No of Sheets : 46

Date of Repair 2-3-8

Initial of the Reps : bvs

TAMIL NADU ARCHIVES.

Govt of TAMILNADU.

G.O.No. 1103 W dt. 21-4-1887

Public Works Department

GP

1105/1

21st April 1887, No. 1103 W., Public Works.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Establishment.

Read—the following papers :—

No. 21 E.W.

Note by the Chief Engineer for Irrigation.

By the Government of India's orders on the budget for 1887-88, dated 17th March 1887, No. 33 A.I., the grant from Imperial funds under "43. Minor Works and Navigation" has been increased from Rs. 20,00,000 to Rs. 23,00,000 and provincialized. The total grant under Provincial, therefore, becomes Rs. 26,51,000.

2. In the Preliminary Issue of the budget printed with G.O., No. 4 I., P.W., dated 7th January 1887, the distribution of the Rs. 23,51,000, as proposed, was shown. It is proposed to leave this distribution undisturbed and to allot to the Tank Maintenance Scheme the additional Rs. 3,00,000 now granted, so that we shall have for Tank Maintenance Rs. 3,99,200.

3. Before allotting money for the Tank Maintenance it is necessary to decide on what system the work is to be carried out and what establishments are to be allowed for; at present the establishment is quite disorganized and it is most important that it should be re-organized and placed on a proper footing as soon as possible. Both Colonel Pennycuick and Major Campbell, who were in charge of the Tank Maintenance Scheme, considered that the former establishments should be considerably altered, and with this note is forwarded a note by Major Campbell with a comment by Colonel Pennycuick and a further note by the latter officer.

4. Both these officers consider it advisable that there should be a head to the Tank Maintenance Scheme in Madras and suggest either that the appointment of Superintendent of Works in charge should be revived or that the work should be supervised by the Chief Engineer for Irrigation, his assistant being in charge of the office.

5. It is considered that the Assistant Chief Engineer for Irrigation cannot, in addition to his other duties, do this work properly, and a special officer for the purpose is therefore essential. It is proposed that an officer of the rank of about a 3rd-grade Executive Engineer should be selected to be in charge of the office and that he should be the Assistant to the Chief Engineer for Irrigation for the Tank Maintenance Scheme.

6. With regard to the strength of the parties working in the divisions, it is proposed to reduce them considerably below the strength that was formerly allowed. Major Campbell proposed, should money be available, to employ ten small parties, in as many districts, each party consisting of—

1 Assistant Engineer,
2 Overseers,
2 Surveyors,

with a small office establishment; he also proposed that no estimates should be made but only levels, plans of works, hydraulic and revenue information, &c., be recorded, and that the estimates be prepared afterwards at such time as money might be available to start the works.

7. Colonel Pennycuick in his note, while agreeing in the scale of establishments proposed, considered that the estimates should be prepared at the time the plans, &c., were made, and considered that the survey, estimating and recording work should not be allowed to get too far ahead of the repair work of the tanks and, in his note, proposed that, should Rs. 5,00,000 be available, seven parties, of the strength laid down by Major Campbell, be entertained.

8. The Chief Engineer for Irrigation agrees with Colonel Pennycuick and considers it most advisable that when the Tank Maintenance establishment examine a tank, they should not only collect and record all the information they have heretofore done, but they should also, as before, make the estimates, &c.

9. Doing this renders the work complete and will enable the works to be carried out as soon as money is available; it adds but little to the work if done at the time; but it would entail much work if done a year or two after the levels, &c., had been taken.

10. The following establishment is proposed for a party working in a basin:—

			Rs.
1	1	Assistant Engineer ...	500
2	2	Overseers ...	160
2	4	Surveyors ...	320
2	2	Draftsmen ...	102½
1	4	Clerks ...	100
30	35	Lascars ...	210
		Travelling allowance, contingencies, &c. ...	287½
		Total per month ...	1,680
		or per year ...	20,160

The number for each class, as proposed by Major Campbell, is entered in black type. The cost as estimated by Colonel Pennycuick was Rs. 18,000 per year, the main difference is that two extra surveyors are now allowed for and also four clerks in place of only one.

11. It is thought that an Assistant Engineer should be able to supervise well two parties, each of one overseer and two surveyors, and that more than one clerk should be allowed, as there must be considerable clerical work involved in collecting and recording the hydraulic and revenue details.

12. For the establishment to be attached to the office of the Chief Engineer for Irrigation, Major Campbell's proposals have been accepted, but an Executive Engineer, 3rd grade, has been added to be in charge of this establishment and supervise the important work to be done.

The establishment is as follows:—

	Rs.
Executive Engineer ...	845
6 Clerks ...	416
7 Draftsmen ...	332
Messengers, &c. ...	48
Per month ...	1,641
Per year ...	19,692
Add for travelling allowance, contingencies, &c. ...	1,608
Total per year ...	21,300

1103/2

The work to be done exactly as heretofore, as it is considered that no alteration should be made in the manner in which the plans, memoirs, &c., are drawn up.

12. Major Campbell's manual to be acted up to with the modifications rendered necessary by the alterations in the establishment.

13. Each party working under an Assistant Engineer to work in a tank basin, and to have convenient head-quarters, where the office will be established. One overseer with two surveyors will form a sub-party. The surveyors to take the necessary surveys, levels, &c., under the overseer's orders; the overseer to check them and to see that the surveyors do trustworthy work and a fair amount of it. The overseer to make plans of the masonry works in pencil on section paper; the surveyors to rough plot in pencil their own work. The overseer to send in these papers to the Assistant Engineer and on orders from him, if necessary, to prepare the estimates or collect any additional information required.

14. The Assistant Engineer to complete in his office the plans and estimates in pencil in the rough and to send them direct to the office of the Chief Engineer for Irrigation to be fair copied and lithographed and printed.

15. The Assistant Engineers to have an imprest for petty expenditure, as also the overseers; all the accounts to be done in the divisional office of the district the party is at work in. The Assistant Engineer of course is to exercise a close supervision over his overseers and surveyors, to frequently inspect their work and to decide on all engineering points; he will of course make all the important designs for works himself, type-designs for ordinary works being followed as much as possible.

16. If the above proposal is accepted and the strength of the establishments be approved for the head office and the parties, it is thought that for the present three parties might be started, the cost being as follows per year:—

	Rs.
For Head-office ...	21,300
For three Parties, at Rs. 20,160 per year ...	60,480
Total ...	81,780
Add for extra cost for lithographing and printing ...	3,220
Total ...	85,000

17. It is believed that the Chief Engineer has allowed in the proposed permanent establishment of the Public Works Department three Executive Engineers or Assistant Engineers of standing in the each of the divisions in which tank operations are in progress.

18. It is supposed that as the total grant of Rs. 26,51,000 for expenditure on 43. Minor Works and Navigation now appears under Provincial, the Madras Government can expend any portion they think fit on temporary establishment which should of course be provided for in the Irrigation Budget, and that the pay of the surveyors and lascars employed for survey operations can be charged to Works, and the cost of lithographing and printing may also be met from Works.

If the above supposition is correct, the Rs. 85,000 required can be divided under the following heads:—

Chargeable to Provincial Service Budget under head of Permanent establishment—

	Rs.
Three Assistant Engineers ...	1,500
Travelling allowance for Assistant Engineers ...	330
Contingencies ...	42
Per month ...	1,872
Per year ...	22,464

Chargeable to Temporary establishment to be provided for in the Irrigation Budget establishment proposed to be attached to the office of the Chief Engineer for Irrigation, as shown in appendix A—

	RS.
Per year	21,300

as shown in appendix B—

Three parties of—

	RS.
2 Overseers	160
2 Draftsmen	102½
4 Clerks	100
Travelling allowance for Overseers	120
Lascars and sundries	73½
Per month ...	556
For three Parties per month ...	1,668
Per year ...	20,016
Total ...	41,316

Petty establishment chargeable to Works—

	RS.
Surveyors per month	320
Lascars employed in surveying	180
	500
For three Parties ...	1,500
Per year ...	18,000
Add for lithographing and printing	3,220
Total ...	21,220
Grand Total ...	85,000

19. The budget for 1886-87 allowed for a Superintending Engineer with office at head-quarters; for four Executive divisions with four Assistant Engineers, twenty-four Upper Subordinates, &c., at a total cost of Rs. 1,60,480. Besides this there was a large establishment of surveyors, draftsmen, lascars, &c., charged to Works.

The total cost of the establishment actually employed was Rs. 2,01,924.

20. As at present only Rs. 3,99,200 are available for Public Works establishment, Tank Maintenance establishment, and for works, it is proposed to spend only a total of Rs. 85,000 on establishments, this includes the whole establishment—permanent, temporary and petty.

21. There is at present employed in four districts the following establishment:—

	RS.
24 Surveyors	1,940
24 Draftsmen	880
8 Clerks	200
120 Lascars	720
Total ...	3,740

According to the proposed new scale the following is the establishment to be employed in three districts:—

	RS.
6 Overseers	480
12 Surveyors	960
6 Draftsmen	307½
12 Clerks	270
111 Lascars	669

As this is the case, there will have to be still further reductions in the establishment of surveyors and draftsmen, the best men of course being selected for employment.

It is thought that the three parties should work in Madura, Chingleput and Coimbatore districts.

22. A revised statement* based on these proposals is forwarded.

(Signed) H. R. MEAD, Colonel, R.E.,
Chief Engineer for Irrigation.

Chepâk,
4th April 1887.

To the Chief Engineer, Public Works Department.

* Distribution of grants.

P.S.—With regard to the proposed establishments that are to be attached to the office of the Chief Engineer for Irrigation, it is considered to be more than required, hereafter should more funds not be available, and only three parties employed; it is however thought advisable to maintain it at its present strength as there is a large quantity of work (such as rough estimates, plans, &c.) to be reduced to proper shape and to be recorded.

Except in the case of the head-quarter office, the pay of the different members of the proposed establishment represents the average pay of the grade, the men will be classified and draw different class pay so that there may be chances of promotion for good men.

(Intld.) H. R. M.

Enclosures.

A.

IRRIGATION AND NAVIGATION.

Works not classed as Productive.

Detail of the Budget Estimate of the Tank Maintenance Establishment to be attached to the office of the Chief Engineer for Irrigation for 1887-88.

No.		Particulars.	Rate of salary.	Budget Estimate for 1887-88.		
—	1887-88.			Per mensem.	Per annum.	Total.
			RS.	RS.	RS.	RS.
1	...	Executive Engineer, 3rd grade ... House-rent and Presidency allowance	700 145	845		
1	...	Clerk	220	220		
1	...	Do	88	88		
2	...	Clerks	34	68		
2	...	Do.	20	40		
1	...	Draftsman	88	88		
1	...	Do.	60	60		
1	...	Do.	54	54		
2	...	Draftsmen	35	70		
2	...	Do.	30	60		
1	...	Muchi	10	10		
1	...	Head Messenger	8	8		
2	...	Messengers	6	12		
3	...	Lascars	6	18		
		Total Establishment ...	...	1,641	19,692	...
		Travelling Allowance ...	...	...	460	...
		Contingencies ...	...	...	1,148	21,300

(Signed) H. R. MEAD, Colonel, R.E.,
Chief Engineer for Irrigation

B.

Statement showing the Strength and Cost of the three Parties for the investigation of Tank Maintenance Works for the year 1887-88.

No.	Particulars.	Rate of salary.	Provided in Provincial Budget.	Extra establishment required.	Establishment chargeable to Works.	Total.
		RS.	RS.	RS.	RS.	RS.
1	Assistant Engineer	500	500	..	...	
2	Overseers	80	...	160	...	
4	Surveyors	80	...	...	320	
	Assistant Engineer's Office.					
1	Draftsman	60	...	60	...	
1	Do.	42½	...	42½	...	
1	Clerk	35	...	35	...	
1	Do.	25	...	25	..	
1	Messenger	7	...	7	...	
1	Do.	6	...	6	...	
	For Overseers.					
2	Clerks or Assistant Draftsmen	20	...	40	...	
	Petty Establishment.					
3	Lascars (for Assistant Engineer) ...	6	...	18	...	
2	Do. (for 2 Overseers) ...	6	...	12	...	
6	Do. (for do.	6	...	...	36	
24	Do. (for 4 Surveyors)	6	...	...	144	
	Travelling allowance (for Assistant Engineer)	...	110	...	...	
	Travelling allowance (for Overseers and lascars)	...	...	120	...	
	Contingencies	...	14	30½	...	
		...	624	556	500	
	Total per mensem ...	...	...	...	...	1,680
	Total per annum for 1 Party ...	...	...	...	...	20,160
	Total do. for 3 Parties ...	...	...	...	...	60,480

(Signed) H. R. MEAD, Colonel, R.E.,
Chief Engineer for Irrigation.

1103

Statement showing the Distribution of the Increased Grant of Rs. 26,51,000 under Provincial, 43. Minor Works and Navigation, for 1887-88.

—	Original works.	Repairs.	Establishment.					Tools and Plant.			Total.
			23 per cent. on Expenditure.	10 per cent. on Direct Revenue.	6 per cent. on Indirect Revenue.	Special establishment.	Total.	Special.	General.	Total.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Capital Account—											
Pálár anicut	48,400	..	11,040	..	..	..	11,040	560	..	560	60,000
Pelandorai anicut	4,000	..	920	..	..	..	920	80	..	80	5,000
Buckingham canal	1,57,500	..	53,475	..	..	..	53,475	9,775	..	9,775	2,20,750
Total ..	2,09,900	..	65,435	..	..	..	65,435	10,415	..	10,415	2,85,750
Revenue Account—											
Chembrambakam tank	— 2,283	— 98	— 548	4	..	..	— 544	..	..	..	— 2,925
Pálár anicut	11,500	30,000	9,545	97	..	..	9,642	158	..	158	51,300
Pelandorai anicut	1,450	8,000	2,174	1	..	..	2,175	..	..	..	11,625
Madras Water-supply Project	— 3,603	24,100	4,714	500	..	..	5,214	114	..	114	25,825
Buckingham canal	5,000	68,634	16,936	5,400	..	..	22,336	2,280	..	2,280	98,250
Vedaranniem do.	..	5,000	1,150	25	..	..	1,175	..	..	..	6,175
Total ..	12,064	1,35,636	33,971	6,027	..	..	39,998	2,552	..	2,552	1,90,250
Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept—											
Old Maintenance charges	10,039	1,30,972	32,433	..	1,74,480	..	2,06,913	..	2,115	2,115	3,50,039
Ordinary "Imperial" works	1,35,053	4,67,004	1,38,473	1,200	..	..	1,39,673	..	9,031	9,031	7,50,761
Tank Maintenance or restoration	* 1,11,024	1,75,000	65,786	..	..	43,100	1,08,886	..	4,290	4,290	3,99,200
"Minor" Irrigation works	..	2,75,000	..	..	..	..	..	..	..	..	2,75,000
Total ..	2,56,116	10,47,976	2,36,692	1,200	1,74,480	43,100	4,55,472	..	15,436	15,436	17,75,000
Agricultural works	1,35,482	1,85,000	73,711	1,000	..	..	74,711	..	4,807	4,807	4,00,000
Grand Total ..	6,13,562	13,68,612	4,09,809	8,227	1,74,480	43,100	6,35,616	12,967	20,243	33,210	26,51,000

* Including Rs. 28,000 for temporary Survey establishment and lithograph charges.

Proposed distribution of the grant for execution of Tank Maintenance Works.

—	Original Works.		Repairs.	
	Applied for.	Proposed.	Applied for.	Proposed.
	RS.	RS.	RS.	RS.
Madura	30,000	30,000	70,000	60,000
Chingleput	42,000	30,000	90,000	70,000
Kurnool	20,000	14,024	40,000	20,000
Coimbatore	10,000	10,000	30,000	25,000
Total ..	1,02,000	84,024	2,30,000	1,75,000

(Signed) H. R. MEAD, Colonel, R.E.,
Chief Engineer for Irrigation.

No. 24 E.W.

Note by the Chief Engineer for Irrigation.

The proposal made in Note No. 21 E.W.* having been discussed with the Chief Engineer, and it being found that the whole of the Engineer establishment required can be provided from the permanent establishment, the following revised proposal for establishments for the Tank Maintenance Scheme is put forward; each party in the divisions to consist of an Executive or Assistant Engineer provided from the permanent establishment with the following:—

	Rs.
2 Upper Subordinates ...	200
4 Surveyors ...	320
2 Draftsmen ...	105
4 Clerks ...	100
35 Larcars ...	210
Travelling allowance and contingencies ...	240
Per month ...	1,175
Per year ...	14,100

It is proposed to have four of these parties at a cost of Rs. 56,400. Of the above establishment, the following to be charged as Petty to Works:—

	Rs.
4 Surveyors ...	320
30 Lascars ...	180
One Party, per month ...	500
Per year ...	6,000
Four Parties, per year ...	24,000

Deducting this Rs. 24,000 from the total Rs. 56,400, the actual cost of the four parties chargeable to temporary establishments is Rs. 32,400.

To this has to be added the cost of the temporary establishment attached to the office of the Chief Engineer for Irrigation, viz.:—

		Rs.
6 Clerks ...		416
7 Draftsmen ...		332
Messengers, &c. ...		48
	Per month ...	796
	Per year ...	9,552
Contingencies ...		1,148
	Total ...	10,700
	Grand Total ...	43,100

chargeable to temporary establishments. A sum of Rs. 4,000 should be added to works for cost of lithographing, printing, &c.

The total establishment proposed to be employed on the Tank Maintenance Scheme is as follows:—

From the permanent establishment chargeable to Provincial Services Budget—

One Executive Engineer in the office of the Chief Engineer for Irrigation.
Four Executive or Assistant Engineers in charge of parties.

*Dated 4th April 1887.

1103
5

Chargeable to temporary establishments to be provided for in the Provincial Irrigation Budget—

	Rs.
For four Parties ...	32,400
For the establishment attached to the office of the Chief Engineer for Irrigation ...	10,700
Total ...	43,100

Petty establishment chargeable to Works, surveyors and lascars—

	Rs.
With the four Parties ...	24,000
For lithographing, printing, &c. ...	4,000
Total ...	28,000

making a grand total of Rs. 71,100, exclusive of the officers provided from permanent establishment and allowed for in the Provincial Service Budget.

A revised distribution statement of grants based on the above is forwarded, and it is proposed to prepare the final Irrigation Budget accordingly.

(Signed) H. R. MEAD, Colonel, R.E.,
Chief Engineer for Irrigation.

11th April 1887.

To the Chief Engineer, Public Works Department.

Order—dated 21st April 1887, No. 1103 W., Public Works.

The proposals of the Chief Engineer for Irrigation for continuing the work of the Tank Maintenance Scheme are approved, and arrangements will be made for carrying them into effect as early as practicable.

(True Extract.)

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

To the Chief Engineer for Irrigation, with copy of Note by the H. M.
„ Superintending Engineers.
„ the Examiner, Public Works Accounts.
„ Reve Deptt.

Exd. P. L. Pereira.
Spare Copies

GENERAL.
ESTABLISHMENT.

Govt. of |1887| Madras.

PUBLIC WORKS.

Dated April, 21st.

Recd. *Encl.*

G.O., 21st April 1887, No. 1103 W.

APRIL.

Tank Maintenance Scheme

The proposals of the Chief Engineer for Irrigation for continuing the work of the —, approved.

1103/6

No. 33 A.—I.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

ACCOUNT.

Irrigation.

Fort William, March 17, 1887.

Orders on the Budget Estimate for 1887-88 and Revised Estimate for 1886-87 of the Irrigation Branch, Madras.

Read the following papers:—

Government of India, Public Works Department, Resolution No. 81 A.—I., dated 1st November 1886.
Letter from the Government of Madras, No. 5 I., dated 7th January 1887.
Telegram to ditto, No. 252 A.—I., dated 10th January 1887.
Telegram to ditto, No. 1 A.—I., dated 13th January 1887.
Telegram to ditto, No. 18 A.—I., dated 22nd January 1887.
Letter to the Government of Madras, No. 13 A.—I., dated 4th February 1887.
Telegram from ditto, dated 2nd February 1887.
Letter to ditto, No. 15 A.—I., dated 9th February 1887.
Telegram from the Government of Madras, dated 15th February 1887.
Telegram from ditto, dated 17th February 1887.
Telegram to ditto, No. 59 A.—I., dated 18th February 1887.
Telegram from ditto, dated 22nd February 1887.
Letter from ditto, No. 126 I., dated 15th February 1887.

The estimated transactions of the year 1887-88 are shown below in comparison with the Budget and Revised Estimates for 1886-87 and the Actuals of 1885-86:—

	Actuals, 1885-86.	Budget Estimate, 1886-87.	Revised Estimate, 1886-87.	Budget Estimate, 1887-88.
IRRIGATION.				
Receipts.	Rs.	Rs.	Rs.	Rs.
XXIX—Major Works—Direct Receipts—				
Imperial	2,37,294	2,16,500	2,21,500	2,38,000
Provincial	...	...	...	...
XXIX—Portion of Land Revenue due to Irrigation	38,05,202	35,66,300	35,66,775	37,78,625
XXX—Minor Works and Navigation—				
Imperial	18,038	20,000	26,000	...
Provincial	58,982	53,750	53,750	82,275
Local	...	...	...	...
Total	41,19,516	38,56,550	38,68,025	40,98,900
Charges.				
35—Construction of Protective Irrigation Works—				
Imperial	3,43,191	4,30,000	3,89,410	3,60,000
42—Major Works—Working Expenses—				
Imperial	11,26,622	10,00,000	10,88,000	10,00,000
Provincial	...	...	...	...
43—Minor Works and Navigation—				
Imperial	24,19,685	25,28,300	23,51,700a	... (c)
Provincial	6,22,020	4,65,500	4,30,500	26,51,000
Local	...	...	...	...
48—Irrigation Works—Capital Expenditure not charged against Revenue	15,15,215	15,05,000	12,87,088b	9,80,000
Total	60,26,733	59,28,800	55,46,698	49,91,000

(a).—Inclusive of Rs. 14,000 on account of expenditure in England.
(b).— Ditto Rs. 2,000 ditto ditto.
(c).—Expenditure provincialized.

RECEIPTS.

2. *XXIX.—Major Works—Direct Receipts.*—The increase of Rs. 5,000 in 1886-87 is expected from miscellaneous receipts from the Godaveri Delta and the Kurnool Canal. In 1887-88 it is anticipated that the traffic on the Kurnool and Kistna canals will develope and that irrigation operations will be extended.

3. *XXIX.—Portion of Land Revenue due to Irrigation.*—Owing to damages by extraordinary floods, the revenue from the Godaveri Delta will probably fall, but the apprehended decrease will, however, it is anticipated, be more than counterbalanced by increase in revenue from the Penner and Srivaikuntham anicut systems.

4. The expected increase in revenue in 1887-88 is due to anticipated extension of irrigation under the Godaveri and Kistna Deltas and the Penner and Srivaikuntham anicut systems.

5. *XXX.—Minor Works and Navigation.*—The Revised Estimate of 1886-87 compared with the Budget Estimate of the year, shows an increase of Rs. 6,000 under Imperial, which is explained to be presumably due to the collections during 1886-87 of the arrears of grass rents which remained uncollected at the end of the previous year.

CHARGES.

6. *35.—Construction of Protective Irrigation Works.*—The Revised Estimate of expenditure in 1886-87 has been prepared for an outlay of Rs. 40,590 less than sanctioned in the Budget Estimate of the year, owing to inability to utilize fully the grant for the Rushikulya project.

7. *42.—Major Works—Working Expenses.*—The increase in expenditure in 1886-87 is caused by the reconstruction of the Dowlaishweram locks damaged by floods and by the change in the system of showing the results of the Dowlaishweram workshop accounts necessitating an additional grant.

8. *43.—Minor Works and Navigation.*—The Revised Estimate of Imperial expenditure in 1886-87 is Rs. 1,76,600 below the budget grant of the year. Owing to inability to spend fully on the works for which it was assigned, the special grant of seven lakhs for tanks maintenance, the Government of India withdrew from the allotment Rs. 2,20,300, but assigned, on the other hand, additional grants to the extent of Rs. 43,700 for repairs to ordinary works damaged by the recent floods. The total Imperial grant under this head after these modifications stands at Rs. 23,57,700 for which amount the Revised Estimate is passed. The Provincial expenditure is Rs. 35,000 below the Budget Estimate of 1886-87, owing to the abolition of the project divisions in order to provide for more urgent expenditure.

9. *48.—Irrigation Works—Capital expenditure on Public Works not charged against Revenue.*—Owing to the slackening of work on the Godaveri Delta, consequent on the attention of the establishment being fully taken up in repairing the damages caused by floods, and owing to construction of parts of the Barur tank being deferred for the present, the estimated outlay in 1886-87 fell below the Budget Estimate of the year by Rs. 2,17,912, which amount was withdrawn in Public Works Department No. 13 A.—I., dated 4th February 1887 and telegram of the 18th idem.

10. The Budget Estimates for 1887-88 have been prepared for the provisional grants assigned. But as it has been decided that the Imperial Minor Irrigation works shall be provincialized from the 1st April 1887, on the basis of an annual assignment of Rs. 23,00,000, an addition to this extent has been made in the Estimate, increasing the Provincial grant under this head to Rs. 26,51,000.

11. The following statement shows the estimated direct Capital outlay on the undernoted Major Irrigation works in progress to end of 1887-88, compared with the sanctioned estimates :—

	Sanctioned estimate.	PROBABLE OUTLAY TO END OF 1887-88.				Balance of estimate unspent.
		Actual outlay to end of 1885-86.	Revised Estimate, 1886-87.	Budget Estimate, 1887-88.	Total.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Protective Works, Irrigation— Rushikulya project	26,01,386	3,27,873	2,39,410	2,85,000	8,52,283	17,49,103
Productive Irrigation Works—						
Godaveri Delta System	1,10,88,695	1,03,19,954	2,35,419	2,45,000	1,08,00,373	2,88,322
Kistna " "	1,38,99,784	70,44,380	4,50,174	5,77,000	80,71,554	58,28,230
Cauvery " "	16,59,305	15,44,488	1,13,642	10,000	16,68,130	—8,825
Penner Anicut "	16,12,789	14,44,374	69,925	45,000	15,59,299	53,490
Sangam " "	28,96,437	24,58,241	3,47,000	61,000	28,66,241	30,196
Srivaikuntham Anicut System	13,61,520	13,12,721	16,811	12,000	13,41,532	19,988
Barur tank project	4,00,000	2,33,123	54,117	30,000	3,17,240	82,760

NOTE.—The sanctioned Estimates of direct Capital outlay do not provide for Loss by Exchange; the Actuals to end of 1885-86 take it

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12. The Government of India hereby authorize expenditure to be incurred to the extent noted in para. 1, subject to the condition of a strict adherence to the rules in force [illegible] regard to the financial regularity of Departmental work.

ORDER.—Ordered, that the Resolution be communicated to the Government of Madras for information and guidance, with the request that 35* printed copies of the final issue of the Budget Estimate, as now passed, may be submitted so as to reach this Office not later than 1st May 1887.

A. J. FILGATE, *Colonel, R.E.,*

Depy. Secretary to the Govt. of India.

* 10 copies to Simla and the remainder to Calcutta.

Government of India Central Printing Office—No. 519 A. G., P. W. D.—19-3-87—95.

SAW

5943

1103/8

In the draft
order sent home
yesterday, relative
to Tank M. Scheme
the A.W. engineers
in his general, the
words "as early as
practicable" at
the end of the draft.
I don't think however
it is intended to
italicise the words
independently —
but ... [illegible]
in despatches
accordingly

C.

20/8/89

W.A. 5943

In circulation 20/8/89

GLS VIII. 89

... were unknown

No. 26.

REVENUE SECRETARIAT.

1103
/9

OFFICE NOTE.

6 MAY 87

Station Ootacamund date 2[illegible] 1887.

From

The Secretary to Govt.,
Revenue Dept.

To The Secretary to Govt.,
Public Works Dept.

The undersigned has the honor to request that G. O., dated 21st April 1887, No. 1103 W. may be communicated to this Department.

Ag. Secretary to Govt.

[illegible]

6/5/87

were unkno

Cant. 1103/10 4676

170 copies of G.O. No. 1103 W of 21-6-87 were printed but we have ~~not~~ one left for office use - the copy put up has been obtained from the Sanit. Dn. office - Of these number 145 copies were sent to Ds. leaving 25 copies for office use - Of this No. 6 additional copies were supplied to the Sanit. Dn. office [illegible]-6-87 and 3 more copies on

21st June 1887 leaving
16 copies for files and
daily office use. This is
a very important one
and very frequently
required and if A.Gs
or other offices consult
return some copies I
think it must be
re-printed - D.B.
25-10-87

Reprint 50 Copies.
25-x-87

Note

1103/87

The chief causes that led to the formation of the Tank Maintenance Scheme were it is believed,

1st. Minor Irrigation Works were not treated in a systematic manner,

2nd. The existing Establishment was unable to cope with the work entailed by the preparation of estimates and execution of the works.

As regards the first there being no information on record Tanks were often repaired without any reference to how they were circumstanced, the number and condition of up tanks of the Group were unknown also drainage Basin and many other essential points, the consequence was that a tank was no sooner repaired than it breached again owing to insufficient surplus arrangement. To alter this state of affairs was very desirable and efforts were made to have the Grouping carried out by the existing Establishment but this only partially succeeded owing to the time of the establishment being occupied with data works.

As regards the second, I am inclined to believe that the existing establishment can without difficulty prepare estimate

and carry them out, provided all the information necessary for the former ~~was~~ is recorded for them and ready at hand. I have never found any difficulty in getting a sufficient number of estimates prepared to enable grants to be fully worked out and there is obviously no use in getting more than that amount of estimates prepared, there were of course the objections that the tanks were not systematically treated and that the data on which the estimates were prepared are often inaccurate, but still it proves that if all these data and all necessary information regarding the Groups of Tanks got ready the ordinary establishment would have no difficulty in preparing and carrying out Estimates to the full amount of Grants. From what I have written it will be seen that though I consider a separate Establishment absolutely necessary for the investigation of Groups of Works and collection of information, I consider that the existing establishment is quite equal to the task of preparing and carrying out estimates. I will now proceed to state what I consider are the principal objections to the Tank Maintenance operations as at present, carried out. The work is necessarily concentrated and the consequence of this is that work cannot be carried out as fast or nearly so as estimates are prepared; Thus a large number of estimates are prepared for repairing tanks in one small portion of a Division and the result is that labour cannot be obtained to carry them out, a certain amount of concentration is necessary as the work must be treated Group by Group but these Groups should not be all in one Division and under the present system this, cannot be helped, for otherwise there would be no proper supervicion over the work. It is the case now that while numerous estimates are sanctioned for repairing tanks in one part of a Division, the Executive Engineer is complaining that he cannot spend his grant owing to want of estimates for tanks in other parts. To prepare estimates that cannot be carried out within a few months is a sheer waste of time, one monsoon may change the condition of a tank bund so materially as to render a revised estimate necessary, rates may vary; this has been the case in No. III Tank Division where rates have increased owing

to Railway works being started and the result is that nearly all the estimates have to be revised. It is moreover desirable that works should be carried out by the same agency as estimated for them, ~~for tanks in other parts.~~

The present establishments are too large to be supervised by an Officer even with an Assistant, the result is that only a few of the men doing real good and as in consequence the work turned out is absurdly small compared with the hands employed.

Most of the establishment are inefficient the formation of the Tank Division created a great demand for Surveyors and

Draftsmen & the consequence was that though the supply became equal to the demand that supply was of a very inferior description.

Many of these men are fresh from College and quite inexperienced some have been got from Railways and elsewhere and seem to be of very little use. The complaints regarding the inefficiency of the Surveying & Drawing establishment are numerous and I am certain that the work would get on much more satisfactorily with a smaller and more efficient establishment. I may mention that the Executive Engineer No. IV Tank Division states that he has only two Surveyors of any use and that the work done by the rest has had all to be done over again by these two men, this is obviously a waste of time and money, dismiſsal is of little use & the new men appointed are as bad, in fact worse; the fact is there are not enough good men to fill all the posts required and it is useleſs to supply any but good men. The present Office & establishments of Clerks is greater than necessary and could I think be easily reduced by half.

Having stated what I consider to be the defects of the present system, it remains for me to propose a system which will do away as far as poſsible with these defects and the following is what I suggest.

The work next year should I think be taken up in the following Districts.

1 Nellore
2 Cuddapah
3 Kurnool
4 Bellary
5 Coimbatore
6 Salem
7 North Arcot
8 South Do
9 Madura
10 Chingleput

The establishment I propose for each District is as follows:-

1	Asstt Engineer	Rs	500
2	Overseers	Rs 80 p/m	160
2	Surveyors	" 80 "	160
2	Draftsmen	" 60 "	120
1	Clerk	" 20	20
30	Lascars	" 6/-	180
		Rs	1140

The total cost for the 10 Districts would then be Rs 11400 per month or Rs 136800 per annum. This establishment would work on one Group or two small Groups without preparing estimates, the ordinary establishment continuing to carry on works as if the Survey Establishment were not in existence till all the information required is recorded.

The information that the tank establishment should collect is as follows:-

Standard Levels to be maintained.

Full supply Level above datum
Max: water __ Do __ Do
Level of top of bund __ Do Do
__ Do of do of revetment
Maximum flood discharge provided for

Area of free Basin
Max. flood discharges from do.
Number of tanks above
Max. flood discharges from do.
Ditto — do. from supply channel
Total discharge to be provided for
Existing surplus arrangement discharge
Length of escape required
Area of waterspread at F.S.L.
Greatest width of do. from bund
Class of bund corresponding to do.
Approximate capacity of tank at F.S.L.
— Ditto annual storage
Ayacut area
Proposed ultimate area
Water stored per acre
Ultimate Irrign per sq. mile of Catchment
Sill of existing Sluice No 1 above datum
— Do — " — Ditto

In addition to this sketches should be made of existing masonry works.

With this information recorded preparing

1103/17

a repair estimates would simply mean taking a few cross sections and ordinary cases would not take more than one or two days.

The Tank establishment should be relieved as far as possible of all office work the Assistant Engineer would keep no cheque books, and as regards accounts would be under the Executive Engineer of the Division, in which the party was working, all payments for clearing prickly pear, fixing Bench mark stones, &c., would be made by the Executive Engineer when wanted, he would also disburse salaries and travelling allowances

It may be thought that there would be difficulty in putting the Assistant Engineer in charge under the Executive Engineer of the Division as regards account, as in some cases part of a Basin might be in one Division and part in another, but this can easily be managed by letting him render account to the Executive Engineer of the Division in which the greater part of his work was ~~Estimated~~ situated, any payment made on account of work such as fixing Bell, stones clearing prickly pear, &c. be made by transfer.

No copies of plans

1103/18

need be kept by Assistant Engineer and these plans need only be drawn in hard pencil.

The Assistant Engineer would have the general supervision of the work and check Bills, the Overseers would gather information and make plans of Masonry Works, the Surveyors would define drainage areas & take levels of masonry works and the Draftsman would draw the plans in pencil, the financial information would be obtained from the Collector.

I believe that by this arrangement the whole of the information regarding the Union

Works in the Presidency could be obtained in fifteen ~~five~~ years at a cost not exceeding 22 lacs. I may here mention that judging from the past and assuming there to be 50000 tanks in the Presidency, the work if continued under the present system will take 126 years at a cost of over 300 lacs.

The Assistant Engrs as the head of the Survey parties would send their plans and reports direct to the Deputy Chief Engineer for Irrigation in whose office there would be a special establishment for

110/19

checking them, compiling the information, printing Memoirs and Lithographing plates. This establishment should, I think, consist of

1	Manager		250
1	Head Mapper		100
2	Mappers	Rs 60	120
2	do	Rs 40	80
2	do	Rs 30	60
1	Head Clerk		100
2	Clerks	Rs 35	70
2	do	Rs 20	40
1	Mochee		10
1	Head Peon		8
2	Peons	Rs 6	12
			851

or Rs 10,212 per annum

This would bring the total cost of establishment to Rs 147,012. To this must be added tools and plant travelling allowance, cost of fixing Bells, cost of printing and lithographing &c the cost of these items may be taken the same as at present viz: about Rs 25,000. The total cost of the new Scheme would therefore be Rs 172,082 against the present expenditure of Rs 229,208 with only 4 Divisions.

The establishment required under the new scheme would be as follows:—

10 Assistt Engineers
20 Overseers
20 Surveyors
27 Draftsmen
14 Clerks
1 Manager
300 Lascars
3 Peons
1 Mochi

The establishment now sanctioned is as follows

1 Supdg Engineer
4 Executive Engineers
4 Assistant Engrs
24 Upper Subordinates
45 Surveyors
50 Draftsmen
68 Clerks
333 Lascars
23 Peons

It will be seen that by the new scheme fewer men are required and it may therefore be possible to select good ones.

Under the present system part of the establishment is charged to original works and part to establishment, if the same course be followed in the new scheme only Assistant Engineers Overseers and Establishment employed in Chief Engineer for Irrgn's Office would be charged to establishment, the remainder being a debit against original Works, the proportion would then be,

Establishment 89,412
Works 57,600
against at present
Establishment 127246 in 1885-86
Works 40850 do

If it is thought that the cost of the new scheme (though less than the old one) is too great a reduction can be affected by carrying out operation

in fewer Districts it is also perhaps not necessary to have an Assistant Engineer in charge of each party no great Engineering Knowledge is required and an experienced Sub Engineer or Supervisor might be able to carry out the work.

Major R.E.
Inspr of Works
5.11.86 J.W.S

No. 3983 C of 12 Novr 18

1103/23

E. I.

Please see accompanying note by Major Campbell & let me have your views.

The G of I having in their orders on the Budget declined to make any provision next year for the Tank maintenance scheme – it remains to be seen whether this Govt. can arrange to Provincialize 'Irrigation & Navigation' on such terms as will enable them to continue the work. It seems to me probable that only the sum required for 'Works' can be provided under any circumstances and that we may have to find the Establishment necessary from our permanent list, as much as can be legitimately charged thereto. Even supposing our permanent list to remain as at present, you could not I think provide the establishment Major Campbell requires and therefore we must in any case have fewer parties. We want in fact to work at the minimum estate we could manage to carry on with.

Jnh

11/11/88.

W.

I agree generally with Major Campbell's views on the best mode of carrying on the Tank Maintenance Operations; he has in fact anticipated in great measure what I intended to propose.

The only point in which I do not agree with him is the proposal to separate the grouping and fixing of standard levels from the preparation of estimates; I would leave the whole of

this work done by the same party.

As now organised the "tank maintenance party" in each division should be entirely under the orders of the Executive Engineer and form an integral part of the establishment of the Division.

I do not suppose that we shall be able to work on quite such a large scale as Major Campbell expects, and we shall probably have to reduce the total number of parties, but it will be premature to attempt to fix this number until we know what total sum will be available for the work.

The strength of each party as proposed by Major Campbell seems suitable; its annual cost, including travelling

allowances
contingencies &c
would amount approximately to Rs 18,000, and each party ought to be able to prepare estimates for immediate execution to the extent of Rs 50,000 annually; we should therefore be able to employ one party for every Rs 68,000 of the total grant available, after deducting Rs 15,000 for the establishment of the central office.

The execution of works would be carried out by the ordinary divisional staff and little or no increase to the latter would be necessary. If therefore we had ten parties at work the total sum required would be

Execution - - -	5,00,000
Establishment - - -	1,80,000 15,000
	6,95,000

and of the establishment charges Rs 1,15,000 would be a legitimate charge against the works grant, and would be met from the permanent establishment; the remaining Rs 80,000 being a special charge.

Of course our ordinary grants may be so reduced that a portion of this Rs 80,000 might be met by the employment of ordinary establishment for which there is no work elsewhere, but I confess I do not think we shall have many men to spare even with the reduced grants, and in any case the surveyors and office establishment cannot be temporary.

If the total grant were limited to Rs 6,00,000 we should employ seven parties instead of ten, and the distribution of charges would be approximately

Works ---- 3,59,000
Establishment 1,31,000

Of this latter sum
Rs 80,570 would be
debited to ordinary & ~~the~~
Rs 50,430 to special
establishment -

It should be considered
essential that the sum
set apart for works in
each Division should be
rigidly restricted to work
carried out under the scheme
and not be considered as
transferable to ordinary repairs
under any circumstances whatever -

It will be understood that
these remarks refer to the
operations of the scheme
without reference to the source
from which the funds are
derived; a separate note
will be written on the

subject of the Finance
Committee's functions in
this connection -

15.11

1103/28

Statement showing the distribution of the increased grant of Rs 26,51,000 under Provincial - 43. Minor works and Navigation for 1887-88

need not print as revised statement has been submitted

	Original works	Repairs	Establishment: 23 percent on expenditure	Establishment: 10 percent on Direct Revenue	Establishment: 6 percent on Indirect Revenue	Establishment: Special Establishment	Establishment: Total	Tools and Plant: Special	Tools and Plant: General	Tools and Plant: Total	Total
Capital Account											
Palar Anicut	48,400	"	11,040	"	"	"	11,040	560	"	560	60,000
Pelandorai - do	4,000	"	920	"	"	"	920	80	"	80	5,000
Buckingham Canal	1,57,500	"	53,475	"	"	"	53,475	9,775	"	9,775	2,20,750
Total	2,09,900	"	65,435	"	"	"	65,435	10,415	"	10,415	2,85,750
Revenue Account											
Chembrambakam tank	-2,283	-98	-548	4	"	"	-544	"	"	"	-2,925
Palar Anicut	11,500	30,000	9,545	97	"	"	9,642	158	"	158	51,300
Pelandorai - do	1,450	8,000	2,174	1	"	"	2,175	"	"	"	11,625
Madras Water Supply project	-3,603	24,100	4,714	500	"	"	5,214	114	"	114	25,825
Buckingham Canal	5,000	68,634	16,936	5,400	"	"	22,336	2,280	"	2,280	98,250
Vedaranium - do -	"	5,000	1,150	25	"	"	1,175	"	"	"	6,175
Total	12,064	1,35,636	33,971	6,027	"	"	39,998	2,552	"	2,552	1,90,250
Irrign & Navign works for which neither Capl: nor Rev: acct are kept											
Old maintenance charge	10,039	1,30,972	32,433	"	1,74,480	"	2,06,913	"	2,115	2,115	3,50,039
Ordinary "Imperial" works	1,35,053	4,67,004	1,38,473	1,200	"	"	1,39,673	"	9,031	9,031	7,50,761
Tank Maintenance or restoration	⊕ 1,11,130	1,80,000	62,010	"	"	42,016	1,04,026	"	4,044	4,044	3,99,200
"Minor" Irrign works	"	2,75,000	"	"	"	"	"	"	"	"	2,75,000
Total	2,56,222	10,52,976	2,32,916	1,200	1,74,480	42,016	4,50,612	"	15,190	15,190	17,75,000
Agricultural works	1,35,482	1,85,000	73,711	1,000	"	"	74,711	"	4,807	4,807	4,00,000
Grand Total	6,13,668	13,73,612	4,06,033	8,227	1,74,480	42,016	6,30,756	12,967	19,997	32,964	26,51,000

⊕ Including Rs 21,520 for temporary Survey establishment. No percentage charge for establishment has been calculated on this amount as the Survey Establishment will not work under the Executive Engineers of the Ordinary Divisions

Col. R.E.

Chief Engineer for Irrigation.

B.R. 5-4-87.

Read the following papers:-

21st April 1887 No 1103 W

Note by the Chief Engineer for Irrigation

No 21. E.W.

By the Government of India's orders on the Budget for 1887-88 dated 17th March 1887, No 33 A. I., the grant from Imperial funds under "43. Minor Works and Navigation" has been increased from Rs 20,00,000 to Rupees 23,00,000 and provincialized. The total grant under Provincial therefore becomes Rs 26,51,000.

2. In the Preliminary Issue of the Budget printed with G. O. No 4. I. P.W., dated 7th January 1887, the distribution of the Rs 23,51,000 as proposed was shown. It is proposed to leave this distribution undisturbed and to allot to the Tank Maintenance Scheme the additional Rs 3,00,000 now granted so that we shall have for Tank Maintenance Rs 3,99,200

3. Before allotting money for the Tank Maintenance it is necessary to decide on what system the work is to be carried out and what establishments are to be allowed for; at present the establishment is quite disorganized and it is most important that it should be reorganized and placed on a proper footing as soon as possible. Both Colonel Pennycuick and Major Campbell who were in charge of the Tank Maintenance

Scheme

Scheme considered that the former establishments should be considerably altered and with this note is forwarded a note by Major Campbell with a comment by Colonel Pennycuick and a further note by the latter officer.

4. Both these officers consider it advisable that there should be a Head to the Tank Maintenance Scheme in Madras and suggest either that the appointment of Superintendent of Works in Charge should be renewed or that the works should be supervised by the Chief Engineer for Irrigation, his assistant being in charge of the office.

5.– It is considered that the Assistant Chief Engineer for Irrigation cannot, in addition to his other duties, do this work properly and a special officer for the purpose is therefore essential. It is proposed that an officer of the rank of about a 3d grade Executive Engineer should be selected to be in charge of the office and that he should be the Assistant to the Chief Engineer for Irrigation for the Tank Maintenance Scheme.

6 With regard to the strength of the parties working in the Divisions it is proposed to reduce them considerably below the strength that was formerly allowed. Major Campbell proposed should money be available, to employ 10 small parties

parties in as many districts each party consisting of

1 Assistant Engineer
2 Overseers.
2 Surveyors

with a small office establishment; he also proposed that no estimates should be made but only levels, plans of works, hydraulic and revenue information, &ca &ca, be recorded, & that the estimates be prepared afterwards at such time as money might be available to start the works.

7. Colonel Pennycuick in his note, while agreeing in the scale of establishments proposed, considered that the estimates should be prepared at the time the plans &ca &ca were made, and considered that the survey, estimating and recording work should not be allowed to get too far ahead of the repair work of the Tanks and, in his note, proposed that, should Rs 5,00,000 be available, 7 parties of the strength laid down by Major Campbell ~~should~~ be entertained.

8. The Chief Engineer for Irrigation agrees with Colonel Pennycuick and considers it most advisable that when the Tank Maintenance Establishment examine a tank, they should not only collect and record all the information they have heretofore done, but they should also as before make the estimates &ca.

Doing

9 Doing this renders the work complete and will enable the works to be carried out as soon as money is available, it adds but little to the work if done at the time; but it would entail much work if done a year or two after the levels &c &c had been taken.

10 The following Establishment is proposed for a party working in a Basin.

1	1	Assistant Engineer	Rs 500
2	2	Overseers	160
2	4	Surveyors	320
2	2	Draftsmen	102/2
1	4	Clerks	100
30	35	Lascars	210
		Travelling Allowance, Contingencies &c	287/2
		Total per month	1680
		or per year	Rs 20160

The number for each class as proposed by Major Campbell is entered in red. The cost as estimated by Colonel Pennycuick was Rupees 18000 per year, the main difference is that 2 extra surveyors are now allowed for and also 4 clerks in place of only one.

11 It is thought that an Assistant Engineer should be able to supervise well 2 parties each of one Overseer and 2 Surveyors and that more than one clerk should be allowed as there must be, considerable clerical work involved in collecting and recording the hydraulic and revenue details.

12. For the establishment to be attached to the office of the Chief Engineer for Irrigation Major Campbell's proposals have been accepted but an Executive Engineer, 3^d Grade, has been added to be in charge of this establishment and supervise the important work to be done.

The Establishment is as follows.

Executive Engineer	Rs 845
6 Clerks	416 ~~400~~
7 Draftsmen	332 ~~[illegible]~~
Messengers &ca	48 ~~60~~
Per month	1641 ~~[illegible]~~
Per year	19692 ~~[illegible]~~
	1608
Add for Travelling allowance, Contingencies &ca	1420
Total per year	21,300 ~~[illegible]~~

BR

The work to be done exactly as heretofore, as it is considered that no alteration should be made in the manner in which the plans, memoirs &ca are drawn up.

12. Major Campbell's manual to be acted up to with the modifications rendered necessary by the alterations in the establishment.

13. Each party working under an Assistant Engineer to work in a tank basin and to have convenient Head quarters, where the office will be

be established. 1 Overseer with 2 Surveyors will form a sub party. The Surveyors to take the necessary surveys levels &c under the Overseer's orders; the Overseer to check them and to see that the surveyors do trustworthy work and a fair amount of it. The Overseer to make plans of the masonry works in pencil on section paper; the surveyors to rough plot in pencil their own work. The Overseer to send in these papers to the Asst Engineer and on orders from him, if necessary, to prepare the estimates or collect any additional information required.

14. The Assistant Engineer to complete in his office the plans and estimates in pencil in the rough and to send them direct to the office of the Chief Engineer for Irrigation to be fair copied and lithographed and printed.

15. The Assistant Engineers to have an imprest for petty expenditure, as also the Overseers; all the accounts to be done in the Divisional office of the District the party is at work in. The Assistant Engineer of course, is to exercise a close supervision over his Overseers and Surveyors, to frequently inspect their work and to decide on all engineering points; he will of course make all the important designs for works himself, Type designs for ordinary works being followed as much as possible.

If

p 4

1103/32 ✓

16 If the above proposal is accepted and the strength of the establishments be approved for the Head office and the Parties, it is thought that for the present 3 Parties might be started, the cost being as follows per year.

For Head Office Rs 21300 ~~22000~~

For 3 parties at Rs 20160 per year . 60.480

Total 81,780 ~~82,480~~

Add per extra cost for lithographing and printing .... 3220 ~~2520~~

Total —— 85000 ~~85000~~ BR

17 It is believed that the Chief Engineer has allowed in the proposed permanent establishment of the P. W. Department 3 Executive Engineers or Assistant Engineers of standing in each of the Divisions in which tank operations are in progress.

18 It is supposed that as the total Grant of Rupees 26.51.000 for expenditure on 43 minor works and Navigation now appears under Provincial, the Madras Government can expend any portion they think fit on Temporary establishment which should of course be provided for in the Irrigation Budget, and that the pay of the Surveyors and lascars employed for Survey operations can be charged to Works and the cost of lithographing & printing may also

be

be met from Works

If the above supposition is correct the Rupees 85,000 ~~86,000~~ required can be divided under the following heads

Chargeable to Provincial Service Budget under head of permanent establishment

3. Assistant Engineers	Rs 1,500
Travelling allowance for Do	330
Contingencies	42
per month	1872
per year	22464

Chargeable to Temporary establishment to be provided for in the irrigation Budget

Establishment proposed to be attached to the office of the Chief Engineer for Irign as shown in Appendix. A

Per year —— 21,300 BR

As shown in Appendix. B

3. parties of

2 Overseers	160
2. Draftsmen	102½
4 Clerks	100
Travelling allowance for Overseers	120
Lascars & Sundries	73½
per month	556
For 3. parties per month	1668
Per year	20016
Total	41,316

Petty Establishment chargeable to Works

Surveyors per month	320
Lascars employed in surveying	180
	500
for 3 parties	1,500
Per year	18,000
Add for lithographing & printing	3220 ~~3520~~
Total	21220 ~~21520~~ BR
Grand Total	85,000 ~~86,000~~

19 The Budget for 1886-87 allowed for a Supg Engineer with office at Head quarters for 4 Executive Divisions with 4 Assistant Engineers, 24 Upper Subordinates &c &c at a total cost of Rs 160,480. Besides this there was a large establishment of Surveyors, Draftsmen Lascars &c charged to works.

The total cost of the establishment actually employed was Rs 2,01,924.

20 As at present only Rs 3,99,200 are available for Public Works Establishment, Tank Maintenance Establishment and for Works; it is proposed to spend only a total of Rs 85,000 ~~86,000~~ BR on establishments, this includes the whole Establishment Permanent Temporary and Petty.

21 There is at present employed in 4 districts the following establishment

24 Surveyors	1940
24 Draftsmen	880
8 Clerks	200
120 Lascars	720
Total	3740

be met from Works

If the above supposition is correct the Rupees 85,000 ~~[illegible]~~ required can be divided under the following heads

Chargeable to Provincial Service Budget under head of permanent establishment

3. Assistant Engineers	Rs 1800
Travelling allowance for Do	30
Contingencies	42
per month	1872
per year	22464

Chargeable to Temporary establishment to be provided for in the irrigation Budget.
Establishment proposed to be attached to the office of the Chief Engineer for Irrign as shown in Appendix. A

Per year	21,300 BR

as shown in Appendix. B
3. parties of

2 Overseers	160
2. Draftsmen	102½
1 Clerks	100
Travelling allowance for Overseers	120
Lascars & Sundries	73½
per month	556
For 3. parties per month	1668
Per year	20016
Total	41316

Petty Establishment chargeable to Works

Surveyors per month	320
Lascars employed in surveying	180
	500
for 3. parties	1500
Per year	18,000
Add for lithographing & printing	3220 ~~[illegible]~~
Total	21220 ~~[illegible]~~ BR
Grand Total	85,000 ~~[illegible]~~

19 The Budget for 1886-87 allowed for a Supg Engineer with office at Head quarters for 4 Executive Divisions with 4 Assistant Engineers, 24 Upper Subordinates &ca &ca at a total cost of Rs 160,480. Besides this there was a large establishment of Surveyors, Draftsmen, Lascars &ca Charged to works.

The total cost of the establishment actually employed was Rs 2,01,924.

20 As at present only Rs 3,99,200 are available for Public Works Establishment, Tank maintenance Establishment and for Works; it is proposed to spend only a total of Rs 85,000 ~~[illegible]~~ BR on establishments, this includes the whole Establishment Permanent Temporary and Petty

21 There is at present employed in 4 districts the following establishment

24 Surveyors	1940
24 Draftsmen	880
8 Clerks	200
120 Lascars	720
Total	3740

According to the proposed new scale the following is the establishment to be employed in 3 Districts

6	Overseers	Rs 480
12	Surveyors	960
6	Draftsmen	307/2
12	Clerks	270
111	Lascars	669

As this is the case, there will have to be still further reductions in the establishment of Surveyors and Draftsmen, the best men of course being selected for employment.

It is thought that the 3 Parties should work in Madura, Chinglefut and Coimbatore districts

22. A Revised statement* based on these proposals is forwarded.

* distribution of Grants

Chepak
4 April 1887

Colonel R.E.
Chief Engineer for Irrigation

To

The Chief Engineer P.W. Departt.

P.S.

With regard to the proposed establishments, that ~~intended~~ are to be attached to the office of the Chief Engineer for Irrigation, it is considered to be more than required hereafter, should more funds not be available, and only 3 Parties employed, it is however thought advisable to maintain it at its present strength as there is a large quantity of work (such as Rough estimates, plans &ca) to be reduced to proper shape and to be recorded

Except in the case of the Head Quarter office, the pay of the different members of the proposed establishment represents the average pay of the grade, the men will be classified and draw different class pay so that there may be chances of promotion for good men

W.B.

Irrigation and Navigation. [illegible] [illegible] A 7

Works not classed as Productive

Detail of the Budget estimate of the Tanks Mainten[illegible] Establishment to be attached to the office of the Chief Engineer for Irrigation for 1887.88.

1103

Number		Particulars	Rate of Salary	Budget Estimate of 1887.88		
	1887.88			Per mensem	Per Annum	Total.
			R	R	R	R
1		Executive Engineer, 3rd Grade	700	845		
		Horse Rent & Temp. allce	145			
1		Clerk	220	220		
1		— do —	88	88		
2		— do —	34	68		
2		— do —	20	40		
1		Draftsman	88	88		
1		— do —	60	60		
1		— do —	54	54		
2		— do —	35	70		
2		— do —	30	60		
1		Muchi	10	10		
1		Head Messenger	8	8		
2		Messengers	6	12		
3		Lascars	6	18.		
		Total Establishment	.	1641	19692	
		Travelling allowance			460	
		Contingencies			1148 960	21,300 ~~21,112~~

5 5 5 5

Colonel R.E.

Chief Engineer for Irrigation

B

1103/83

Statement showing the strength and cost of the 3 Parties for the investigation of Tank Maintenance Works for the year 1887-88.

No.	Particulars	Rate of Salary	Provided in Provincial Budget	Extra Establishment required	Establishment chargeable to Works	Total
		Rs	Rs	Rs	Rs	
1	Assistant Engineer	500	500	-	-	
2	Overseers	80	-	160	-	
4	Surveyors	80	-	-	320	
	ssistant Engineer's Office					
1	tsman	60	-	60	-	
	do	42½	-	42½		
	k	35	-	35		
		25	-	25		
	senger	7	-	7		
1	do	6	-	6		
	For Overseers					
2	Clerks or Asstt. Draftsmen	20	-	40		
	Petty Establishment					
3	Lascars (for Asstt. Engineer)	6		18		
2	do (for 2 Overseers)	6	-	12		
6	do (for do)	6	-	-	36	
24	do (for 4 Surveyors)	6	-	-	144	
	Travelling allowance (for Asstt. Engr.)	-	110	-	-	
	do (for overseers and lascars)	-	-	120	-	
	Contingencies	-	14	30½	-	
			624	556	500	
	Total per mensem					1680
	Total per annum for 1 Party					20160
	Total do for 3 Parties					60480
24	14	3	4	4	4	4

Colonel R.E.

Chief Engr. for Irrign.

9 1103/88

Statement showing the distribution of the increased grant of Rs 26,51,000 under Provincial 43. Minor works and Navigation for 1887-88

13 #

	Original works	Repairs	Establishment					Tools and Plant			Total
			23 percent on expenditure	10 percent on Direct Revenue	5 percent on Indirect Revenue	Special establishment	Total	Special	General	Total	
	4	4	4	3	4 ✓	3	4	3	3	3	4
Capital Account											
Palar Anicut	48,400	"	11040	"	"	"	11040	560	"	560	60,000
Pelandorai do	4,000	"	920	"	"	"	920	80	"	80	5,000
Buckingham Canal	1,57,500	"	53,475	"	"	"	53,475	9,775	"	9,775	2,20,750
Total	2,09,900	"	65,435	"	"	"	65,435	10,415	"	10,415	2,85,750
Revenue Account											
Chembrambakam tank	-2,283	-98	-548	4	"	"	-544	"	"	"	-2,925
Palar Anicut	11,500	30,000	9,545	97	"	"	9,642	158	"	158	51,300
Pelandorai do	1,450	8,000	2,174	1	"	"	2,175	"	"	"	11,625
Madras Water Supply Project	-3,603	24,100	4,714	500	"	"	5,214	114	"	114	25,825
Buckingham Canal	5,000	68,634	16,936	5,400	"	"	22,336	2,280	"	2,280	98,250
Vedaranium do	"	5,000	1,150	25	"	"	1,175	"	"	"	6,175
Total	12,064	1,35,636	33,971	6,027	"	"	39,998	2,552	"	2,552	1,90,250
Irrigation & Navigation works for which neither Capital nor Revenue accounts are kept—											
Old maintenance charges	10,039	1,30,972	32,433	"	174,480	"	2,06,913	"	2,115	2,115	3,50,039
Ordinary "Imperial" works	1,35,053	4,67,004	1,38,473	1,200	"	"	1,39,673	"	9,031	9,031	7,50,761
Tank Maintenance or Restoration	⊙ 1,11,024	1,75,000	65,786	"	"	43,100	1,08,886	"	4,290	4,290	3,99,200
"Minor" Irrigation works	"	2,75,000	"	"	"	"	"	"	"	"	2,75,000
Total	2,56,116	10,47,976	2,36,692	1,200	174,480	43,100	4,55,472	"	15,436	15,436	17,75,000
Agricultural works	1,35,482	1,85,000	73,711	1,000	"	"	74,711	"	4,807	4,807	4,00,000
Grand Total	6,13,562	13,68,612	4,09,809	8,227	174,480	43,100	6,35,616	12,967	20,243	33,210	26,51,000
	6	6	6	6	6	5	6	5	5	6	6

⊙ Including Rs 28,000 for temporary Survey establishment and lithograph charges

Proposed distribution of the grant for Execution of Tank Maintenance Works

25 #

	Original works		Repairs	
	Applied for	Proposed	Applied for	Proposed
Madura	30,000	30,000	70,000	60,000
Chingleput	42,000	30,000	90,000	70,000
Kurnool	20,000	13,024	40,000	20,000
Coimbatore	10,000	10,000	30,000	25,000
Total	1,02,000	83,024	2,30,000	1,75,000

BR

Colonel R.E.
Chief Engineer for Irrigation

Note by the Chief Engr. for Irrgn.

No. 24 E.W.

+dated 4th April/97

The proposal made in Note No. 21 E.W.+ having been discussed with the Chief Engineer and it being found that the whole of the Engineer Establishment required can be provided from the permanent establishment the following revised proposal for establishments for the Tank Maintenance Scheme is put forward; each party in the divisions to consist of an Executive or Assistant Engineer provided from the Permanent Establishment with the following;

2	Upper Subordinates	Rs 200
4	Surveyors	320
2	Draftsmen	105
4	Clerks	100
35	Lascars	210
Travelling allowance and contingencies		~~225~~ 240
	Per month	Rs ~~1160~~ 1175
	per year	~~13,920~~ 14100 B.M.

It is proposed to have 4 of these parties at a cost of Rs ~~55,680~~ 56400 B.M. Of the above establishment the following to be charged as Petty to Works.

4	Surveyors	Rs 320
30	Lascars	180
	1 Party per month	Rs 500
	per year	6000
	4 Parties per year	24,000

Deducting this Rs 24,000 from the total Rs 56,400 the actual cost of the 4 parties chargeable to Temporary establishments is Rs 32400

To this has to be added the cost of the temporary establishment attached to the Office of the Chief Engineer for Irrigation viz:

6 Clerks	Rs 416
7 Draftsmen	332
Messengers &c	48
per month	796
per year	~~10,440~~ 9552
Contingencies	~~700~~ 1148
Total	10700
Grand total	43100

Chargeable to Temporary Establishments

A sum of Rs 4000 should be added to Works for cost of lithographing, printing &c.

The total establishment proposed to be employed on the Tank Maintenance ~~Schemes~~ as follows:-

From the Permanent establishment chargeable to Provincial Services Budget

1 Executive Engineer in the Office of the Chief Engineer for Irrigation

4 Executive or Assistant Engineers in charge of parties.

Chargeable to Temporary establishments to be provided for in the Provincial Irrigation Budget.

For 4 Parties	Rs 32,400
For the establishment attached to the Office of the Chief Engr for Irrg. ...	10700
Total	43,100

Petty establishment chargeable to Works

Surveyors and Lascars with the 4 Parties	Rs 24,000
For lithographing printing &c	4,000
Total	28,000

Making a grand total of Rs 71,100 exclusive of the officers provided from Permanent establishment and allowed for in the Provincial Service Budget.

A revised distribution statement of Grants based on the above is forwarded and it is proposed to prepare the final Irrigation budget accordingly.

Colonel R.E.
Chief Engr for Irrgn

11th April, 1887.

To

The Chief Engineer, P.W.D.

14/4

W/E F 306

R 21.4.87

No. 1103 W

~~Genl.~~ Estates

A
c/c

PUBLIC WORKS DEPARTMENT.

1103/490

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 21 April 1887

READ the following

Note by the Chief Engr. for Irrn. No. 21 E.W. dy 4 Apr. 1887
——— do ——— " —— dy 11 — " — " —

12

[illegible]

The proposals of the Chief Engineer for Irrigation for continuing the work of the Tank Maintenance Scheme are approved, and arrangements will be made for carrying them into effect as early as practicable.

To the Ch. E. for Irrn. with copy of note by the H'ble
Supply Engr.
" Sec. PWD
" Rev Septr.
10/5/87

Jos
25/4

21.4.87.

Jos
16/4/87

The Hon P. P. [illegible]

15 B/21/64

E M/22.4

OLS 25/IV.

Cu. 16 4 67 M y [illegible]

1103/47

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Govt. of (1887) Madras
PUBLIC WORKS.

Urgent

Dated 22/4/87

Recd.

Encl.

G.O., 21 April 1887, No. 1103

Tank maintenance Scheme

The proposals of the Chief Engineer for Irrgn for continuing the work of the

approved

170/12

cw 22/4