interest with cost of up-keep would probably amount to 10 per cent. on the cost of the huts. It was intimated, in the reference made to the district, that there might arise a question of the propriety of reducing lock establishments, and it will be seen, in reply, that Lieutenant McN. Campbell strongly deprecates such a change. Were it at all necessary to assume that the value of the canals for navigation would at all suffer in consequence of such a reduction, that officer's opinion against it might, without much difficulty, be accepted, but it is thought that a material saving on establishment may be effected without inconvenience of any kind by providing only such establishment as is needed to work the lock

Dated 15th December 1875.

No. 1,161, 5th October.

valves, and requiring the boat crews to assist in opening and closing the gates. At present the charge for establishment is—

	Rs.
Navigation Superintendent's pay	1,560
Lock Establishment proper	8,496
	10,056
The average cost of repairs of locks, tow-paths, &c., is	12,003
Total ...	22,059
The average revenue for five years on the other hand has been ...	8,250
And the receipts for 1876 are estimated at	8,126

so that the revenue does not amount to half the cost of maintaining navigation. It seems to be improbable that the receipts of 1876 will be as low as Lieutenant Campbell's estimate, seeing that a considerable proportion of the boats using the canals come from the Godavery, and these have, under a recent order, to take out a Kistna license for the use of the Kistna canals. Rupees 10,000 to 12,000 would, therefore, seem to be a reasonable estimate of the revenue of the current year. However, if the lower estimate be accepted, there is all the more reason for endeavouring to secure economy of working expenses. The statement gives the total number of boats at 229, and the number of Superintendents or Goomastahs and Lascars at the locks is 108, a proportion which can hardly be deemed reasonable.

No. 998, dated 14th April 1875.

5. The following table gives the present establishment and the proposed scale :—

—	Present.			Proposed.			Remarks.
	No.	Pay.	Amount.	No.	Pay.	Amount.	
EASTERN DELTA.		Rs.	Rs.		Rs.	Rs.	
Main Canal.							
Head Lock.							
Goomastah	1	10	10	1	10	10	
Lascars	7	5	35	{1	6	6	
				{3	5	15	
Masulipatam Canal.							
Kunkypad Lock.							
Goomastah	1	15	15	1	12	12	On the Masulipatam canal there is a good deal of night traffic, and two Lascars will be required to be always on duty. So four are allowed.
Lascars	6	6	36	4	6	24	
Veerunky Lock.							
Goomastah	1	15	15	1	12	12	
Lascars	6	6	36	4	6	24	
Nedamole Lock.							
Goomastah	1	15	15	1	12	12	
Lascars	6	6	36	4	6	24	

Proceedings of the Madras Government, Public Works Department,
6th May 1876.

—	Present.			Proposed.			Remarks.
	No.	Pay.	Amount.	No.	Pay.	Amount.	
EASTERN DELTA.— (*Concld.*)		Rs.	Rs.		Rs.	Rs.	
Aukamurru Lock.							
Goomastah	1	12	12	1	12	12	
Lascars	6	6	36	4	6	24	
Tidal Lock.							
Goomastah	1	12	12	1	12	12	
Lascars	6	6	36	4	6	24	
Pulleru.							
Paumurru Lock.							
Goomastah	1	10	10	...	...	...	There is extremely little traffic through this lock.
Head Lascar	...	...	...	1	8	8	
Lascars	3	5	15	1	6	6	
Boodemair.							
Casarpilly Lock.							
Goomastah	1	10	10	...	...	...	This lock is but seldom used.
Lascars	3	5	15	{1	8	8	
				{1	6	6	
Buntumilly Canal.							
Kowtaram Lock.							
Goomastah	1	10	10	1	10	10	Only occasional night traffic.
Lascars	3	5	15	{1	6	6	
				{1	5	5	
Total, Eastern Delta ...	55	...	369	37	...	260	
WESTERN DELTA.							
Main Canal.							
Head Lock.							
Goomastah	1	10	10	1	10	10	
Lascars	7	5	35	1	6	6	
Do.	...	...	...	3	5	15	
Nizampatam Canal.							
Dugerala Lock.							
Goomastah	1	15	15	1	15	15	This Goomastah can look after the Commamore Canal head lock as well.
Lascars	6	5	30	1	6	6	
Do.	...	...	...	1	5	5	
Head Lascar	...	...	...	1	8	8	
Kuchipudi Lock.							
Goomastah	1	10	10	1	10	10	
Lascars	4	5	20	{1	6	6	
				{1	5	5	
Jutur Lock.							
Goomastah	1	10	10	1	10	10	
Lascars	4	5	20	{1	6	6	
				{1	5	5	
Nullavada Lock.							
Goomastah	1	10	10	1	10	10	
Lascars	4	5	20	{1	6	6	
				{1	5	5	

—	Present.			Proposed.			Remarks.
	No.	Pay.	Amount.	No.	Pay.	Amount.	
WESTERN DELTA.— (*Concld.*)		Rs.	Rs.		Rs.	Rs.	
Tidal Lock.							
Goomastah	1	10	10	1	10	10	
Lascars	4	5	20	1	6	6	
				1	5	5	
BANK CANAL.							
Head Lock.							
Goomastah	1	15	15	1	12	12	There is a head sluice as well. The traffic is small and the revised scale appears to be ample.
Lascars	7	6	42	4	6	24	
COMMAMORE CANAL.							
Head Lock.							
Goomastah	1	12	12	...	...	...	The Goomastah at Dugirala lock to exercise supervision over this lock as well.
Lascars	4	6	24	2	6	12	
Head Lascar	...	...	...	1	8	8	
Jagarlamudy Lock.							
Goomastah	1	12	12	1	12	12	
Lascars	4	6	24	2	6	12	
Total, WESTERN DELTA ...	53	...	339	32	...	229	
Total for KISTNA DELTA ...	108	...	708	69	...	489	
Difference a-month	...	...	...	...	...	219	
Do. a-year	...	...	...	...	...	2,628	

The new scale has been based upon the supposition that three men (a Goomastah and two Lascars) are sufficient to do all the work requiring trained labor at an ordinary lock. Where there is much night traffic, as on the Masulipatam canal, the number of Lascars has been doubled. Rupees 12 appears to be a sufficient rate of pay for the Goomastahs on the Masulipatam canal.

6. Should the Government approve of the above revision the estimate for hutting would be as follows :—

No huts are required at the head lock of the Eastern Delta.

Masulipatam Canal.

	Huts for	5	Goomastahs	at Rs.	250	Rs. 1,250	Eastern Delta.
	,, ,,	20	Lascars	at ,,	200	,, 4,000	
Pulleru	,, ,,	2	do.	at ,,	200	,, 400	
Boodemair ...	,, ,,	2	do.	at ,,	200	,, 400	
Buntumilly ...	,, ,,	1	Goomastah	...	...	,, 250	
	,, ,,	2	Lascars	...	...	,, 400	

Masulipatam Canal.—(Concluded.)

Head Lock... ...	Hut for	1	Goomastah	... Rs.	250
	Huts ,,	4	Lascars ...	... ,,	800
Nizampatam Canal	,, ,,	5	Goomastahs	... ,,	1,250
	,, ,,	11	Lascars ...	... ,,	2,200
Bank Canal.					
Head Lock ...	,, ,,	1	Goomastah	... ,,	250
	,, ,,	4	Lascars ...	... ,,	800
Commamore Canal.					
Head Lock ...	,, ,,	3	Lascars ...	... ,,	600
Jagarlamudi ...	,, ,,	1	Goomastah	... ,,	250
	,, ,,	2	Lascars ...	... ,,	400
	Total			... ,,	13,500

Western Delta.

7. When the traffic becomes developed it may be perfectly reasonable to strengthen the lock establishments, but at present there seems to be no necessity for these being on the scale of the Godavery Delta locks, where the circumstances are very different; but there also it is possible that on some of the less frequented canals some reduction would be practicable without any loss of efficiency. The statements printed in Proceedings, Madras Government, No. 2,390, 19th August 1875, give the following as the number of boats passing through locks—

	September.	October.	November.	December.	Total.	Average.
Godavery	10,989	11,007	13,630	14,063	49,689	12,422
Kistna	386	313	607	753	2,059	515

or the Kistna traffic, so far as the work to be done by lock establishments is concerned, is $\frac{1}{24}$th of that of the Godavery. The cost of establishments is on the other hand—

Godavery	Rupees 30,402
Kistna	,, 10,056

and the proposed scale would reduce the Kistna to Rupees $1,560 + 12 \times 439 = 7,428$.

8. It is not desirable to make the reduction in the Kistna navigation establishments in a summary manner. To do so would entail considerable hardships on probably a good many men who have done their work reasonably well. The Superintending Engineer should, if the Government approve of the reduction, discharge any man whom he may find to be inefficient; let the District Engineer, Godavery, know that he has certain efficient men to spare, and further reduce as vacancies occur or as other employment can be found for the surplus men.

CAMP AT VETTAVALUM,
11*th March* 1876.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 67-B. From Lieutenant-Colonel D. McN. CAMPBELL, R.E., Executive Engineer in charge of the Kistna District, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Masulipatam, 15th December 1875, No. 105.

WITH reference to your memorandum, No. 1,161, dated 5th October 1875, I have the honor to submit revised plans and estimates as per margin, for the accommodation of lock establishments in this district, prepared in accordance with the instructions contained in paragraphs 3, 4, and 5.

1 Plan of lock-sheds.
1 Estimate for Lascars' shed.
1 Do. for Goomastahs' shed.
1 General Abstract Estimate, Rs. 20,850.
1 Statement of financial results.

5 Return requested when sanctioned.

2. You will perceive from Statement A that the cost of maintaining navigation exceeds the amount of the revenue derived therefrom; but the following facts should be taken into consideration:—

1*st.*—For the three or four months that the canals are closed the navigation establishment also look after the repairs to irrigation works.

2*nd.*—That the charge for the maintenance of tow-path provides for the up-keep of lunkas and fruit trees, from which small sums are yearly realized.

3*rd.*—That the indirect returns to Government and the advantages to the community generally are very considerable.

3. It would appear that, in former days, this last circumstance was more considered than now, as some years ago the navigation revenue was considerably less* than at present; but the cost of maintenance was the same; and doubtless the subsequent increase in revenue was partly due to there being an efficient establishment, and, in my opinion, it would be a very great mistake to reduce the present establishment, as suggested in paragraph 6 of your memorandum. Even should no direct returns accrue to Government, I believe it will be found that in the Godavery District where the traffic is considerable and where the navigation canals are supposed to be such a great success that the cost of navigation exceeds the revenue.

* In 1868-69, Rs. 6,723-6-0.

4. That the lock-sheds are absolutely necessary I have already stated in my letter No. 72, dated 20th September 1875, and you perfectly agreed with me, and having now given what further information I can on the subject, I leave it to you to decide whether the work is to be carried out or not.

No. 68. ORDER THEREON, 6th May 1876, No. 1,115-A.

IRRIGATION, No. 8.

Account.

HIS GRACE the Governor in Council is of opinion that the papers submitted by the Chief Engineer for Irrigation with his note thereupon demonstrate very fully that the lock establishments of the Kistna Delta are at present maintained on a scale which the circumstances of the traffic do not make necessary, and that it is requisite to reduce the working expenses of the navigation to more reasonable dimensions; for though it may be hoped that the issue of separate licenses for this delta will add materially to the income, the deficit will continue to be large, and it will certainly be a long time before the number of boats licensed will be sufficient to balance the charges for repairs and establishment. It has been shown that the—

Expenditure on navigation is about Rs. 22,000;
Receipts from do. Rs. 8,250;

that the present cost of establishment is Rs. 10,000; and that if boats' crews be required to aid in closing and opening gates, the lock valves continuing to be exclusively managed by the lock men, about Rupees 2,600 may be saved. His Excellency is pleased to approve of this reduction, and of its being carried out in the gradual manner recommended in paragraph 8 of the Chief Engineer's note. The District Engineer will post notices at all locks intimating that, under the orders of Government, boats' crews will be expected for the future to assist the lock establishments in opening and

closing gates, but that the valves will be worked by the lock men. Similar printed notices should be given to the syrangs of all boats coming to Bezwada.

2. The other subject brought forward, and that which incidentally has occasioned the review of the financial condition of the Kistna navigation, is the provision of decent huts for the lock establishments. Their present dwellings are reported to be unhealthy and miserable, and not at all such as any Government establishments should be expected to occupy. It is proposed to build similar huts to those sanctioned for the Police, and the cost of hutting the sixty-four men of the revised scale who need lodgings is estimated at Rupees 13,500 or Rupees 211 per man. The subject has been carefully gone into, and recognizing the obligation of providing suitable quarters for men who must be always at their posts, the Government sanction the estimate for entry in the Budget of 1877-78. In constructing the huts due attention should be given to drainage, and after their erection the utmost cleanliness should be enforced.

IRRIGATION.
CAPITAL—ORDINARY.
(2.) *Main Canals and Branches.*
I.—Navigation Works.

			Rs.
Masulipatam Canal	No. ½ I. of 1876-77	... ...	5,250
Pulleru Channel	,, ½ I. of ,,	... ...	400
Ellore Canal	,, ½ I. of ,,	... ...	400
Buntumilly Canal	,, ½ I. of ,,	... ...	650
	Total, Eastern Delta	...	6,700
Main Canal	No. ½ I. of 1876-77	... ...	1,050
Nizampatam Canal	,, ½ I. of ,,	... ...	3,450
Western Bank Canal	,, ½ I. of ,,	... ...	1,050
Commamore Canal	,, ½ I. of ,,	... ..	1,250
	Total, Western Delta	...	6,800
Total sanction, Kistna District, No. 4 I. of 1876-77		...	13,500

To be carried out by the Public Works Department.

3. These Proceedings will be communicated to the District Engineer, Godavery, with a view to the consideration of the financial condition, as regards navigation expenditure and receipts, of the canals of that delta. It appears to be probable that on some of the canals the establishments will be found to be in excess of the requirements of the traffic at present or in the near future.

4. The sanction accorded in these Proceedings has been registered as shown in the margin.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

To the Superintending Engineer, Kistna.
,, District Engineer, Godavery.
,, Chief Engineer for Irrigation.
,, Examiner of Public Works Accounts.
,, Revenue Department.

Exd. S. T. Austin.

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Govt. of {1876} Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,
KISTNA,
&c., &c., &c.

Dated May 6th.

Issued

Recd. *Encl.*

G. O., 6th *May* 1876, *No.* 1,115-A.

MAY.

Nos. 67A 68.

Lock Establishments, Kistna District.—Passing orders on note by the Chief Engineer for Irrigation submitting plan and estimate for constructing sheds for —.

Proceedings of the Madras Government, Pubic Works Department,
28*th July* 1876. *No.* 1,923.

Read the following papers:—

No. 492. Read again Proceedings of the Madras Government, No. 1,268, dated 20th May 1876.

No. 492-A.

Approximate General Abstract of Financial Results of Godavery Delta System.

Years.	Capital Outlay.						Revenue.			Working Expenses.		Net Revenue.				
	During Year.			To end of Year.			During Year.			To end of Year.						
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	Direct Income by water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation works.	Total.	Direct Income by Water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation Works.	Total.	During Year.	To end of Year.	During Year.			To end of Year.		
															Direct Income.	Increased Land-revenue.	Total.	Direct Income.	Increased Land-revenue.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.		Rs.	Rs.		Rs.
1874-75...	25,775	4,16,165	4,41,940	50,78,809	18,31,740	69,10,549	16,23,310		...	2,29,66,885		...	1,54,751	54,98,671	14,68,559		...	1,74,68,216		...
1873-74...	...	2,91,233	2,91,233	50,53,034	14,15,575	64,68,609	16,72,878		...	2,13,43,577		...	1,30,681	53,43,920	15,42,197		...	1,59,99,657		...
1872-73...	1,66,263	3,14,354	4,80,617	50,53,034	11,24,342	61,77,376	15,39,012		...	2,96,70,699		...	1,40,225	52,13,239	13,98,787		...	1,44,57,460		...
1871-72...	4,477	2,12,752	2,17,199	48,86,771	8,09,988	56,96,759	15,34,698		...	1,81,31,687		...	1,73,027	50,73,014	13,61,671		...	1,30,58,673		...
1870-71...	18,394	1,24,428	1,42,822	48,82,324	5,97,236	54,79,560	16,59,614		...	1,65,96,989		...	1,68,029	48,99,987	14,91,585		...	1,16,97,002		...
1869-70...	12,419	1,53,771	1,66,190	48,63,930	4,72,808	53,36,738	15,51,005		...	1,49,37,375		...	1,53,796	47,31,958	13,97,209		...	1,02,05,417		...
1868-69...	23,741	2,24,082	2,47,823	48,51,511	3,19,037	51,70,548	13,65,545		...	1,33,86,370		...	1,42,490	45,78,162	12,23,055		...	88,08,208		...
1867-68...	1,04,223	94,955	1,99,178	48,27,770	94,955	49,22,725	14,31,326		...	1,20,20,825		...	1,64,385	44,35,672	12,66,941		...	75,85,153		...
1866-67...	1,22,258	...	1,22,258	47,23,547	...	47,23,547	13,38,140		...	1,05,89,499		...	2,09,096	42,71,287	11,29,044		...	63,18,212		...
1865-66...	47,151	...	47,151	46,01,289	...	46,01,289	15,02,934		...	92,51,359		...	2,44,014	40,62,191	12,58,920		...	51,89,168		...
1864-65...	1,72,308	...	1,72,308	45,54,138	...	45,54,138	11,58,978		...	77,48,425		...	2,59,559	38,18,177	8,99,419		...	39,30,248		...
1863-64...	3,28,601	...	3,28,601	43,81,830	...	43,81,830	10,03,506		...	65,89,447		...	2,79,315	35,58,618	7,24,191		...	30,30,829		...
1862-63...	2,38,354	...	2,38,354	40,53,229	...	40,53,229	9,33,617		...	55,85,941		...	3,46,229	32,79,303	5,87,388		...	23,06,638		...
1861-62...	1,22,391	...	1,22,391	38,14,875	...	38,14,875	7,19,012		...	45,52,324		...	3,47,461	29,33,074	3,71,551		...	17,19,250		...
1860-61...	88,527	...	88,527	36,92,484	...	36,92,484	7,44,648		...	39,33,312		...	2,21,969	25,85,613	5,22,679		...	13,47,629		...
1859-60...	1,22,258	...	1,22,258	36,03,957	...	36,03,957	6,00,951		...	31,88,664		...	2,32,183	23,63,644	3,68,768		...	8,25,020		...
1858-59...	56,345	...	56,345	34,81,699	...	34,81,699	4,82,711		...	25,87,713		...	2,99,144	21,31,461	1,83,567		...	4,56,252		...
1857-58...	1,77,345	...	1,77,345	34,25,354	...	34,25,354	3,79,170		...	21,05,002		...	3,52,648	18,32,317	26,522		...	2,72,685		...
1856-57...	3,78,149	...	3,78,149	32,48,009	...	32,48,009	3,06,288		...	17,25,832		...	2,88,586	14,79,669	17,702		...	2,46,163		...
1855-56...	5,12,074	...	5,12,074	28,69,860	...	28,69,860	2,00,264		...	14,19,544		...	3,00,099	11,91,083	99,835		...	2,28,461		...
1854-55...	5,02,820	...	5,02,820	23,57,786	...	23,57,786	1,58,408		...	12,19,280		...	2,73,412	8,90,984	1,15,004		...	3,28,296		...
1853-54...	3,36,040	...	3,36,040	18,54,966	...	18,54,966	1,79,879		...	10,60,872		...	1,49,310	6,17,572	30,569		...	4,43,300		...
1852-53...	4,27,231	...	4,27,231	15,18,926	...	15,18,926	1,66,923		...	8,80,993		...	1,14,775	4,68,262	52,148		...	4,12,731		...
* 1851-52...	2,18,339	...	2,18,339	10,91,695	...	10,91,695	1,56,078		...	7,14,070		...	70,697	3,53,487	85,381		...	3,60,583		...
* 1850-51 ..	2,18,339	...	2,18,339	8,73,356	...	8,73,356	1,51,596		...	5,57,992		...	70,697	2,82,790	80,899		...	2,75,202		...
* 1849-50...	2,18,339	...	2,18,339	6,55,017	...	6,55,017	1,49,003		...	4,06,396		...	70,697	2,12,093	78,306		...	1,94,303		...
* 1848-49...	2,18,339	...	2,18,339	4,36,678	..	4,36,678	1,46,272		...	2,57,393		...	70,697	1,41,396	75,575		...	1,15,997		...
* 1847-48...	2,18,339	...	2,18,339	2,18,339	...	2,18,339	1,11,121		...	1,11,121		...	70,699	70,699	40,422		..	40,422		...

No credit is allowed on account of increased land-revenue.

No credit is allowed on account of increased land-revenue.

No credit is allowed on account of increased land revenue.

No credit is allowed on account of increased land-revenue.

* In the absence of information as to the expenditure in each of the five years from 1847-48 to 1851-52, the total expenditure of the five years as given in the statement printed with G. O., No. 93, of 13th January 1869, has been evenly distributed,

Approximate General Abstract of Financial Results of Godavery Delta System.

Years.	Charge for Interest. During Year. Ordinary.	Charge for Interest. During Year. Extra-ordinary.	Charge for Interest. During Year. Total.	Charge for Interest. To end of Year. Ordinary.	Charge for Interest. To end of Year. Extra-ordinary.	Charge for Interest. To end of Year. Total.	Difference between Net Revenue and Charge for Interest. Excluding Land-revenue. During Year.	Difference between Net Revenue and Charge for Interest. Excluding Land-revenue. To end of Year.	Difference between Net Revenue and Charge for Interest. Including Land-revenue. During Year.	Difference between Net Revenue and Charge for Interest. Including Land-revenue. To end of Year.	Percentage of Net Revenue on Capital Outlay. Excluding Land-revenue.	Percentage of Net Revenue on Capital Outlay. Including Land revenue.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.		RS.		
1874-75 ...	2,28,546	82,428	3,10,974	44,27,477	2,71,125	46,98,602	11,57,585	127,69,614	No credit is allowed on account of increased land-revenue.	...	21·25	No credit is allowed on account of increased land-revenue.
1873-74 ...	2,27,386	63,700	2,91,086	41,98,931	1,88,697	43,87,628	12.51,111	116,12,029		...	23 84	
1872-73 ...	2,27,386	50,595	2,77,981	39,71,545	1,24,997	40,96,542	11,20,806	103,60,918		...	22·64	
1871-72 ...	2,44,146	29,862	2,74,008	37,44,159	74,402	38,18,561	10,87,663	92,40,112		...	23·90	
1870-71 ...	2,43,196	23,640	2,66,836	35,00,013	44,540	35,44,553	12,24,749	81,52,449		...	27·22	
1869-70 ...	2,42,576	15,952	2,58,528	32,56,817	20,900	32,77,717	11,38,681	69,27,700		...	26·18	
1868-69 ...	2,41,388	4,948	2,46,336	30,14,241	4,948	30,19,189	9,76,719	57,89,019		...	23 65	
1867-68 ...	2,36,177	...	2,36,177	27,72,853	...	27,72,853	10,30,764	48,12,300		...	25·74	
1866.67 ...	2,30,065	...	2,30,065	25,36,676	...	25,36,676	8,98,979	37,81,536		...	26·07	
1865-66 ...	2,27,707	...	2,27,707	23,06,611	...	23,06,611	10,31,213	28,82,557		...	27·36	
1864-65 ...	2,19,092	...	2,19.092	20,78,904	...	20,78,904	6,80,327	18,51,344		...	19·75	
1863-64 ...	2,02,661	...	2,02,661	18,59,812	...	18,59,812	5,21,530	11,71,017		...	16·53	
1862-63 ...	1,90,743	...	1,90,743	16,57,151	...	16,57,151	3,96,645	6,49,487		...	14·49	
1861-62 ...	1,84,624	...	1,84,624	14,66,408	...	14,66,408	1,86,927	2,52,842		...	9·74	
1860-61 ...	1,80,198	...	1,80,198	12,81,784	...	12,81,784	3,42,481	65,915		...	14·16	
1859-60 ...	1,74,084	...	1,74,084	11,01,586	...	11,01,586	1,94,684	2,76,566		...	10·23	
1858-59 ...	1,71,268	...	1,71,268	9,27,502	...	9,27,502	12,299	4,71,250		...	5·27	
1857-58 ...	1,62,401	...	1,62,401	7,56,234	...	7,56,234	1,35,879	4,83,549		...	·77	
1856-57 ...	1,43,493	...	1,43,493	5,93,833	...	5,93,833	1,25,791	8,47,670		...	·54	
1855-56 ...	1,17,889	...	1,17,889	4,50,340	...	4,50,340	2,17,724	2,21,879		...	3·47	
1854-55 ...	92,748	...	92,748	3,32,451	...	3,32,451	2,07,752	4,155		...	4 87	
1853-54 ...	75,947	...	75,947	2,39,703	...	2,39,703	45,378	2,03,597		...	1 65	
1852-53 ..	54,585	...	54,585	1,63,756	...	1,63,756	2,437	2,48,975		...	3 43	
1851-52 ...	43,668	...	43,668	1,09,171	...	1,09,171	41,713	2,51,412		...	7·82	
1850-51 ...	32,752	...	32,752	65,503	...	65,503	48,147	2,09,699		...	9 26	
1849-50 ...	21,834	...	21,834	32,751	...	32,751	56,472	1,51,552		...	11·95	
1848-49 ...	10,917	...	10,917	10,917	...	10,917	64,658	1,05,080		...	17·31	
1847-48 ...	...	...	...	...	...	...	40,422	40,422		...	18·51	

Years.	Area of Land irrigated during Year. Sown from April to November.	Area of Land irrigated during Year. Sown from December to March.	Area of Land irrigated during Year. Total.	Irrigation capacity of Canal at end of each Year.	Cost of Working expenses per Acre of Land irrigated.	Length of Canal opened at end of each Year. Main Canal.	Length of Canal opened at end of each Year. Branch Canal.	Length of Canal in Progress at end of each Year. Main Canal.	Length of Canal in Progress at end of each Year. Branch Canal.	Length of Distributary Channels opened at end of each Year.	Length of Distributary Channels in Progress at end of each Year.
1874-75 ...	...	...	...	...	...	...	...	...	...	...	...
1873-74 ...	...	...	...	...	...	...	...	...	...	...	...
1872-73 ...	...	...	...	...	...	...	...	...	...	...	...
1871-72 ...	...	...	...	...	...	...	...	...	...	...	...
1870-71 ...	...	...	...	...	...	...	...	...	...	...	...
1869-70 ...	...	...	...	...	...	...	...	...	...	...	...
1868-69 ...	...	...	...	...	...	...	...	...	...	...	...
1867-68 ...	...	...	...	...	...	...	...	...	...	...	...
1866.67 ...	...	...	...	...	...	...	...	...	...	...	...
1865-66 ...	...	...	...	...	...	...	...	...	...	...	...
1864-65 ...	...	...	...	...	...	...	...	...	...	...	...
1863-64 ...	...	...	...	...	...	...	...	...	...	...	...
1862-63 ...	...	...	...	...	...	...	...	...	...	...	...
1861-62 ...	...	...	...	...	...	...	...	...	...	...	...
1860-61 ...	...	...	...	...	...	...	...	...	...	...	...
1859-60 ...	...	...	...	...	...	...	...	...	...	...	...
1858-59 ...	...	...	...	...	...	...	...	...	...	...	...
1857-58 ...	...	...	...	...	...	...	...	...	...	...	...
1856-57 ...	...	...	...	...	...	...	...	...	...	...	...
1855-56 ...	...	...	...	...	...	...	...	...	...	...	...
1854-55 ...	...	...	...	...	...	...	...	...	...	...	...
1853-54 ...	...	...	...	...	...	...	...	...	...	...	...
1852-53 ..	...	...	...	...	...	...	...	...	...	...	...
1851-52 ...	...	...	...	...	...	...	...	...	...	...	...
1850-51 ...	...	...	...	...	...	...	...	...	...	...	...
1849-50 ...	...	...	...	...	...	...	...	...	...	...	...
1848-49 ...	...	...	...	...	...	...	...	...	...	...	...
1847-48 ...	...	...	...	...	...	...	...	...	...	...	...

FORT SAINT GEORGE,
12th June 1876.

Approximate General Abstract of Financial Results of Strivaiguntam Anicut System.

Years.	Capital Outlay.						Revenue.			Working Expenses.		Net Revenue.					
	During Year.			To end of Year.			During Year.			To end of Year.							
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	Direct Income by Water-rate and Miscellaneous Receipts.	Increased Land revenue due to Irrigation Works.	Total.	Direct Income by Water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation works.	Total.	During Year.*	To end of Year.*	During Year.			To end of Year.		
															Direct Income.	Increased Land-revenue.	Total.	Direct Income.	Increased Land-revenue.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.		Rs.	Rs.		Rs.
1874-75 ...	...	65,708	65,708	...	10,60,597	10,60,597	38,779	No credit is allowed on account of increased land-revenue.	...	62,928	No credit is allowed on account of increased land-revenue.	...	...	...	38,779	No credit is allowed on account of increased land-revenue.	...	62,928	No credit is allowed on account of increased land-revenue.	...
1873-74 ...	...	75,226	75,226	...	9,94,889	9,94,889	23,148		...	24,149		...	...	...	23,148		...	24,149		...
1872-73 ...	...	1,85,460	1,85,460	...	9,19,663	9,19,663	15,320		...	1,001		...	...	...	15,320		..	1,001		...
1871-72 ...	...	1,27,201	1,27,201	...	7,34,203	7,34,203	16,321		...	16,321		...	...	...	16,321		...	16,321		...
1870-71 ...	...	1,19,789	1,19,789	...	6,07,002	6,07,002	...		...	...		...	...	...	..		...	...		...
1869-70 ...	...	3,57,578	3,57,578	...	4,87,213	4,87,213	...		...	...		...	...	...	...		...	...		...
1868-69 ...	...	1,29,635	1,29,635	...	1,29,635	1,29,635	...		...	...		...	...	...	...		...	...		...

* There is no information regarding working expenses and the remainder of the statement has been calculated as if the working expenses were nil.

Approximate General Abstract of Financial Results of Strivaiguntam Anicut System.

Years.	Charge for Interest.						Difference between Net Revenue and Charge for Interest.				Percentage of Net Revenue on Capital Outlay.	
	During Year.			To end of Year.			Excluding land-revenue.		Including Land-revenue.		Excluding Land Revenue.	Including Land Revenue.
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	During Year.	To end of Year.	During Year.	To end of Year.		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.	
1874-75 ...	...	47,727	47,727	...	1,94,236	1,94,236	8,948	1,31,308	No credit is allowed on account of increased land-revenue.	...	3·65	No credit is allowed on account of increased land-revenue.
1873-74 ...	...	44,770	44,770	...	1,46,509	1,46,509	21,622	1,22,360		...	2·32	
1872-73 ...	...	41,385	41,385	...	1,01,739	1,01,739	56,705	1,00,788		...	1·66	
1871-72 ...	...	33,039	33,039	...	60,354	60,354	16,718	44,033		...	2·22	
1870-71 ...	...	27,315	27,315	...	27,315	27,315	27,315	27,315		...	...	
1869-70 ...	...	...	...	...	...	...	...	...		...	...	
1868-69 ...	...	...	...	...	...	...	...	...		...	...	

Results of Strivaiguntam Anicut System.

Area of Land irrigated during Year.			Irrigation capacity of Canal at end of each Year.	Cost of working expenses per Acre of Land irrigated	Length of Canal opened at end of each Year.		Length of Canal in Progress at end of each Year.		Length of Distributary Channels opened at end of each Year.	Length of Distributary Channels in progress at end of each Year.
Sown from April to November.	Sown from December to March.	Total.			Main Canal.	Branch Canal.	Main Canal.	Branch Canal.		
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...

Fort St. George,
12*th June* 1876.

Approximate General Abstract of Financial Results of Palar Anicut System.

Years.	Capital Outlay.						Revenue.		
	During Year.			To end of Year.			During Year.		
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	Direct Income by Water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation Works.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
1874-75 ...	25,048	...	25,048	11,08,762	...	11,08,762	1,06,866	No credit is allowed on account of increased land-revenue.	...
1873-74 ...	...	...	...	10,83,714	...	10,83,714	83,248		...
1872-73 ...	538	...	538	10,83,714	...	10,83,714	21,022		...
1871-72 ...	...	...	...	10,83,176	...	10,83,176	96,914		...
1870-71 ...	817	...	817	10,83,176	...	10,83,176	97,968		...
1869-70 ...	1,711	...	1,711	10,82,359	...	10,82,359	68,454		...
1868-69 ...	5,271	...	5,271	10,80,648	...	10,80,648	64,486		...
1867-68 ...	29,562	...	29,562	10,75,377	...	10,75,377	47,388		...
1866-67 ...	3,261	...	3,261	10,45,815	...	10,45,815	88,441		...
1865-66 ...	33,658	...	33,658	10,42,554	...	10,42,554	83,075		...
1864-65 ...	68,846	...	68,846	10,08,896	...	10,08,896	80,706		...
1863-64 ...	86,934	...	86,934	9,40,050	...	9,40,050	70,452		...
1862-63 ...	1,50,594	...	1,50,594	8,53,116	...	8,53,116	68,677		...
*1861-62 ...	1,17,087	...	1,17,087	7,02,522	...	7,02,522	59,994		...
*1860-61 ...	1,17,087	...	1,17,087	5,85,435	...	5,85,435	63,128		...
*1859-60 ...	1,17,087	...	1,17,087	4,68,348	...	4,68,348	62,180		...
*1858-59 ...	1,17,087	...	1,17,087	3,51,261	...	3,51,261	60,263		...
*1857-58 ...	1,17,087	...	1,17,087	2,34,174	...	2,34,174	38,049		...
*1856-57 ...	1,17,087	...	1,17,087	1,17,087	...	1,17,087	76,454		...

* In the absence of information as to the expenditure in each of six years from 1856-57 to 1861-62 the total expenditure of six years as given in the remunerative statement has been evenly distributed.

Approximate General Abstract of Financial Results of Palar Anicut System.

Years.	Charge for Interest.						Difference between Net Revenue and Charge for Interest.				Percentage of Net Revenue on Capital Outlay.	
	During Year.			To end of Year.			Excluding Land-revenue.		Including Land-revenue.		Excluding Land Revenue.	Including Land Revenue.
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	During Year.	To end of Year.	During Year.	To end of Year.		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.	
1874-75 ...	49,894	...	49,894	7,25,546	...	7,25,546	...	...	No credit is allowed on account of increased land-revenue.	...	...	No credit is allowed on account of increased land-revenue.
1873-74 ...	48,767	...	48,767	6,75,652	...	6,75,652	37,869	4,79,617		...	1·01	
1872-73 ...	48,767	...	48,767	6,26,885	...	6,26,885	44,851	5,17,486		...	8·64	
1871-72 ...	48,743	...	48,743	5,78,118	...	5,78,118	40,616	4,72,635		...	8·75	
1870-71 ...	54,117	...	54,117	5,29,375	...	5,29,375	11,059	4,32,019		...	6·01	
1869-70 ...	54,032	...	54,032	4,75,258	...	4,75,258	7,429	4,20,960		...	5·66	
1868-69 ...	53,768	...	53,768	4,21,226	...	4,21,226	8,123	4,13,531		...	4·11	
1867-68 ...	52,290	...	52,290	3,67,458	...	3,67,458	33,340	4,21,654		...	8·92	
1866-67 ...	52,127	...	52,127	3,15,168	...	3,15,168	21,008	3,88,314		...	6·85	
1865-66 ...	50,444	...	50,444	2,63,041	...	2,63,041	33,704	3,67,306		...	8·00	
1864-65 ...	47,002	...	47,002	2,12,597	...	2,12,597	27,797	3,33,602		...	7·49	
1863-64 ...	42,655	...	42,655	1,65,595	...	1,65,595	33,551	3,05,805		...	8·05	
1862-63 ...	35,126	...	35,126	1,22,940	...	1,22,940	30,722	2,72,254		...	8·54	
1861-62 ...	29,272	...	29,272	87,814	...	87,814	39,711	2,41,532		...	10·78	
1860-61 ...	23,417	...	23,417	58,542	...	58,542	44,617	2,01,821		...	13·28	
1859-60 ...	17,563	...	17,563	35,125	...	35,125	48,555	1,57,204		...	17·16	
1858-59 ...	11,708	...	11,708	17,562	...	17,562	32,195	1,08,649		...	16·25	
1857-58 ...	5,854	...	5,854	5,854	...	5,854	76,454	76,454		...	65·29	
1856-57 ...	...	...	...	...	...	...						

Fort St. George,
12*th June* 1876.

Results of Palar Anicut System.

Revenue.			Working Expenses.		Net Revenue.					
To end of Year.			During Year.	To end of Year.	During Year.			To end of Year.		
Direct Income by Water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation Works.	Total.	During Year.	To end of Year.	Direct Income.	Increased Land-revenue.	Total.	Direct Income.	Increased Land-revenue.	Total.
Rs.		Rs.	Rs.	Rs.	Rs.		Rs.	Rs.		Rs.
13,37,765	No credit is allowed on account of increased land-revenue.	...	†	†	...	No credit is allowed on account of increased land-revenue.	...	...	No credit is allowed on account of increased land-revenue.	...
12,30,899		...	†	†	...		...	...		...
11,47,651		...	10,124	41,149	10,898		...	11,06,592		...
11,26,629		...	3,320	31,025	93,594		...	10,95,604		...
10,29,715		...	3,235	27,705	94,733		...	10,02,010		...
9,31,747		...	3,363	24,470	65,091		...	9,07,277		...
8,63,293		...	3,289	21,107	61,197		...	8,42,186		...
7,98,807		...	3,221	17,818	44,167		...	7,80,989		...
7,51,419		...	2,974	14,597	85,467		...	7,36,822		...
6,62,978		...	11,623	11,623	71,452		...	6,51,355		...
5,79,903		...	†	†	80,706		...	5,79,903		...
4,99,197		...	†	†	70,452		...	4,99,197		...
4,28,745		...	†	†	68,677		...	4,28,745		...
3,60,068		...	†	†	59,994		...	3,60,068		...
3,00,074		...	†	†	63,128		...	3,00,074		...
2,36,946		...	†	†	62,180		...	2,36,946		...
1,74,766		...	†	†	60,263		...	1,74,766		...
1,14,503		...	†	†	38,049		...	1,14,503		...
76,454		...	†	†	76,454		...	76,454		...

† There is no information regarding working expenses for these years and the remainder of the statement has been calculated as if the working expenses were nil.

Results of Palar Anicut System.

Area of land irrigated during Year.			Irrigation capacity of Canal at end at each Year.	Cost of Working Expenses per Acre of Land irrigated.	Length of Canal opened at end of each Year.		Length of Canal in Progress at end of each Year.		Length of Distributary Channels opened at end of each Year.	Length of Distributary Channels in progress at end of each Year.
Sown from April to November.	Sown from December to March.	Total.			Main Canal.	Branch Canal.	Main Canal.	Branch Canal.		
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
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...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...

(Signed) C. H. P. CHRISTIE, Lieut., R.E.,
Deputy Examiner, P. W. Accts., Irrigation Branch.

(Signed) L. CONWAY-GORDON,
Examiner, P. W. Accts.

Approximate General Abstract of Financial Results of Kistna Delta System.

Years.	CHARGE FOR INTEREST. During Year. Ordinary	Extra-ordinary	Total.	To end of Year. Ordinary.	Extra-ordinary	Total.	DIFFERENCE BETWEEN NET REVENUE AND CHARGE FOR INTEREST. Excluding Land-revenue. During Year.	To end of Year.	Including Land-revenue. During Year.	To end of Year.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
1874-75 ...	1,43,340	58,886	2,02,226	23,71,603	2,75,062	26,46,665	4,93,467	42,19,553	No credit is allowed on account of increased land-revenue.	...
1873-74 ...	1,42,374	52,515	1,95,189	22,28,263	2,16,176	24,44,439	4,77,676	37,26,083		...
1872-73 ...	1,42,072	47,421	1,89,493	20,85,589	1,63,661	22,49,250	4,34,321	32,48,407		...
1871-72 ...	1,41,574	42,512	1,84,086	19,43,517	1,16,240	20,59,757	3,80,080	28,14,086		...
1870-71 ...	1,55,346	35,048	1,90,394	18,01,943	73,728	18,75,671	3,53,619	24,36,006		...
1869-70 ...	1,54,988	25,814	1,80,802	16,46,597	38,680	16,85,277	3,09,783	20,80,387		...
1868-69 ...	1,54,559	12,866	1,67,425	14,91,609	12,866	15,04,475	2,74,021	17,70,604		...
1867-68 ...	1,53,627	...	1,53,627	13,37,050	...	13,37,050	3,68,925	14,96,583		...
1866-67 ...	1,45,434	...	1,45,434	11,83,423	...	11,83,423	2,86,828	11,27,658		...
1865-66 ...	1,38,736	...	1,38,726	10,37,989	...	10,37,989	2,43,463	8,40,830		...
1864-65 ...	1,28,902	...	1,28,902	8,99,253	...	8,99,253	1,65,831	5,97,637		...
1863-64 ...	1,17,493	...	1,17,493	7,70,351	...	7,70,351	2,17,980	4,31,536		...
1862-63 ...	1,05,545	...	1,05,545	6,52,858	...	6,52,858	1,21,583	2,13,556		...
1861-62 ...	98,309	...	98,309	5,47,313	...	5,47,313	89,844	91,973		...
1860-61 ...	91,713	...	91,713	4,49,004	...	4,49,004	73,385	2,129		...
1859-60 ...	87,066	...	87,066	3,57,291	...	3,57,291	95,820	70,716		...
1858-59 ...	83,458	...	83,458	2,70,225	...	2,70,225	34,110	1,66,536		...
1857-58 ...	78,128	...	78,128	1,86,767	...	1,86,767	32,918	2,00,916		...
1856-57 ...	62,079	...	62,079	1,08,639	...	1,08,639	35,387	1,67,998		...
1855-56 ...	46,560	...	46,560	46,560	...	46,560	40,986	72,881		...
1854-55 ...	...	...	...	...	...	...	10,631	31,895		...
1853-54 ...	...	...	...	...	...	...	10,631	21,264		...
1852-53 ...	...	...	...	...	...	...	10,633	10,633		...

Years.	CAPITAL OUTLAY. During Year. Ordinary.	Extra-ordinary.	Total.	To end of Year. Ordinary.	Extra-ordinary.	Total.	REVE... During Year. Direct income by Water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation Works.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
1874-75 ...	14,795	1,41,579	1,56,374	31,85,328	13,08,574	44,93,902	8,90,598	No credit is allowed on account of increased land-revenue.	...
1873-74 ...	13,375	1,13,206	1,26,581	31,70,533	11,66,995	43,37,528	8,40,863		...
1872-73 ...	11,067	1,09,189	1,20,156	31,57,158	10,53,789	42,10,947	7,34,630		...
1871-72 ...	32,714	1,16,732	1,49,446	31,46,091	9,44,700	40,90,791	6,70,106		...
1870-71 ...	6,451	1,27,010	1,33,461	31,13,377	8,27,968	39,41,345	6,43,729		...
1869-70 ...	7,171	1,84,676	1,91,847	31,06,926	7,00,958	38,07,884	6,08,873		...
1868-69 ...	8,562	2,58,972	2,67,534	30,99,755	5,16,282	36,16,037	5,32,974		...
1867-68 ...	18,655	2,57,310	2,75,965	30,91,193	2,57,310	33,48,503	6,01,117		...
1866-67 ...	1,63,858	...	1,63,858	30,72,538	...	30,72,538	5,43,151		...
1865-66 ...	1,33,955	...	1,33,955	29,08,680	...	29,08,680	5,34,979		...
1864-65 ...	1,96,680	...	1,96,680	27,74,725	...	27,74,725	4,83,563		...
1863-64 ...	2,28,185	...	2,28,185	25,78,045	...	25,78,045	4,73,194		...
1662-63 ...	2,38,953	...	2,38,953	23,49,860	...	23,49,860	3,32,138		...
1861-62 ...	1,44,735	...	1,44,735	21,10,907	...	21,10,907	3,09,324		...
1860-61 ...	1,31,918	...	1,31,918	19,66,172	...	19,66,172	2,66,435		...
1859-60 ...	92,938	...	92,938	18,34,254	...	18,34,254	2,79,030		...
1858-59 ...	72,159	...	72,159	17,41,316	...	17,41,316	2,19,219		...
1857-58 ...	1,06,598	...	1,06,598	16,69,157	...	16,62,559	1,38,823		...
1856-57 ...	3,20,972	...	3,20,972	15,62,559	...	15,62,559	97,310		...
1855-56*...	3,10,396	...	3,10,396	12,41,587	...	12,41,587	16,205		...
1854-55*...	3,10,396	...	3,10,396	9,31,191	...	9,31,191	...		...
1853-54*...	3,10,396	...	3,10,396	6,20,795	...	6,20,795	...		...
1852-53*...	3,10,399	...	3,10,399	3,10,399	...	3,10,399	...		...

Percentage of net Revenue on Capital Outlay. Excluding Land-revenue.	Including Land-revenue.	Area of Land irrigated during Year. Sown from April to November.	Sown from December to March.	Total.	Irrigation capacity of Canal at end of each Year.	Cost of Working Expenses per Acre of Land irrigated.	Length of Canal opened at end of each Year. Main Canal.	Branch Canal.	Length of Canal in progress at end of each Year. Main Canal.	Branch Canal.	Length of Distributary Channels opened at end of each Year.	Length of Distributary Channels in progress at end of each Year.
Rs.												
15·48	No credit is allowed on account of increased land-revenue.	...	...	...	...	...	...	...	...	...	...	...
15·51		...	...	...	...	...	...	...	...	...	...	...
12·43		...	...	...	...	...	...	...	...	...	...	...
13·79		...	...	...	...	...	...	...	...	...	...	...
13·80		...	...	...	...	...	...	...	...	...	...	...
12·88		...	...	...	...	...	...	...	...	...	...	...
12·21		...	...	...	...	...	...	...	...	...	...	...
15·60		...	...	...	...	...	...	...	...	...	...	...
15·35		...	...	...	...	...	...	...	...	...	...	...
13·14		...	...	...	...	...	...	...	...	...	...	...
10·62		...	...	...	...	...	...	...	...	...	...	...
13·01		...	...	...	...	...	...	...	...	...	...	...
9·66		...	...	...	...	...	...	...	...	...	...	...
8·91		...	...	...	...	...	...	...	...	...	...	...
8·39		...	...	...	...	...	...	...	...	...	...	...
9·97		...	...	...	...	...	...	...	...	...	...	...
6·75		...	...	...	...	...	...	...	...	...	...	...
2·71		...	...	...	...	...	...	...	...	...	...	...
2·13		...	...	...	...	...	...	...	...	...	...	...
·45		...	...	...	...	...	...	...	...	...	...	...
1·14		...	...	...	...	...	...	...	...	...	...	...
1·71		...	...	...	...	...	...	...	...	...	...	...
3·42		...	...	...	...	...	...	...	...	...	...	...

NUE. Working Expenses. To end of Year. Direct income by Water-rate and Miscellaneous Receipts.	Increased Land-revenue due to Irrigation Works.	Total.	During Year.	To end of Year.	NET REVENUE. During Year. Direct Income.	Increased Land-revenue.	Total.	To end of Year. Direct Income.	Increased Land-revenue.	Total.
Rs.		Rs.	Rs.	Rs.	Rs.		Rs.	Rs.		Rs.
92,16,261	No credit is allowed on account of increased land-revenue.	...	1,94,905	23,50,046	6,95,693	No credit is allowed on account of increased land-revenue.	...	68,66,215	No credit is allowed on account of increased land-revenue.	...
83,25,663		...	1,67,998	21,55,141	6,72,865		...	61,70,522		...
74,84,800		...	1,10,816	19,87,143	6,23,814		...	54,97,657		...
67,50,170		...	1,05,940	18,76,327	5,64,166		...	48,73,843		...
60,80,064		...	99,716	17,70,387	5,44,013		...	43,09,677		...
54,36,335		...	1,18,288	16,70,671	4,90,585		...	37,65,664		...
48,27,462		...	91,528	15,52,383	4,41,446		...	32,75,079		...
42,94,488		...	78,565	14,60,855	5,22,552		...	28,33,633		...
36,93,371		...	1,10,889	13,82,290	4,32,262		...	23,11,081		...
31,50,220		...	1,52,780	12,71,401	3,82,199		...	18,78,819		...
26,15,241		...	1,88,830	11,18,621	2,94,733		...	14,96,620		...
21,31,678		...	1,37,721	9,29,791	3,35,473		...	12,01,887		...
16,58,484		...	1,05,010	7,92,070	2,27,128		...	8,66,414		...
13,26,346		...	1,21,171	6,87,060	1,88,153		...	6,39,286		...
10,17,022		...	1,01,337	5,65,889	1,65,098		...	4,51,133		...
7,50,587		...	96,144	4,64,552	1,82,886		...	2,86,035		...
4,71,557		...	1,01,651	3,68,408	1,17,568		...	1,83,149		...
2,52,338		...	93,613	2,66,757	45,210		...	14,469		...
1,13,515		...	1,30,618	1,73,144	38,202		...	59,629		...
16,205		...	10,631	42,526	5,574		...	26,321		...
...		...	10,631	31,895	10,631		...	31,895		...
...		...	10,631	21,264	10,631		...	21,264		...
...		...	10,633	10,633	10,633		...	10,633		...

*In the absence of information as to the expenditure in each of the four years from 1852-53 to 1855-56 the total expenditure of the four years as given in the statement printed with G.O., No. 193, of 21st January 1869, has been evenly distributed.

FORT ST. GEORGE,
19th June 1876.

(Signed) C. H. P. CHRISTIE, Lieutenant, R.E.,
Deputy Examiner, Public Works Accounts, Irrigation Branch.

Is it not included?

Approximate General Abstract of Financial Results of Cauvery Delta System.

Years.	Capital Outlay.						Revenue.			Working Expenses.		Net Revenue.				
	During Year.			To end of Year.			During Year.					During Year.			To end of Year.		
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	Direct Income by Water-rate and Miscellaneous Receipts.	Increased Land Revenue due to Irrigation Works.	Total.	During Year.	To end of Year.	Direct Income.	Increased Land-revenue.	Total.	Direct Income.	Increased Land-revenue.	Total.
	1	Rs.	Rs. 2	Rs.	Rs.	Rs. 3	Rs. 4	X		Rs. 5	Rs. 6	Rs.		Rs.	Rs.		Rs. 7
1874-75 ...	9,259	...	9,259	9,34,481	4,14,419	13,48,909	...			73,914	47,86,180	...		...	...		...
1873-74 ...	19,664	30,180	49,844	9,25,222	4,14,419	13,39,641	11,60,713			11,204	47,12,266	11,49,509		...	2,14,63,455		...
1872-73 ...	1,666	55,964	57,630	9,05,558	3,84,339	12,89,897	11,67,954			35,389	47,01,062	11,32,565		...	2,03,13,946		...
1871-72 ...	9,715	1,29,818	1,39,533	9,03,892	3,28,375	12,32,267	11,33,306			1,99,327	46,65,673	9,33,979		...	1,91,81,381		...
1870-71 ...	27,260	46,122	73,382	8,94,177	1,98,457	10,92,634	11,34,971			2,14,191	44,66,346	9,20,780		...	1,92,47,402		...
1869-70 ...	7,904	14,063	21,967	8,66,917	1,52,335	10,19,252	11,19,043			1,53,710	42,52,155	9,65,333		...	1,73,26,622		...
1868-69 ...	23,004	1,02,886	1,25,890	8,59,013	1,38,272	9,97,285	10,90,037			1,39,414	40,98,445	9,50,623		...	1,63,61,289		...
1867-68 ...	69,363	35,386	1,04,749	8,36,009	35,386	8,71,395	10,80,807			1,23,270	39,59,031	9,57,537		...	1,54,10,666		...
1866-67 ...	24,016	...	24,016	7,66,646	...	7,66,646	9,80,406			50,782	38,35,761	9,29,624		...	1,44,53,129		...
1865-66 ...	...	...	...	7,42,630	...	7,42,630	8,68,929			58,194	37,84,979	8,10,735		...	1,35,23,505		...
1864-65 ...	...	...	...	7,42,630	...	7,42,630	9,39,345			45,334	37,26,785	8,94,011		...	1,27,12,770		...
1863-64 ...	...	...	...	7,42,630	...	7,42,630	8,35,860			22,792	36,81,451	8,13,068		...	1,18,18,759		...
1862-63 ...	...	...	...	7,42,630	...	7,42,630	8,20,192			15,061	36,58,659	8,05,131		...	1,10,05,691		...
1861-62 ...	...	...	...	7,42,630	...	7,42,630	7,15,527			14,679	36,43,598	7,00,848		...	1,02,00,560		...
1860-61 ...	...	...	...	7,42,630	...	7,42,630	5,72,486			12,506	36,28,919	5,59,980		...	94,99,712		...
1859-60 ...	...	...	...	7,42,630	...	7,42,630	6,43,081			33,235	36,16,413	6,09,846		...	89,39,732		...
1858-59 ...	...	...	...	7,42,630	...	7,42,630	4,05,345			33,107	35,83,178	3,72,238		...	83,29,886		...
1857-58 ...	15,270	...	15,270	7,42,630	...	7,42,630	5,65,993			17,167	35,50,071	5,48,826		...	79,57,648		...
1856-57 ...	1,74,043	...	1,74,043	6,27,360	...	6,27,360	6,49,886			1,31,386	35,32,904	5,18,500		...	74,08,822		...
1855-56 ...	...	...	...	5,53,317	...	5,53,317	6,02,203			1,31,386	34,01,518	4,70,817		...	68,90,322		...
1854-55 ...	1,162	...	1,162	5,53,317	...	5,53,317	7,22,766			1,31,386	32,70,132	5,91,380		...	64,19,505		...
1853-54 ...	601	...	601	5,52,155	...	5,52,155	3,42,802			2,05,124	31,38,746	1,37,678		...	58,28,125		...
1852-53 ...	7,387	...	7,387	5,51,554	...	5,51,554	4,91,825			2,71,079	29,33,622	2,20,746		...	56,90,447		...
1851-52 ...	505	...	505	5,44,167	...	5,44,167	6,69,968			2,35,478	26,62,543	4,34,490		...	54,69,701		...
1850-51 ...	1,236	...	1,236	5,43,662	...	5,43,662	6,68,213			2,33,588	24,27,065	4,34,625		...	50,35,211		...
1849-50 ...	476	...	476	5,42,426	...	5,42,426	5,80,921			1,33,454	21,93,477	4,47,467		...	46,00,586		...
1848-49 ...	1,715	...	1,715	5,41,950	...	5,41,950	5,82,384			1,73,989	20,60,023	4,08,395		...	41,53,119		...
1847-48 ...	4,724	...	4,724	5,40,235	...	5,40,235	6,64,737			1,23,935	18,86,034	5,40,802		...	37,44,724		...
1846-47 ...	24,204	...	24,204	5,35,511	...	5,35,511	8,06,511			1,58,932	17,62,099	6,47,579		...	32,03,922		...
1845-46 ...	71,369	...	71,369	5,11,307	...	5,11,307	7,00,682			2,13,956	16,03,167	4,86,726		...	25,56,343		...
1844-45 ...	12,254	...	12,254	4,39,938	...	4,39,938	5,11,080			1,74,114	13,89,211	3,36,966		...	20,69,617		...
1843-44 ...	24,544	...	24,544	4,27,684	...	4,27,684	4,35,161			1,61,786	12,15,097	2,73,375		...	17,32,651		...
1842-43 ...	21,332	...	21,332	4,03,140	...	4,03,140	3,75,729			1,73,644	10,53,311	2,02,085		...	14,59,276		...
1841-42 ...	1,279	...	1,279	3,81,808	...	3,81,808	3,66,120			2,01,370	8,79,667	1,64,750		...	12,57,191		...
1840-41 ...	8,887	...	8,887	3,80,529	...	3,80,529	4,65,738			1,68,919	6,73,297	2,96,819		...	10,92,441		...
1839-40 ...	25,771	...	25,771	3,71,642	...	3,71,642	5,20,603			1,90,758	5,09,378	3,29,845		...	7,95,622		...
1838-39 ...	44,486	...	44,486	3,45,871	...	3,45,871	4,87,535			1,67,454	3,18,620	3,20,081		...	4,65,777		...
1837-38 ...	43,454	...	43,454	3,01,385	...	3,01,385	2,96,862			1,51,166	1,51,166	1,45,696		...	1,45,696		...
1836-37 ...	2,57,931	...	2,57,931	2,57,931	...	2,57,931	...			...	...	...		...	...		...

No credit is allowed on account of increased land-revenue.

No credit is allowed on account of increased land-revenue.

No credit is allowed on account of increased land-revenue.

No credit is allowed on account of increased land-revenue.

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-500

Approximate General Abstract of Financial Results of Cauvery Delta System.

Years.	Charge for Interest.						Difference between Net Revenue and Charge for Interest.				Percentage of Net Revenue on Capital Outlay.	
	During Year.			To end of Year.			Excluding Land-revenue.		Including Land-revenue.			
	Ordinary.	Extra-ordinary.	Total.	Ordinary.	Extra-ordinary.	Total.	During Year.	To end of Year.	During Year	To end of Year.	Excluding Land-revenue.	Including Land-revenue.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.				
1874-75	42,052	18,649	60,701	11,59,785	85,670	12,45,455	...	...	No credit is allowed on account of increased land-revenue.	...	...	No credit is allowed on account of increased land-revenue.
1873-74	41,635	18,649	60,284	11,17,733	67,021	11,84.754	10,89,225	2,02,78,701		...	85·81	
1872-73	40,750	17,295	58,045	10,76,098	48,372	11,24,470	10,74,520	1,91,89,476		...	87·80	
1871-72	40,675	14,777	55,452	10,35,348	31,077	10,66,425	8,78,527	1,81,14,956		...	75·71	
1870-71	43,346	7,617	50,963	9,94,673	16,300	10,10,975	8,69,817	1,72,36,439		...	84·27	
1869-70	42,952	6,914	49,866	9,51,327	8,683	9,60,010	9.15,467	1,63,66,612		...	84·90	
1868-69	41,800	1,769	43,569	9,08,375	1,769	9,10,144	9,07,054	1,54,51,145		...	95·32	
1867-68	38,332	...	38,332	8,66,575	...	8,66,575	9,19,205	1,45,44,091		...	109 88	
1866-67	37,132	...	37,132	8,28,243	...	8,28,243	8,92,492	1,36,24,886		...	132·28	
1865-66	37,132	...	37,132	7,91,111	...	7,91,111	7,73,603	1,27,32,394		...	109·17	
1864-65	37,132	...	37,132	7,53,979	...	7,53,979	8,56,879	1,19,58,781		...	120·38	
1863-64	37,132	...	37,132	7,16,847	...	7,16,847	7,75,936	1,11,01,912		...	109·48	
1862-63	37,132	...	37,132	6,79,715	...	6,79,715	7,67,999	1,03,25,976		...	108·41	
1861-62	37,132	...	37,132	6,42,583	...	6,42,583	6,63,716	95,57,977		...	94·37	
1860-61	37,132	...	37,132	6,05,451	...	6,05,451	5,22,848	88,94,261		...	75·40	
1859-60	37,132	...	37,132	5,68,319	...	5,68,319	5,72,714	83,71,413		...	82·12	
1858-59	37,132	...	37,132	5,31,187	...	5,31,187	3,35,106	77,98,699		...	50·12	
1857-58	31,368	...	31,368	4,94,055	...	4,94,055	5,17,458	74,63,593		...	73·90	
1856-57	27,666	...	27,666	4,62,687	...	4,62,687	4,90,834	69,46,135		...	82·64	
1855-56	27,666	...	27,666	4,35,021	...	4,35,021	4,43,151	64,55,301		...	85·09	
1854-55	27,608	...	27,608	4,07,355	..	4,07,355	5,63,772	60,12,159		...	106·88	
1853-54	27,578	...	27,578	3,79,747	...	3,79,747	1,10,100	54,48,378		...	24·93	
1852-53	27,208	...	27,208	3,52,169	...	3,52,169	1,93,538	53,38,278		...	40·02	
1851-52	27,183	...	27,183	3,24,961	...	3,24,961	4,07,307	51,44,740		...	79·84	
1850-51	27,121	...	27,121	2,97,778	...	2,97,778	4,07,504	47,37,433		...	79 94	
1849-50	27,098	...	27,098	2,70,657	...	2,70,657	4,20,369	43,29,929		...	82·50	
1848-49	27,012	...	27,012	2,43,559	...	2,43,559	3,81,383	39,09,560		...	75·36	
1847-48	26,776	...	26,776	2,16,547	...	2,16,547	5,14,026	35,28,177		...	100·10	
1846-47	25,565	...	25,565	1,89,771	...	1,89,771	6,22,014	30,14,151		...	120·93	
1845-46	21,997	...	21,997	1,64,206	...	1,64.206	4,64,729	23,92,137		...	95·19	
1844-45	21,384	...	21,384	1,42,209	...	1,42,209	3,15,582	19,27,408		...	76·59	
1843-44	20,157	...	20,157	1,20,825	...	1,20,825	2,53,218	16,11,826		...	63·92	
1842-43	19,090	...	19,090	1,00,668	...	1,00,668	1,82,995	13,58,608		...	50·13	
1841-42	19,026	...	19,026	81,578	...	81,578	1,45,724	11,75,613		...	43·15	
1840-41	18,582	...	18.582	62,552	...	62,552	2,78,237	10,29,889		...	78·00	
1839-40	17,294	...	17,294	43.970	...	43,970	3,12,551	7,51,652		...	88·75	
1838-39	15,069	...	15,069	26,676	...	26,676	3,05,012	4,39,101		...	92·54	
1837-38	11,607	...	11,607	11,607	...	11,607	1,34,089	1,34,089		...	48·34	
1836-37	...	...	...	...	...	...	...	...		...	...	

Area of Land irrigated during Year.			Irrigation capacity of Canal at end of each Year.	Cost of Working expenses per Acre of Land irrigated.	Length of Canal opened at end of each Year.		Length of Canal in Progress at end of each Year.		Length of distributary channels opened at end of each Year.	Length of distributary channels in progress at end of each Year.
Sown from April to November.	Sown from December to March.	Total.			Main Canal.	Branch Canal.	Main Canal.	Branch Canal.		
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FORT ST. GEORGE,
17th June 1876.

(Signed) C. H. P. CHRISTIE, Lieutenant, R.E.,
Deputy Examiner, Public Works Accounts,
Irrigation Branch.

Proceedings of the Madras Government, Public Works Department,
28*th July* **1876.** *No.* **1,923.**

No. 493. ORDER THEREON, 28th July 1876, No. 1,923.

IRRIGATION, No. 53-A.

Account.

ORDERED that these Financial Abstracts be forwarded to the Government of India with reference to Colonel Dickens' letter, No. 48 A.—I., of the 25th January last, together with a copy of the Proceedings, Madras Government, 20th May 1876, No. 1,268.

2. Ordered also that these papers be communicated to the departments and officers concerned.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

To the Examiner of Public Works Accounts.
„ Chief Engineer for Irrigation.
To all District Engineers.
To the Board of Revenue.
„ Revenue Department.

Exd. E. C. Shunker.
Exd. W. H. French.
Spare Copies

2/10/76

Govt. of 1876 Madras.

PUBLIC WORKS.

To

THE EXAMINER OF PUBLIC
WORKS ACCOUNTS,
&c., &c., &c.

Dated July 28th.

Issued

Read. *Encl.*

G. O., 28th July 1876, No. 1,923.

JULY.

Nos. 492-493.

Approximate General Abstracts of Financial Results of certain Irrigation Works.—The — ordered to be forwarded to the Government of India, and also to the departments and officers concerned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

14th January 1878, No. 36 I.

Irrigation.
Establishment.

Read the following paper:—

No. 50 K.S.

No. 32. IRRIGATION—MEMORANDUM.

WITH reference to the letter, No. 28, of the 21st May last, from the Superintending Engineer, Kistna, the undersigned has the honor to say that he thinks had Major Hasted seen Proceedings, Madras Government, No. 1,038, of the 22nd April 1874, his proposals for the revision of the Kistna Delta Conservancy Establishments would perhaps have been considerably modified. A copy of those Proceedings, Madras Government, is now forwarded, and the undersigned regrets that they were not communicated in the first instance. He some time since directed that all Proceedings, Madras Government, connected with Delta arrangements and management should be sent to both the Kistna and Godavery.

2. It will be seen that in the Godavery there are now only three grades or classes of Delta Superintendents, the pay being—

	Rs.
1st Class	70
2nd „	55
3rd „	40

and as for good reasons or after due consideration it was decided to do away with the 4th class there the Kistna Superintendents should, it is thought, be similarly dealt with.

3. In the next place the Superintending Engineer proposes to employ 19 Delta Superintendents instead of 10 the present number. It is not clear on what data Major Hasted has based his proposals. In the Godavery it will be seen that 25,000 acres of irrigation have been deemed a reasonable charge for a Superintendent, and should this basis be found suitable to the Kistna, the ultimate number would be about 19, and this number would be much too large for present requirements though, during the development of irrigation and until distribution arrangements have been got into working order, it is probable that the area which can be looked after properly by a Superintendent will be considerably less. Perhaps then twelve Superintendents, which would make the average area something under 20,000 acres, would be suitable, but the best plan will be to fix the charges and show the acreage under each canal or principal distributary in each thus—

Delta.	Delta Superintendents.	Delta Superintendent's Charges.								Remarks.
		Canals.	Miles.	Acres.	Distribution Channels.	Miles.	Acres.	Total Mileage.	Total Acreage.	
Eastern ...	No. 1.									
Do. ...	No. 2.							59	18,633	

N.B.—The acres against canals will be direct irrigation which added to that against distributaries will be the whole acreage under a canal.

There are many circumstances tending to prevent equalization of charges, and so, though desirable in the abstract, it is only necessary to consider this point so far as may be conveniently practicable. It may be found advisable to consider not only the present charges of Delta Superintendents, but the ultimate charges also, as in this way all important points will be likely to receive full attention.

4. The undersigned does not think that regulating works in the Delta should be entrusted to lascars temporarily entertained, and permanent lascars accustomed and trained to the management of gear should be detailed for the time required to the Komatigunta and Weyyur weirs.

5. It is not clear that Delta Superintendents require two lascars each. One may be needed for measurements, examination of aprons under water, &c., and similar work. The Superintending Engineer is requested in resubmitting his proposals to explain the intention.

6. It is thought that it will be desirable to give some encouragement to deserving lascars by affording some more favorable chance of promotion by means of grading. Two-tenths of the whole number might be Head lascars at 8 Rupees, two-tenths lascars at 7 Rupees, three-tenths lascars at 6 Rupees, and three-tenths lascars at 5 Rupees.

7. The undersigned concurs with the Superintending Engineer in considering that Irrigation and Navigation Establishments should be kept quite distinct.

8. With regard to the Delta Tappal lascars the weak point in the proposed arrangements seems to be that the men will have far too little to do; the necessity for a regular tappal at any rate during the irrigation season is recognized, but apparently these lascars' definite work will be confined to some three hours a day. Plantation work is somewhat casually referred to as a means of affording useful employment, but in some way or another it is certainly desirable that definite work which can be examined should be cut out for them so as to keep them occupied for seven or eight hours a day at any rate.

9. It is understood that Channel Superintendents will in due course be abolished. There appear to be 16 lascars for 3 Channel Superintendents in the Western Delta. If these Superintendents are engaged for six months only it is not clear why the abolition should not take place at once.

10. It is observed that the number of Lock Superintendents is to be reduced from 18 to 15, and that of the latter number one is to be of the 1st grade, Rupees 15, seven at Rupees 12, and seven at Rupees 10. In looking over Statement B there does not appear to be any reason why the Superintendents of the higher grade should be posted to the particular locks on which they are now employed, and if so the Superintendents might be graded and distributed as the Superintending Engineer thinks fit. It may be well to make two-tenths 1st grade, four-tenths 2nd grade, and four-tenths 3rd grade, or of 15 Superintendents—

Except perhaps Dugirala, as here there is a double charge.

	Rs.
Three 1st grade	15
Six 2nd „	12
Six 3rd „	10

There will then be better opportunity of rewarding the deserving.

11. With regard to the establishments generally some useful hints may perhaps be obtained from the Conservancy Establishment Appendix of the Budget.

27th July 1877. (Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

No. 32-A. From Major J. O. HASTED, R.E., Superintending Engineer, Kistna, to the Chief Engineer for Irrigation, dated Masulipatam, 20th November 1877, No. 153.

WITH reference to your memorandum No. 50 K.S., dated 27th July 1877, I have the honor to forward herewith revised statements of proposed Conservancy Establishments and Navigation Establishment in the form suggested.

1 Statement of Anicut and Conservancy Establishment.
1 Statement of Navigation Establishment.
1 Abstract of do. do.
1 List of Petty Establishment.
1 Statement of Delta Superintendent's charges.

2. It is very difficult in the present state of the irrigation to fix satisfactory charges, proportionally as regards acreage, to the extent that has been fixed as the limit of Delta Superintendent's charges in the Godavery Delta. The enclosed statement shows the most satisfactory arrangements which, after much consideration, I can suggest; but as the irrigated area extends, these arrangements must be modified, and the labor entailed in distribution will be but slightly increased, when the improved distributing channels are carried out.

3. I now propose an establishment of nine Delta Superintendents in the Eastern Delta, and five in the Western Delta. If irrigation from Delta Canals only were taken into account, I could have managed with eight in the Eastern Delta; but I have added one for Divi and the eastern bank, as during river floods the management of river channels requires supervision, and this part of the Delta is situated so that the Overseer cannot readily visit it.

4. The Delta Superintendents are graded, in the proportion you have recommended, as far as possible. Travelling allowance is entered only for those who, under former rules, were allowed it.

5. As regards the temporary establishment or that proposed to be entertained only for six months of the year, these men are in continued employment in reality, as when not engaged on the distributing works they are employed on works, their pay being charged to those works. The so-called temporary appointments are stepping stones to permanent appointments, and it seems to me that it would be better to continue this arrangement than to increase the charge to establishment.

6. I am disposed to think that two lascars are necessary for each Delta Superintendent. The Superintendent requires one to be constantly with him in examination of sluices and channels and frequently may require to detach one to see that the arrangements for other channels have not been interfered with by the cultivators. Towards the close of the season, especially, when water is running low in the channels, it is necessary to fix dates on which to open and close certain sluices, and in carrying out this distribution no assistance can be looked for from the cultivators.

7. The lascars have been graded as suggested by you, the distribution of the grades being purposely left to the Superintending Engineer, as it does not seem convenient that this distribution should be made once for all.

8. The Tappal lascars I proposed should undertake the maintenance of plantations at their locks or head-quarters and one mile on either side. Hitherto these portions of the banks have been attended to by the Lock Establishment, which is now to be reduced. Where it has been necessary to employ mile men for the plantations, I have allowed one man to every two miles, but as the Tappal men will have to travel about 12 miles a day, they will only be able to devote a portion of their time to other work, and I think one mile of canal lunka will give them ample occupation.

9. Arrangements for the reduction of the present Channel Superintendents will be carried out as quickly as possible.

10. Lock Superintendents have, as suggested, been graded, and as far as possible the most important charges will be kept under those of the higher grades.

11. I trust that the entertainment of maistries on the Petty Establishment will be sanctioned in this as in the Godavery Delta. I would propose one maistry to each delta on river works, two in the Western Delta, and three in the Eastern Delta, (as per enclosed list) graded thus:—

	RS.
Two 1st grade	30
Two 2nd ,, ...	25
Three 3rd ,, ...	20

There are a few maistries whose services are worth retaining for whom there has been a difficulty in finding continual employment, and I believe some good men whom we could only employ occasionally have gone from here to the Godavery Delta.

No. 279 I.

No. 32-B. *Note by the Chief Engineer for Irrigation.*

IN May last the Superintending Engineer, Kistna, transmitted, with reference to the reduction of Navigation Establishments which had been decided upon, a revised scale of Conservancy and Navigation Establishments; but as unfortunately Proceedings, Madras Government, No. 1,038, of the 22nd April 1874, in which for the Godavery revised arrangements of Conservancy Establishment had been settled, had not been communicated to him, it was considered desirable that he should be afforded an opportunity of reconsidering his proposals with a view to the introduction of uniformity of system, so far as the circumstances might render this applicable. Major Hasted has accordingly with his letter, No. 153, of the 20th ultimo, forwarded a revised scheme as explained in his letter and in the accompanying statements.

Superintending Engineer's No. 28, 21st May 1877.

Proceedings of Madras Government, 6th May 1876, No. 1,115 A.

2. The arrangements recommended for sanction provide for the grading of all descriptions of Delta Establishments. The Delta Superintendents, upon whose efficiency the satisfactory management of the irrigation largely depends, are proposed to be graded to correspond with the similar appointments in the Godavery.

3. The last modification of Delta Establishments authorised for the Kistna was sanctioned in G.O., No. 1,595, of the 15th June 1871, and was intended to assimilate the system to that then prevailing in the Godavery. The modifications, which were to be introduced as opportunity occurred, have only been partially carried out:—

—	In 1871.	Modification sanctioned in 1871.	At present.
Delta Superintendents ...	3	19	10
Navigation do. ...	2	..	..
Channel do. ...	40	...	27½
	45	19	37½

The cost of the revised establishment was to be the same as that of the establishment it was to supersede.

The lowest rate of pay for a Delta Superintendent was to be Rupees 30, and as often as this amount has become available by the occurrence of vacancies in the list of Channel Superintendents, the Superintending Engineer has appointed an additional Delta Superintendent.

4. In G.O., No. 1,038, of the 22nd April 1874, it was decided to do away with the 4th grade of Delta Superintendents in the Godavery, the rate of pay Rupees 30 a month being considered insufficient to secure the services of men of the required character and qualifications, and three grades at 70, 55 and 40 Rupees a month respectively were established. The revised scale for the Kistna Delta is based upon the same grading, and with reference to the acreage to be supervised and supplied fourteen Superintendents, viz., nine for the Eastern, and five for the Western Delta, are proposed to be employed. A statement showing the charge of each Superintendent is appended, and the charges have been drawn up with reference to the recently established Executive Divisions and Sub-divisions which have superseded the old ranges. Channel Superintendents will be entirely abolished as soon as the revised scale comes into operation, and it is recommended that the 1st April 1878 be the date fixed.

5. The other changes proposed are the reduction of establishment under the head of Navigation, the grading of the Lock Superintendents, the grading of lascars, and the introduction of a separate Tappal Establishment under irrigation. At present the water reports which are indispensable, and the various communications between the Canal officers and subordinates are transmitted daily by lock lascars, but on the reduction of the numbers of the latter it will be necessary to employ tappal lascars whose primary work will involve the carriage of the post bags twelve miles daily, and whose spare time will be devoted to the canal plantations for a distance of one mile above and below their respective head-quarters.

6. It is intended to leave it discretional with the Superintending Engineer to locate individuals irrespective of their grading, and therefore while in the tabular statement the distribution is given the amounts are shown against classes, and not against the distribution. Practically this system of distribution is generally followed, and at the instance of the Examiner of Public Works Accounts it is proposed to formally recognize it, as it is not desirable that the transfer of a man on promotion should even be supposed to be necessary, if the interests of the public service make his retention in the same locality more convenient.

7. The general results of the proposed revision are under—

		RS.
Conservancy Establishment—Irrigation.		
Permanent Establishment per month, Rupees 153, yearly ...	...	1,836
* Temporary ,, (6 months) ,, 27, ,, ...	...	177
Increase	...	2,013
Navigation Establishment.		
Permanent Establishment per month ... ... RS. 163		
Yearly Decrease	...	1,956
Net Increase yearly	...	57

* Proposed.
168 × 6 months .. 1,008
Present.
15 × 5 months 75
126 × 6 ,, 756
831
141
177
27

It is believed that the proposed changes will increase the efficiency of the establishment and will also make the amount chargeable to Navigation on this account more correctly ascertainable. The present scale was, as regards cost, sanctioned in 1865 and 1867, and since the former date the revenue from water-rate and miscellaneous items has risen from Rs. 5,34,979 to Rupees 8,90,598, or probably more as the latter figures are for 1874-75.

Proceedings of Madras Government, 28th July 1876, No. 1,923.

8. The Superintending Engineer asks that, as in the Godavery, the employment of some maistries from the provision for petty establishment may be sanctioned, and the undersigned considers that their services should be allowed. Two are to be employed on river work, which is important and has received hitherto too little attention, and five on general duties, and the numbers in the several grades are—

		Rs.
Two	of the 1st grade, at	30
Two	„ 2nd „ „	25
Three	„ 3rd „ „	20

CAMP, KISTNA,
13th December 1877.

(Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

Tabular Statement of the Navigation Establishment of the Kistna Delta as existing and as proposed.

No. and date of Order. (Office to which the Proposition refers.)	Nature of Change. Present Scale.	Rs.	Nature of Change. Proposed Scale.	Proposition. Permanent. Rs.	Proposition. Permanent. Increase per month.	Proposition. Permanent. Decrease per month.	Proposition. Temporary. Rs.	Proposition. Temporary. Increase per month.	Proposition. Temporary. Decrease per month.	Proposition. Temporary. Period.	Grounds of Proposition.	Local Government's recommendation.	Orders of the Government of India. P. W. Department. Remarks.	Orders of the Government of India. Financial Department. Remarks.	Orders of the Government of India. Financial Department. Orders.
G.O., No. 1,115 A, dated 6th May 1876.	*Eastern Delta.*			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.						
	3 Lock Superintendents at 15 Rs. each	45	3 Lock Superintendents, 1st grade, at 15 Rs. each	45											
	2 Do. at 12 Rs. each ...	24	7 Do. do., 2nd grade, at 12 Rs. each	84											
	4 Do. at 10 „ ...	40													
	30 Lascars at 6 „ ...	180	6 Do. do., 3rd grade, at 10 Rs. each	60											
	16 Do. at 5 „ ...	80													
		369	12 Lascars, 1st grade, at Rs. each	96											
	Western Delta.														
	2 Lock Superintendents at 15 Rs. each... ...	30	12 Do., 2nd grade, at Rs. each	84											
	2 Do. at 12 Rs. each ...	24	16 Do., 3rd grade, at Rs. each	96											
	5 Do. at 10 „ ...	50													
	15 Lascars at 6 „ ...	90	16 Do., 4th grade, at Rs. each	80											
	29 Do. at 5 „ ...	145													
	Total, Western Delta ...	339													
	Grand Total ...	708	Grand Total ...	545	...	163	...	...	...	...	...	...	...	...	...

For *Distribution* see separate sheet attached.

(Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

CAMP, KISTNA,
13th December 1877.

Distribution of Navigation Establishment.

	Superintendents.	Lascars.	Remarks.
Eastern Delta.			
Main Canal, Head Lock	1	4	
Masulipatam Canal, Kunkipad Lock	1	4	
„ Verunky Lock	1	4	
„ Nedamole „	1	4	
„ Akumurru „	1	4	
„ Tidal „	1	4	
Pulleru, Pamurru Lock...	...	2	
Budimair, Casarapilly Lock	...	2	
Buntumilly Canal, Kowtaram Lock	...	2	
Western Delta.			
Main Canal, Head Lock	1	4	
Nizampatam Canal, Duggiralla Lock	1*	3	*This Superintendent will look after the Commamur canal head lock also.
„ Kuchipudi „	1	2	
„ Jutur „	1	2	
„ Nallavada „	1	2	
„ Tidal „	1	2	
Bank Canal, Head Lock	1	4	
Commamur Canal, Head Lock...	...	3	
Jagarlamudy Lock ...	1	2	
Santaravur „	1	2	This lock will probably be completed next year.
Total ...	16	56	

CAMP, KISTNA,
13th December 1877.

(Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

Abstract showing the totals of Conservancy Establishment of the Kistna Delta.

NATURE OF CHARGE.

Present Scale.	Rs.	Proposed Scale.	Rs.	Remarks.
Anicut and Conservancy Establishment	1,519	Anicut and Conservancy Establishment	1,699	
Navigation Establishment ...	708	Navigation Establishment ...	545	
Total per month ...	2,227	Total per month ...	2,244	
Deduct Temporary Establishment.	141	Deduct Temporary Establishment	168	
Net Total ...	2,086	Net Total ...	2,076	
Total for twelve months ...	25,032	Total for twelve months ...	24,912	
Add Temporary Establishment as follows :—		Add Temporary Establishment as follows :—		
15 × 5 months = ... 75		168 × 6 months = ... 1,008		
126 × 6 do. = ... 756			1,008	
	831			
			25,920	
Total as per Budget ...	25,863	Deduct as per present scale ...	25,863	
		Excess required per year ...	57	

CAMP, KISTNA,
13th December 1877.

(Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

Tabular Statement of the Anicut and Conservancy Establishment of the Kistna Delta as existing and as proposed.

Nature of Charge. Present Scale.	Rs.	Nature of Charge. Proposed Scale.	Proposition. Permanent. Increase per month.	Rs.	Proposition. Permanent. Decrease per month.	Rs.	Proposition. Temporary. Period.	Proposition. Temporary. Increase per month.	Rs.	Proposition. Temporary. Period.	Proposition. Temporary. Decrease per month.	Rs.	Grounds of Proposition.	Local Government's recommendation.	Orders of the Government of India. P. W. Department. Remarks.	Orders of the Government of India. Financial Department. Remarks.	Orders of the Government of India. Financial Department. Orders.	No. and date of Order.	Office to which the Proposition refers.
Anicut Establishment.		*Permanent Establishment.*																G.O., No. 1,593, dated 15th June 1871.	
1 Anicut Superintendent. 100		1 Anicut Superintendent. 100																	
1 Maistry 30		1 Assistant Superintendent 30																	
1 Clerk 12		1 Clerk 15																	
1 Head Lascar 7		1 Do. 12																	
8 Lascars at 6 Rs. each ... 48																			
22 Do. at 5 „ ... 110																			
307	307	157																	
IRRIGATION ESTABLISHMENT.																		G.O., No. 3,401, dated 13th November 1865.	
Eastern Delta.																			
1 Delta Superintendent, 1st-class 70		3 Delta Superintendents, 1st grade, at 70 Rs. each 210																	
2 Do., 2nd-class, at 50 Rs. each 100		5 Do. do., 2nd grade, at 55 Rs. each 275																	
2 Do., 3rd-class, at 40 Rs. each 80		6 Do. do., 3rd grade, at 40 Rs. each 240																	
2 Do., 4th-class, at 30 Rs. each 60		19 Lascars, 1st grade, at 8 Rs. each 152																	
10 Channel Superintendents, at 12 Rs. each ... 120		19 Do., 2nd grade, at 7 Rs. each 133																	
23 Lascars, at 5 Rs. each ... 115		27 Do., 3rd grade, at 6 Rs. each 162																	

3

Tabular Statement of the Anicut and Conservancy Establishment of the Kistna Delta as existing and as proposed—(Continued).

No. and date of Order.	Office to which the Proposition refers.	Nature of Charge. Present Scale.		Proposed Scale.		Proposition. Permanent. Increase per month.	Permanent. Decrease per month.	Temporary. Period.	Temporary. Increase per month.	Temporary. Period.	Temporary. Decrease per month.	Grounds of Proposition.	Local Government's recommendation.	Orders of the Government of India. P. W. Department. Remarks.	Financial Department. Remarks.	Financial Department. Orders.
		Ellore Canal.	RS.		RS.	RS.	RS.		RS.		RS.					
		1 Superintendent 8		28 Lascars, 4th grade, at 5 Rs. each 140												
		1 Lascar 6														
		1 Do. 5														
		564		1,312												
			564		1,312											
G.O., No. 3,228, dated 13th October 1868.		*For five months.* Moparru calingulah on Budimair.		*Temporary Establishment for six months.*												
		3 Lascars at 5 Rs. ... 15		3 Superintendents at 10 Rs. each 30												
		15		23 Lascars at 6 Rs. each ... 138												
			15	168												
					168											
		Total, Eastern Delta ...	886													
G.O., No. 1,593, dated 15th June 1871.		*Western Delta.* Delta Superintendent, 1st-class														
		1 Do., 2nd-class ... 50														
		1 Do., 3rd-class ... 40														
		1 Do., 4th-class ... 30														
		17½ Channel Superintendents at 12 Rs. each. 210														
		23 Lascars at 5 Rs. each ... 115														
		445														
			445													
G.O., No. 2,408, dated 8th April 1867.		*For six months.* Poondla sluice and two calingulahs at Pondrapadu.														
		2 Lascars at 6 Rs. each ... 12														
G.O., No. 3,446, dated 6th November 1867.		Nallamada and Masulipatam Calingulahs.														
		1 Clerk 10														
		4 Lascars at 6 Rs. each ... 24														
		34														
		Paruchuru Vagu Sakikalava Calingulahs and Sluices.														
		3 Lascars at 6 Rs. ... 18														
		18														
		Aramanda Channel.														
		1 Clerk 10														
		3 Lascars at 6 Rs. each ... 18														
		28														
		Alleru Calingulah.														
		1 Clerk 10														
		4 Lascars at 6 Rs. each ... 24														
		34														
G.O., No. 3,581, dated 19th December 1874.		126														
			126													
		Total, Western Delta ...	571													
		Total of two Deltas ...	1,457													
		Travelling Allowance ...	62	Travelling Allowance ...	62											
		Grand Total ...	1,519	Grand Total ...	1,699	153	...	...	27	...	...	...	..	...	...	...

For distribution see separate sheet attached.

CAMP, KISTNA,
13th December 1877.

(Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

Distribution of Establishment—Irrigation.

	Delta Superintendents.	Superintendents.	Assistant Superintendents.	Clerks.	Lascars.	Remarks.
Permanent.						
Anicut	...	1	1	2	31	
Irrigation Establishment.						
Eastern Delta	9	...	...	...	18	
Ellore canal	...	...	...	...	3	
Tappal	...	...	...	...	13	
Total ...	9	1	1	2	65	
Temporary for six Months.						
Moparru calingulah on Budimair	...	...	...	...	3	
Weyyur weir	...	...	...	...	2	
Komatigoonta weir	...	...	...	...	2	
Total ...	...	...	...	...	7	
Permanent.						
Western Delta	5	...	...	...	10	
Tappal	...	...	...	...	18	
Total ...	5	...	...	...	28	
Temporary for six Months.						
Poondla sluice and two escapes at Pondapadu	...	...	...	...	2	
Nallamadda and Molapalem escapes,	...	1	...	...	4	
Parchur Vagoo Sakicalva calingulah and sluices	...	...	...	...	3	
Aremada channel	...	1	...	...	3	
Alleru escape	...	1	...	...	4	
Total ..	...	3	...	...	16	
Total, Permanent ...	14	1	1	2	93	
Total, Temporary ...	...	3	...	...	23	

CAMP, KISTNA,
13th December 1877.

(Signed) JOHN MULLINS, Colonel, R.E.,
Chief Engineer for Irrigation.

List of Petty Establishment required to be employed on River Embankments in Kistna District.

Description of Appointments.	Salary per Month.	Amount for 12 Months.	Remarks.
Eastern Delta	RS.	RS.	
1 Maistry	30		
1 Do.	25		
2 Do. at 20 Rupees each	40		
Total, Eastern Delta ...	95	1,140	
Western Delta.			
1 Maistry	30		
1 Do.	25		
1 Do.	20		
Total, Western Delta ...	75	900	
Grand Total ...	170	2,040	

MASULIPATAM,
20th November 1877.

(Signed) J. O. HASTED, Major, R.E.,
Superintending Engineer, Kistna.

Statement showing Delta Superintendent's Charges as per present Irrigation Channels with reference to Delta Divisions, &c., sanctioned.

DELTA SUPERINTENDENT'S CHARGES.

Delta.	Delta Superintendents.	Canals.	Miles.	Acres.	Distribution Channels.	Miles.	Acres.	Total Mileage approximate.	Total Acreage approximate.	Square Miles approximate.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12
Eastern Delta.	1	Ellore Canal	39	Average under Main Canal and Branches cannot be separated.	Tenneru, Viravalli, Kanumilu, &c., channels	13	5,000				
					Small channels from Kistna portion of Ellore Canal for Godavery irrigation	20	15,000				
								33	20,000	72	20,000	100	
	2	Ryves' Canal ... ... Masulipatam Canal to Kankipadu.	39		Uppulur Kunderu, &c., channels...	12	6,000				
			24		Idupugullu, Kolavennu, Tenneru,						
			13		Ponadipadu, &c., channels ...	34	4,000				
								46	10,000	83	10,000	100	
	3	Ryves' Canal	37		Gudivadu branch and its distributaries, Monikonda, Nandamuru,						
			...		Veniandra, Ventrapragada, Muss-						
					tappakancadu, Gondicodu,						
					Dondapadu, &c., channels ...	78	24,000	78	24,000	150	
	4	Ellore Canal	...		Budameru and its distributaries,						
					Moparru, Nakarallicadu, Bhumi						
					codu, &c., channels	91	18,000	91	18,000	80	
	5	Pulleru Canal from head to Polrazeodu.	26		Weyyuru, Kopaleswarapuram,						
					Yalavanu, Ponana, Palacadu						
					chuttram, &c., channels... ...	76	20,000	102	20,000	100	

Statement showing Delta Superintendent's Charges as per present Irrigation Channels with reference to Delta Divisions, &c., sanctioned—(Continued).

Delta.	Delta Superintendents.	DELTA SUPERINTENDENT'S CHARGES. Canals.	Miles.	Acres.	Distribution Channels.	Miles.	Acres.	Total Mileage approximate.	Total Acreage approximate.	Square Miles approximate.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12
Eastern Delta.	6	Polrazcodu Canal and Lower Pulliru.	41	Branches cannot be separated.	Chigmakota, Kikabu, Bhincopatam, Urivi, Pantacodu, Gorricadu, Tumendi, Chennuru, Varadacadu, &c., channels	149	23,000	190	23,000	130	
	7	Pulleru Canal	...		Butlercodu and its distributaries Moniallacodu, Yedlacodu, Nissemkarayacodu, &c., channels ...	69	2,000				
					Bantumalli channel and its distributaries, Terminus channel and small Irrigation channels ...	63	13,500				
					East side channel and its distributaries Ramarazupolem, &c., channels	45	500				
			...			177	16,000	177	16,000	220	
	8	Masulipatam Canal below Kankipadu.	36		West side channel and its distributaries Bodlanka, Meduru, Pamidimukkala, &c., channels ...	70	11,000	106	11,000	120	
	9	Bank Canal Divi ...	83		.....	...	...				
					Suvarnamukhi supply channel, Kadi tank supply channel, Talagadu Divi channel, &c.	45	10,000				
			83			45	10,000	128	10,000	100	
		Total, Eastern Delta ...	262		Total, Eastern Delta ...	765	152,000	1,027	152,000	1,100	

Western Delta.	1	Bank Canal	49	Acreage under Main Canals and	Kallipara, Rudravaram, Katla tank and Repalli tank and channels	57	12,000				
					Vellatur branch and its distributaries Vemavaram, Addapalli, Muthayya, Parra, &c., channels.	58	5,000				
					Iskapalli branch and its distributaries Mantripallem, Kasthuri Appiah, &c., channels	20	4,000				
			49			135	21,000	184	21,000	110	
	2	Main Canal	13		Pirakalapudi, Manchikalapudi and Morampudi, &c., channels ...	11	4,000				
		Nizampatam Canal ...	...		West side channel and its distributaries Gudivada, Yedlapalli, Manduru, Parimisenth, &c., channels	82	9,000				
						93	13,000	106	13,000		
		Commamur Canal ...	13 ...		Tungabudra branch and its distributaries Aramanda, &c., channels	69	8,000	69	8,000		
			13			162	21,000	175	21,000	80	
	3	Nizampatam Canal ...	...		East side channel and its distributaries Tenalli and Jampani, Pedaravuru, Peravali, and Dontalur, &c. channels...	175	19,000				
					Nallavada, &c.	6	3,000				
			...			181	22,000	181	22,000	110	
	4	Commamur Canal as far as Nallamodu calingulah.	29		Vadlamudi, Mutluru, Poondla and Anna, &c., &c., channels ...	100	18,000	129	18,000	125	
	5	Commamur Canal below Nallamodu calingulah.	21		Bapatla tank channels, Cherukur Koranchedu, &c., channels ...	40	18,000	61	18,000	125	
		Total, Western Delta ...	112		Total, Western Delta ...	618	100,000	730	100,000	550	
		Grand Total ...	374		Grand Total ...	1,383	252,000	1,757	252,000	1,660	

MASULIPATAM,
20th November 1877.

(Signed) J. O. HASTED, Major, R.E.,
Superintending Engineer, Kistna.

No. 33. ORDER THEREON, 14th January 1878, No. 36 I.

HIS GRACE the Governor in Council approves of the revision of the Kistna Delta Conservancy and Navigation Establishment in the manner recommended for sanction by Chief Engineer for Irrigation.

2. It is observed that the new scale exceeds the present sanction by Rupees 57 only yearly.

3. The sanction of the Government of India to the new scale will be applied for, and in the entries in the Budget estimate for 1878-79 the new scale will be adopted.

(Here enter No. 37 I, dated 14th January 1878.)

(True Extract.)

(Signed) JOHN MULLINS, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineers, Kistna and Godavery.
" Examiner of Public Works Accounts.
" Chief Engineer for Irrigation.

Exd. E. C. Shunker.
Spare Copies

1886.

P. W. DEPARTMENT.

Current No. 7652

From

K. Krishniah
late Channel Supt of Kodaka
Muta Repally Taluk Kistna
District — ENCLOS.— 1

No.

Dated 27th September 1886.

Received 1st October 1886.

SUBJECT.

Applies for pension for the
served the Dept for a long
time and also adds that
the G.O. passed in connection
with the reduction of Channel
Supts: does not affect him.

DISPOSAL.

No. 3432 Dated 5th October 1886.

Forwarded to the Supty:
Engineer II circle for enquiry
and report.

(Sd) D. Mc. Campbell, Major
Dy. Chief Engr: P. W. Dept.

To

S. E. II circle

Dated 7-10-86.

IRRIGATION.
ESTABLISHMENT.

Govt. of {1878} Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEERS,
KISTNA & GODAVERY,
&c., &c., &c.

Indian Journals, II C.

Issued

Read. Encl.

G. O., 14th January 1878, No. 36 I.

JANUARY.

Nos. 32-33.

Kistna Delta Establishment.—The revised scale of Conservancy and Navigation Establishments of the —, approved and forwarded for the sanction of the Government of India.



1886.

P. W. DEPARTMENT.

Current No.s 7652 & 8388

From

The Supdg: Engr: II Circle

Enclos.— 3

No. 1173 K.S.

Dated 23d October 1886

Received 28th —— " ——

Subject.

K. Kristnayya, Late Channel Supt. Kistna — forwards Correspondence in connection with the pension of ——

Disposal.

No. 19 Dated

This letter is returned for signature of the Supdg: Engr. Had the subject been one of urgency the delay would have been seriously inconvenient

(B.O.)

(Sd) D. Mc. Campbell, Major
Dy. Chief Engr. P.W.D.

To

J. W. Rundall Esquire
Superintending Engineer 2d Circle Kistna

The Humble petition of K. Kristniah Late Channel Supdt of Peda Ravoor moota Repally Peda Ravoor Kistna District D. P. W

Most Honored Sir,

The petitioner begs inform that he submitted some Correspondence regarding his pension in his English petition on the 20th December 1881 and respectfully begs that the following also will meet your your kind and favarable Consideration

2 The petitioner was employed as Marammat Gomastah in the Revenue Department (late Guntoor District Collectors office) from 8th February /53 to 31st October 1855 when his Services were transferred to D. P. W. As a Telugu Gumasta Permanant Establishment in the late 1st or Daggirala Range after 5 years 5 Months 6 days the post has been abolished when he was appointed as Channel Supdt of Peda Ravoor moota by the Executive Engineer J. O. Hasted on the 31st July /63

3 As per Order No 1233 of Superintending Engineer Major J. O. Hasted underdate the 11th November /76 to Mr D Cartier the then Range Officer to force the petitioner to submit his application on the 1st February /77 through Range officer upon which the petitioner was directed to submit also a certificate from Zillah Surgeon regarding his unfitness from Service

As per Orders in the Margin the petitioner presented himself before the Zillah Surgeon of Guntoor 3 times, however a certificate of his unfitness has been granted by Doctor C R Parker Zillah Surgeon of Bandar No 9 under date 11th February 1880 during this period of 3 years & 1 month of His Obtaining Civil Surgeon's Certificate Delta Arrangement was made by Government on the 1st April 1878 when all the channel Superintendants were discontinued in the District and Delta Superintendants were Appointed Consequently I beg your honor to point out that though my Services were discontinued on the 1st April/78 my Application for pension was submitted one year & 3 Months before the arrangement

No 253 dated 14th ... /79
" 300 do 14th Jan /79
" 128 do 11th June /79
" 64 do 12th Dec /79

After submitting his Application for pension on the 1st February /77 he requested the Divisional Officer to release him from his post but he was kept in the Department by force untill the 1st April/78

His Permanent Service contains nearly 25 years if there is any Justice in the English Government I am entitled to pension, because the G. O regarding thrown on Channel Superintendents in the arrangements of 1st April/78 does not effect to my Application for pension from the above circumstances

I therefore beg your honor will be good enough to lay above matter before Government to reconsider my poor Case and grant me pension. For which act of kindness he will ever pray for for your honors prosperity

13th January 1883

I humbly beg remain
Most Honored Sir
Your Most Obedt & humble Servant
(Signed) K Kristniah
Late Chl Supdt

Endorsement No 128/P

Reply was already sent vide this office No 219. dated 16th January 1882

Superintending Engineer's Office
2nd Circle
Camp Bezawada } 20 January 1882 } (Signed) J W. Rundall
Superintending Engineer
2nd Circle

(True Copy)

K. Khristniah
Late channel Supdt

№ 3432 C of 5-10-86
- 36 J - 14-1-78
- 1923 - 28-7-76
- 1115 A - 6-5-76
- 1038 - 22-4-74

Petition to be translated

[illegible]

2/8/83.

ABSTRACT.

States that in 1855 petr. was employed as Maramat Gumasta in the late Guntoor Collr's Office when his Services were transferred to D. P. W. as a Taliq Gumasta and then as Channel Supdt. of Pedarávoor Mutah by the Executive Engr. in 1863; that he performed the above duties without a single remark against him; that in 1879 he was forced to retire and to produce a Medical Certe. regarding his unfitness for Service; that he produced a Certe. of petr's unfitness; but he was not granted a pension for his faithful service of 25 years though others similarly situated were granted their respective pensions –

Encloses Copy of his petn. to the Supg. Engr. 2d. Circle for perusal and prays that on Consederation of the Circumstances stated, he may be granted a pension –

9/8/ [illegible]

1338 KS
21-8-83 Cheepauk
17th Aug/83

Re 15-42C

Referred to the Supdg Engineer Second Circle for report—
(By order)
C. Chowen. Major R.E.
Dy Chief Engr & Secy

[8]

PETITION DEPARTM

From K. Kristnayya,

Occupation late Channel Supdt
Village of Peddaravur Inmate
Taluk Repally
District Kistna

Dated 26th July 1883
Received 8th August
Enclosures 1

Addressed to the Chief Engr

SUBJECT.

For

Memo No 2191.

With reference to his petition dated the 20th December 1881, K. Kristnaiah late Channel Superintendent is informed, that his statement that he obtained a medical Certificate prior to retirement is not borne out by the records of this Office

2. Colonel Hasted's letter to the Examiner No 35 of the 16th June 1878 distinctly shows that though K. Kristnaiah lost his post in March he had not at that date obtained a medical certificate of unfitness, and that his retirement was due to the abolition of his post.

3. As the Government of India have refused to grant a pension in this case, the Superintending Engineer is unable to take any further steps in the matter.

Camp Nallanida
16th January 1882

(Signed) J. W. Rundall
Supg: Engineer.

(True Copy)
Executive Engineer

1338 KS

1

O.4 Encl / 7378 B

No. 1411 KS.

Superintending Engineer's Office
2nd Circle, Masulipatam
21st August 1883.

From

The Superintending Engineer,
2nd Circle.

To

The Chief Engineer,
Public Works Department,
Madras.

Enclosures Four.
1 Copy of Memo No 2191.
1 Petition with its enclosure
1 No 1542 C of 17th August/83

Sir,

I have the honor, in acknowledging the receipt of your No. 1542 C of the 17th Instant, Calling on me to report on the petition of K. Kristnayya late Channel Superintendent, to forward you a Copy of the endorsement dated the 16th January 1882, which I gave to this man.

2. The Case of these Channel Superintendents is, I admit, a hard one. Under G. O. Pension Department No. 957 of the 22nd September 1881, the grant of a pension to the men whose posts were abolished in 1878 was refused.

3. The fact that K. Khristnayya obtained a medical certificate of unfitness, sometime after he had lost his post, does not entitle him to a pension.

I have the honor to be,
Sir,
Your most Obt Servant.

Executive Engineer,
In charge, 2nd Circle.

No 1657 Ca/4th Sept/83

Petitioner is referred to the Endorsement given him by the Deputy Engineer, Second Circle No 2191 d/16th January 1882, & is informed that the Chief Engr is unable to do anything for him

[illegible]
29/8

Despd 4/9

To The Petitioner

No. C.W. 7378

From
The Supg. Engineer
2d Circle

To
The Chief Engineer
P.W.D.
Madras

Dated 21st August/83
Despd 23d do
Recd 28 —

No 1657 Ca/4-9-83

Enclos 4

No 1411 K.S.

Kristnayya - K - Late channel Superintendent — Petition, claiming for pension, from — Returns with certain information, the —

Sent to [illegible]
[illegible]

COURT FEE
INDIA
ONE ANNA
1/16 R.

10/6/83 [illegible]
[illegible]
Stamp vendor
Tenali

[illegible]

1 [illegible]

2 [illegible]

[illegible]

From the date of 1st April 1878 under the or[illegible]
No. 36 dated 14th January 1878 you and all the
caro under you are reduced. All the channel sup[illegible]
that are fit either to pension or to the granit d[illegible]
are informed to be present to Duggirala Western
delta division office with their hukum &c
make representation.

21st March 1878 } (Signed) W. H. Norris. C. E.
Executive Engineer

To
K. Kristnayya Pedaranoor moota
(True translation)

True translation for the hukum No. 253
To K. Kristnayya late channel Superintendant.
On my recommendation to the government for your
pension they ordered that the petitioner could not
get pension unless he obtained the medical
certificate for his unfitness to the government service.
You are, therefore, informed herewith to go to Guntoor
to obtain the medical certificate for the same
and to dispatch it to my office.

14th January 1879 } (Signed) W. H. Norris C. E. Executive Engineer W. D. office

---

True translation for the hukum No. 300
We wrote to the zilla surge[illegible] of Guntoor dated No. 19 of
28th instant to reexamine [illegible] and to provide you
with a medical certificate with regard to send your

medical certificate for your pension. You are therefore informed here-with to be present before him to obtain a medical certificate as soon as you receive this order.
Western delta division office Duggirala
[illegible] March 1879 } (signed) W. H. Norris C.E.
Executive Engineer

True translation for the hukum No. [illegible]
As the certificate you obtained is not in regular form you are therefore informed to be present immediately before the Guntoor doctor to be examined, to obtain a certificate and to appear before the Western delta office. Camp Duggirala
14th July 1879 } (signed) G. E. Wybrow
Executive engineer

True translation for the order No. 94
As the superintending engineer and the government are of opinion that it is not in their power to make proposal for your pension without your medical certificate. The Masulipatam doctor has been informed to day to provide you with a medical certificate. You are therefore informed here-with to appear before him at Masulipatam as soon as you receive this order
Western delta office Duggirala
12th December 1879 } (signed) G. E. Wybrow
Executive engineers

H. Kristniah
Late channel supdt.

Memo

With reference to Lieutenant Maganay's memo No. 108 of the 18th instant the acting District Engineer regrates that that he cannot approve of the appointment therein made as by the recent orders of government The servants of the old maramut Establishments must be first provided for before situations are given to outsiders. The acting District Engineer therefore requests that lieutinant Magnay's will have the goodness to appoint Camararazugadda Kristnayya lately of the Guntoor maramut Department acting goomastah in his Establishment.

C. Kristnayya who is now at Guntoor has this day been dirichd to join Lutt Magnay's camp at Duggirala, should this man, after a fair trial prove unfit for his position Lutt Magnay will please report the same in order that other arrangements may be made by the acting Dist

Engineer)

Bazaarah ?

th January 1885
1858

(Signed)
(O.S.B. Chambers
a/c District Engineer.

Ex Encl 5390

(True copy)
K Kristniah
Seat Channl dupt

No 350 x

From The Examiner
Public Works Accounts
Madras

To K Kristniah
Late Channel Superintendent
C/o Superintendent of Works Kistna

Madras 4th August 1881

Copy of the following forwarded to K Kristniah with reference to his letter dated 22nd July 1881

(Signed) W C Gordon
Examiner P. W. Accts

Copy of Endorsement by the Examiner Public Works accounts to the Secretary to Government Revenue Department on letter No 428 x dated 28 July 1881

Referring to his former letter dated 26th July 1883 to which he received an unfavorable reply dated 4th Sept 1883, No 1857, States that 3 doctors Gunter ~~3~~ three granted him certificates of fitness for further service; but that the Executive Engineer not approving these certificates petitioner was for the fourth time sent to the Doctor vide Bunder for Medical Examination who pronounced him unfit; but that petr has neither been granted retiring allowance or pension or restored to service though the servants in similar cases were favorably treated; that the Govt wrongly approved the recommendation of the then Chief Engineer declining to grant pensions to their servants whose services were dispensed with on account of revision of establishments; that petr applied for pension on first February 1877 as Delta Gunnista under the Channel Supdt; that had his pension application been submitted then alone, he would have got his pension; but it was unjustly submitted to the Examiner on 16th June 1879; that petr had been transferred

[illegible] ferred from the Collrs office to
[illegible] D. P. W under the Govt orders.
[illegible]ed he was not employed as
[illegible]elta Gumasta from the beginning
[illegible]s may be seen from the Service
[illegible]ent in the Examrs office -

Cites similar Cases in which
gratuities & pensions were granted
in the Public Works Department,
prays that after Calling for the Corres.
pondence passed regarding petrs
pension, recommendation may be
made to Govt to grant pension
to petitioner from 1st April 1878.

17/6/85 W.

G.O. B/2477 Way 8-10-81.
No. 1657 Cay 4-9-83.

[illegible] Public Works (1885) Deptt.

From Kamarajugadda Kristnayya
Late Channel Superintendent
Pedaraivur Mustah Repalli Taluq
Kistna District.

No.

Dated 10th June 1885

Received [illegible]

Enclosures

Addressed to the Chief Engineer for Irrigation.

SUBJECT.

R. No. 1511 Dcy 30th June/85

Petitioner is referred to the Endorsement given him by the Chief Engr Pl. Deptt No. 1657 d/4th Sep. 83. The Chief Engr for Irrign can do nothing for him. AW 25/6/85

To His Petitioner

For

To

Colonel J. C. Hasted R[illegible]
Chief Engineer and Secretary
to the Government P. W. Ma[illegible]

Most Respected & Honored Sir.

The humble Representation of Kamarajugadda
Kristniah late Channel Superintendent
of Pedaravoor Mustah. Repally Taluq
Kistna District

Shewing

1 That he was first entertained in the
Revenue Department (the then Guntur District
Collectors office) as a Marammat Gumasta
continued in it from 8th February 1853 to
October 1855 his services were then transferred
to D. P. W. as a Telugu Gumasta in the Range
Office at Duggirala and that after Con-
-tinuing in it 5 Years. 5 Months & 6 days, the post
having been abolished, he was made
Chief Superintendent Pedda Ra[illegible]
Superintendent

the 1st July 1863 by Major J.O. Hasted R.E.
then Executive Engineer

That he was compelled to retire as per
Superintending Engineers (Major J.O. Hasted)
1233 of 11th November 1876 & on submitting
an application to that effect on 1st February 1877
through the Range Officer, he was again
ordered to enclose a Medical Certificate
from Civil Surgeon shewing his inability
holding Government situations any longer.

That he thrice appeared before the
Surgeon & thrice declared as qualified
for Government Service & after all
he could get it from C.R. Parker the
then Civil Surgeon of Bunder on the
14th February 1880 No. 9

That owing to the reorganization in the
Delta establishment on 1st April 1878
the services of Channel Superintendents were
dispensed with and Delta Superintendents appointed.

The petitioner in spite of his applying
for pension on 1st February 1877 and requesting
Divisional Officer to get him
he was involuntarily made to serve in
Department until 1st April 1878.

6 He had nearly 25 years service in a
as shewn in the annexed list

7 The memorialist in fine, begs to say
that because he applied for pension
long before the reduction & that his
services were originally transferred
from the Revenue Department and Ka
Office, the G.O. passed regarding the Ch
Superintendents reduced would in no way
affect him & hopes that the British
Government would do him justice &
sanction the pension having served
the Government so long in the hope of
obtaining it & spending his old age.

27th September 1886.

I most humbly beg to remain
Most Honored & Respected Sir
Your honor's most obedient & humble Servant
H. Kristniah
Late Channel Superintendent

SUPG. ENGINEER'S OFFICE
No. 1175 [illegible]
11 OCT. 86
P. W. D.
SECOND CIRCLE

P. W. Dept.
To be returned with reply.

No. 3432 C of 5th October 1886

Forwarded to the Supdg: Engineer II Circle for enquiry & report.

[illegible], Major R.E.
Dy. Chief Engr: P. W. Dept.

[illegible]
4/10/86

To
The Supdg: Engr: II Circle

No. 1233

To
The Officer in charge
Repalli Division, Kistna

Masulipatam. Dated 11th November 1876.

No. 120 dated 27th Ultimo

×K. Kristnayya
M. Sreenivasarow.
S. Reddy.

From the Statement therewith received the ×marginally named Channel Superintendents appear to have completed service, which entitles them to 1/3 pension and to be willing to apply for pension if ordered, and the Superintending Engineer Kistna, therefore requests Mr. Carlier to be so good as to submit at once their Service Statements duly prepared in the form enclosed with all requisite information agreeably to Section 70 Chapter XIV and its Form in Appendix A of the Civil Pension Code.

2. Any Hukums, Characters &c should accompany the Statements in which appointments, leaves, or absences, unemployed periods with causes &c should be entered consecutively so that each servants' public career may be known to authorities in due order.

(Sd) J. O. Hasted Major R.E.
Supg. Engineer Kistna District

(True Copy)
[illegible]
Superintending Engineer 2nd Circle

Compd. [illegible]

List of K. Kistayya late Channel Superintendent

Discription	Salaries			Length of Service		
				y	m	d
Mothir Taluq Madudgar of late Guntur Zilla from 1st July 1852 to 2nd August 1852	10	0	0	"	1	22
Guntur Collector's Office Marammat Gumasta from 8th February 1853 to 31st October 1855	7	0	0	2	8	21
Do Gumasta from 1st November 1855 to 5th June 1856	9	0	0	"	7	6
Marammat Gumasta of Public works Dept from 6th June 1856 to 31st July 1857	9	0	0	1	1	24
				4	7	13
Duggirala Range Office Telugu Gumasta from 25th January 1858 to October 1859	14	0	0	1	9	6
From 1st November 1859 to June 1863	15	0	0	3	8	0
				5	5	6
From 1st July 1863 to Decr 1876 Pedakanur Mutta club Supvr	12	0	0	13	6	0
Do from 1st January 77 to 31st March 1878	12	0	0	1	3	0
				14	9	0
Total				24	9	19

No. 1173 Ks. Superintending Engineer's Office
2nd Circle, Bezwada
23rd October 1886

From

The Superintending Engineer
2nd Circle

To

The Chief Engineer
Public Works Department

Enclos. 2

Sir

With reference to your memo No. 3432 C of the 5th Instant (herewith returned) I have the honor to report that, the pension papers of K. Kristnayya late Channel Superintendent were disposed of in G.O. No. 963 Pension Department of the 22nd September 1881, with reference to G.O. No. 957 Pension Dept. of the same date, communicating orders of the Government of India refusing the grant of a retiring allowance to Suliman Beg, late Channel Superintendent, Kistna District and others similarly circumstanced. These orders were duly communicated to Kristnayya, in this Office memo No. 1599 of the 25th October 1881.

Not Cont.

2. With reference to para 2 of the petition, it is true that the petitioner was eligible for

⅓rd pension at the time his pension papers were asked to be submitted, vide, Superintending Engineer's No. 1233 of the 11th November 1876 (copy herewith); but he did not obtain from the zillah Surgeon a Certificate of unfitness till February 1880; he was however declared as qualified for Government Service, and was in service on the date, the reorganization of the Delta Establishment, came into operation, viz, 1st April 1878. His case, therefore, is similar to those that were thrown out at the time and whose claims have been disposed of.

I have the honor to be
Sir
Your most Obt. Servant

[illegible]
Superintending Engineer 2nd Circle

Compd. J.W.

Abstract

Collectors Office	4-7-13
Range office	5-5-6
Channel supdt	14-9-[illegible]
	24-9-19

27th Sept 1886

H. Kristnah [illegible]
Late Channel Superintendent

P.W.C. No. ~~8388~~ 8861

No. 3792 C of 29th Octr 1886.

This letter is returned for the signature of the Supdg. Engineer. Had the subject been one of urgency the delay would have been seriously inconvenient.

(By order)

J. W. Campbell, Major RE

Dy. Chief Engr. P. W. Dept.

J.M.
28/10/86.

To
The Supdg. Engr. II Circle

No. 1255 Ks

Returned duly signed.

[signature]

Superintending Engineer 2nd Circle

6th November 1886.

1511 D. 30. 6. 85.
3792 C 29. 10. 86.
3432 C. 5. 10. 86.
~~95~~. ~~22~~
2477 W 8. 10. 81.
1657 C 4. 9. 85.
36 J. 14. 1. 78
1923. 22. 7. 76
1115 A. 6. 5. 76
1038. 22. 4. 74

in 17/11 J.D.G. 29/11

From
The Superintending Engineer
2nd Circle

To
The Chief Engineer
Public Works Dept.
Madras

Dated 23-10-86 Encl 3
Rd ~~22-10-86~~ 16-11-86

No. 1173 Ks

Kristnayya K Late Channel Superintendent Kistna - Forwards Correspondence in Connection with the pension of -

Petitioner will be referred to endorsement, No. 1511 D dated 30th June 1885, and previous disposals on his petitions - the Government are unable to do any thing for the petitioner under the orders of the Govt of India which have been comd to him. Further petitions cannot be considered

Petr & S.E. II [illegible] 17/11/86 [initials] 15/11/86

C [illegible] 26-11-86

No. 350 X

Forwarded in original to the Secretary to Government Pension Department for favor of disposal. The pension papers of K. Kistnah were duly completed and forwarded for the orders of Government, with this Office letter No. 912 X dated 7th February 1881

$\frac{\text{Pen 2}}{5390}$

(True copy)

(Signed) W. S. Jackson

Supdt. Correspondence Branch

K Khristniah

Late Channel Supt.