Date taken out.	For what purpose.			Initials of clerk taking the paper or of attender.	Date returned.	Initials of attender.
	Department.	C. No.	Year.			

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

7th July 1881, No. 1,673 W.

General.
Establishment.

Read the following paper :—

No. 5. Despatch from the Most Honorable the Secretary of State for India.

Public Works, No. 14.

India Office, London, 2nd June 1881.

Sir,—I have recently had under my consideration in Council two Public Works letters from your Excellency's Government, Nos. 14 and 17, dated, respectively, 15th March and 19th April last.

2. By the first of these letters, copies of correspondence which has passed between your Government and the Government of India on the subject of strengthening the staff of the Madras Public Works Department is transmitted for my information, with a request that I should address the Government of India in the sense of the view urged by your Excellency's Government, viz., that your Public Works Department is insufficient for the general purpose of the province, and should, therefore, be increased in numbers. The second of the letters from your Government transmits the budget estimates of expenditure during 1881-82 in your Public Works Department under the three following heads :—

1. Provincial Services.
2. Irrigation Productive Works.
3. Irrigation, Navigation, and Agricultural Works.

3. An examination of the figures in these three budgets shows that a total outlay of Rs. 26,77,021 on works and repairs is estimated for during the year, while the cost of the establishment to be employed in carrying out these works is estimated at Rs. 22,60,501, giving therefore a percentage of establishment cost to actual outlay of 84·4 per cent.

4. This percentage is so startling and apparently so inconsistent with the representations made in your first-quoted letter, that the Public Works Department under your Government is inadequate to perform the work required of it, that I must request to be furnished with a full explanation and to be informed how it has come to pass that establishments under the heads included in these three budget estimates are maintained in such disproportion to the work accomplished.

5. I can hardly doubt that there are facts which, if stated, would in greater or less measure explain this. But when a disproportion so manifestly requiring explanation presents itself, I feel some surprise that the necessary explanation is not anticipated.

I have, &c.,
(Signed) HARTINGTON.

His Excellency the Honorable the Governor in Council,
Fort St. George.

No. 6. Order thereon, 7th July 1881, No. 1,673 W.

Ordered that the following reply be sent : —

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D

Exd. E. C. Shunker.
Spare Copies

GENERAL.
ESTABLISHMENT.

Govt. of {1881} Madras.

PUBLIC WORKS.

To

Dated July, 7th.

Issued

Recd. *Encl.*

G. O., 7th July 1881, *No.* 1,673 W.

JULY.

Nos. 5-6.

High percentage of Establishment cost to actual outlay on Public Works.—The Secretary of State furnished with explanation in respect to the —.

Appendix to G.O., No. 352 *I., dated 2nd June* 1881.

EXTRACTS from Notes by Inspector-General of Irrigation on Sangam Project, Nellore.

* * * * *

The revised estimate now submitted differs only from the first estimate sent to Secretary of State in 1872, in the charges for establishment and tools and plant, and the addition of indirect charges.

The estimate for the "works" is still considered sufficient.

The southern portion of the delta, or that on the right bank of the Pennér, is provided for by a weir across the river near Nellore, about 17 miles from the sea, constructed some years ago. The present scheme contemplates extending irrigation to the northern delta by another weir to be constructed higher up the river, about 37 miles from the sea, near the village of Sangam. The peculiar feature of the project is that the water is to be stored in two large reservoirs (the supply in the river being intermittent), whence the irrigating channels will be led off.

The capacities of the reservoirs are as follow :—

	CUBIC FEET.
Kanigiri tank	6,419,001,600
Duvur „	1,042,986,100
Total ...	7,461,987,700

The works consist of—

1*st*—Weir across Pennér river, 4,290 feet long.
2*nd*—Supply channel to Kanigiri tank, 6 miles long.
3*rd*—Supply channel to Duvur tank.
4*th*—Irrigating channels—
Eastern, Central, Southern } from Kanigiri tank.
Channel from Duvur tank.

The supply channels to the reservoirs, branch off immediately below the head sluices.

The head sluices are designed to admit 4,800 cubic feet per second, which is divided as follows :—

	CUBIC FEET PER SECOND.
To Kanigiri feeder	4576·5
To Duvur „	223·5

The capacities of the irrigating channels at their heads are—

	CUBIC FEET PER SECOND.
From Kanigiri tank—	
Eastern canal	934·5
Feeder for central and southern	420·0
Central canals	157·5
Southern „	262·5
Canal from Duvur tank	43·5

The irrigable area is—

	ACRES.
Present irrigation	44,053
Estimated increase	49,947
Total ...	94,000

of which—

87,944 acres are Government lands.
6,056 „ are inam lands.

The area irrigable by each channel is—

	ACRES.
Eastern canal and branches	62,300
Central „	10,500
Southern „	17,500
Duvur „ and tank	3,700
	94,000

The quantity of water required for an acre of rice is estimated at 8,000 cubic yards, of which 6,000 cubic yards is to be provided from the works.

The estimated cost of the works above described is thus given :—

	Rs.
Anicut and head-works	7,09,000
Supply canal to Kanigiri tank	3,44,000
Enlarging Kanigiri tank	3,42,300
Canals from Kanigiri—	
Eastern canal and branches	5,59,300
Feeder to central and southern	87,200
Central canal	52,700
Southern „	2,03,500
Supply canal to Duvur tank and branch channels	48,620
River embankments	1,32,000
Temporary buildings and contingencies	25,185
Total "works" ...	25,03,805

Of the above, the Chief Engineer recommended the omission of items as follow as *unnecessary* :—

	Rs.
Raising Dorenal road	14,000
River embankment on south bank	6,000
Under sluices on south flank of weir	50,000
Total ...	70,000

thus reducing the total of the estimate to Rs. 24,33,805.

The estimates, as modified by the Chief Engineer and agreed to in the order of the Madras Government of July 1870, were thus :—

See proceedings, May 1872, Nos. 5—10.

	Rs.
Works	24,33,805
Establishment	2,73,000
Special plant—	
Tramway and rolling-stock	49,820
Total ...	27,56,625
Deduct—	
Value of land in beds of old tanks	1,72,825
Grand Total ...	25,83,800

In the revised estimate, the cost of "works" is the same as above, but the other items are altered, and additions made for indirect charges. The abstract is—

		Rs.
Works	24,33,805	
Preliminary expenses	51,130	
		24,84,935
Establishments		6,08,451
Tools and plant		82,670
Direct charges		31,76,056
Indirect—		
Capitalisation of land assessment		5,28,000
Total ...		37,04,056
Deduct—		
Value of land in beds of old tanks	1,72,825	
Less one-fourth for village roads	43,206	
		1,29,619
Grand Total ...		35,74,437

At first it was considered that five years would suffice to complete the work ; but subsequently it was admitted that it might take seven years, or even longer.

* * * * *

The questions asked by the Secretary of State are replied to as follows :—

1*st*.—Preliminary expenses?

Reply.—Are now entered in revised estimate.

2*nd*.—Interest during construction?

Reply.—Is entered in revised estimate.

3*rd*.—Probable period of the completion of works of full development of irrigation?

Note dated 12th July 1873—Proceedings, January 1874, Nos. 18—23.

Reply.—In Chief Engineer's note rough estimate is given thus :—

	Acres.
1st year	1,000
2nd „	5,500
3rd „	13,300
4th „	22,500
5th „	28,000

Same note as above.

4*th*.—Whether credit should be taken for sales of beds of old tanks, until experience has proved that they are not wanted?

Reply.—That the amount of storage room is ample without these tanks.

5*th*.—Why inam-holders should receive irrigation free of charge?

Reply.—That it has been ruled that water-rate can only be levied on "irrigated" inam lands, if water is taken for a second crop, and that the area of such lands is inconsiderable.

Madras order No. 2130, dated 26th July 1875.

6*th*.—Infringement of rights of Madras Company?

Madras order No. 2015, dated 13th August 1873—Proceedings, January 1874, Nos. 18—23.

Reply.—Does not consider that any rights would be infringed.

7*th*.—What were the circumstances connected with the application for unoccupied land, mentioned in report by Mr. Smith of October 1869?

Reply.—The proposed agreement was, that applicant should pay dry rate of assessment till works were completed, and irrigated rate if water was afterwards supplied.

See Mr. Smith's letter No. 28, dated 17th May 1873—See proceedings, January 1874, Nos. 18—23.

25th September 1875. (Signed) J. CROFTON.

* * * * *

Proceedings, November 1875, No. 52 to 54.

A full description of the project will be found in my note of the 25th September 1875. I need not repeat it here.

The outlay on "works" only was then estimated at Rs. 24,33,805, which is now reduced by Rs. 1,20,000, the estimated cost of a river embankment, which subsequent experience has shown, will cost not less than Rs. 2,00,000, and is, it is stated, to be carried out independently of the Sangam project, and has been partially executed as a famine relief work.

The provision for establishment is reduced from Rs. 6,08,451 to Rs. 5,78,451 in consequence of the above reduction in "works."

The estimate for tools and plant is reduced from Rs. 82,670 to Rs. 57,845 ; but, as the former sum included Rs. 49,820 for special plant, which apparently is still considered necessary, this reduction should not, I think, be allowed.

As to the indirect charges, the reduced estimate of Rs. 1,44,612 may stand.

The reduction of provision for capitalisation of abatement of land revenue from Rs. 5,28,000 to Rs. 3,02,833 cannot, I think, be accepted, without further explanation.

It is based apparently on a statement by the District Engineer in his letter No. 1109, dated 30th June 1877, that the assessment on which the original estimate was made was much too high, but this is not certified to by the Revenue authorities.

Proceedings, January 1878, Nos. 6 to 9.

In the statements now sent up, the anticipated realisation by sale of old tank beds is added to revenue, instead of being, as it should be, deducted from the capital outlay. It is besides set down at Rs. 1,72,000, which, by Madras G.O., No. 64 I., dated 26th July 1875, is subject to a deduction of one-fourth payable to local funds for the maintenance of village roads, thus reducing the item to Rs. 1,29,619.

See Madras proceedings for July 1875, No. 661.

	Rs.
Total value	1,72,825
Deduction one-fourth	43,206
	1,29,619

Proceedings, June 1879, Nos. 47—48 B.

The deduction was arbitrarily cut out by the Deputy Examiner, Captain Christie, in his note of 22nd June 1876.

An abstract of the probable financial results of the project is submitted, but the calculation is incorrect, as interest is calculated on indirect as well as direct charges, and on total outlay to end of the year, instead of on outlay to end of previous year, plus half outlay during the year.

The estimate, corrected as above noted, will now stand thus :—

		Rs.
Direct outlay—		
Works		23,13,805
Establishment		5,78,451
Tools and plant		82,670
Preliminary expenditure		51,130
		30,26,056
Deduct—		
Realisable by sale of old tank beds		1,29,619
	Total Direct ...	28,96,437
Indirect charges—		
Leave and pensions		1,44,612
Capitalisation land revenue		5,28,000
	Total Indirect ...	6,72,612
	Grand Total ...	35,69,049

Interest during construction I have not included, as on the assumption that the work will begin to earn revenue in the second year after commencement of work, the amount of interest to be added would be comparatively a small item.

The returns, as estimated by the Settlement Department, amounted to Rs. 2,51,516, including Rs. 68,929, estimated savings in remissions of land revenue. This was reduced by the Revenue Board to Rs. 2,38,000, which was adopted by the Madras Government.

Proceedings, Madras Government, No. 818, dated 18th March 1871.
See proceedings, Madras, March 1871.

The working expenses, including provision for cost of collecting revenue, are still estimated at Rs. 50,255, which appear to be sufficient.

The growth of the revenue is calculated by the Collector of Nellore, on a comparison of results from the Nellore weir project, taking into consideration also the difference between the circumstances of the two projects, the chief of which is that, in the case of the Nellore works, enhanced rates are being imposed gradually, and the full rates are not all to be levied till 1884 ; while in the case of the Sangam project the full rates would be levied from the first.

See proceedings of Madras Government, Revenue Department, No. 715, dated 24th March 1879.
Proceedings, June 1879, Nos. 47—48 B.

The Nellore weir was commenced in 1855 and completed in 1856. The following statement shows the revenue realised each year (deducting Rs. 86,466, the average yearly revenue, before commencement of the works) from 1855-56 to 1869-70, when the maximum revenue was reached :—

		Rs.	
	1855-56	24,168	weir built.
	1856-57	39,302	
	1857-58	— 8,244	weir breached.
	1858-59	32,530	do.
(5)	1859-60	37,028	
	1860-61	19,572	
	1861-62	25,956	
	1862-63	45,427	
	1863-64	67,785	
(10)	1864-65	86,313	
	1865-66	86,734	
	1866-67	1,11,196	
	1867-68	94,860	
	1868-69	1,10,642	
(15)	1869-70	1,23,372	

The probable result on the Sangam works is then calculated on the analogy of the above, and also, as it is considered, it should be with reference to the special circumstances of the Sangam project.

The figures are as follow :—

Year from commencement of works.	Growth on analogy of Nellore works.	Growth with reference to special circumstances of Sangam.
	Rs.	Rs.
1	32,343	21,179
2	57,910	70,540
3	...	1,04,739
4	...	1,59,226
5	75,766	1,96,353
6	98,151	2,15,100
7	1,09,016	2,32,399
8	1,12,911	2,38,000
9	1,37,282	2,38,000
10	1,47,831	2,38,000
11	1,48,657	2,38,000
12	2,33,068	2,38,000
13	2,22,317	2,38,000
14	2,38,000	2,38,000

The last calculation, in which the full revenue is reached in nine years, is considered by the Board of Revenue to be the more reliable. Assuming the rate of yearly expenditure and the working expenses to be as in abstract A, the probable financial result is as follows :—

Examiner's note, dated 1st October 1879.

Year.	Direct outlay during year.	Total outlay to end of year.	Receipts during year.	Working expenses.	Net revenue.	Interest charges.	Net result of year.	Accumulated balance.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1st	3,13,500	3,13,500	..	..	..	7,053	— 7,053	— 7,053
2nd	6,50,000	9,53,500	21,179	20,000	1,179	28,732	— 27,553	— 34,606
3rd	7,00,000	16,63,500	70 540	30,000	40,540	59,107	— 18,567	— 53,173
4th	7,00,000	23,63,500	1,04,739	40,000	64,739	90,607	— 25,868	— 79,041
5th	5,32,937	28,96,437	1,59,226	50,000	1,09,226	1,18,348	— 9,122	— 88,163
6th	..	28,96,437	1,96,353	50,255	1,46,098	1,30,339	15,759	— 72,404
7th	..	28,96,437	2,15,100	50,255	1,64,845	1,30,339	34,506	— 37,898
8th	..	28,96,437	2,32,399	50,255	1,82,144	1,30,339	51,805	— 13,907
9th	..	28,96,437	2,38,000	50,255	1,87,745	1,30,339	57,406	71,313

According to the above calculation in the eighth year from the commencement of the works, the returns will have covered the accumulated interest debt, in addition to paying off the current yearly charges for working expenses, and interest on the capital outlay.

The yearly net return thereafter (deducting working expenses) will amount to Rs. 1,87,745, or 5·26 per cent. per annum, on the total capital debt, including indirect charges, amounting to Rs. 35,69,049, the net profit per annum, after deducting interest on the direct outlay, being Rs. 57,406.

The works may, however, take longer than five years in completing, and the growth of the revenue may not be so rapid as is anticipated ; but, even taking these uncertainties into consideration, the prospects of the scheme seem very promising.

In the report of the Committee of 1878, appointed under the Famine Commission, to inquire into the irrigation system in Madras, special attention was drawn to this project, as one which had been thoroughly investigated, and which, they had no doubt, was a thoroughly sound scheme, and likely to yield a sufficient return on the outlay. The Committee add that, while in 1874, the Government of India recorded that Nellore "may be considered to be already protected from severe famines, the experience of the last two years tells a different tale, and they think it unfortunate that the Sangam project was not carried out when first proposed."

Proceedings, March 1878, No. 18 B.

The work, it is stated by the Madras Government, was not utilised for famine relief.

The project, as stated before in the notes of 1875, was recommended for sanction to the Secretary of State in 1872. Orders on it were deferred, pending receipt of further information called for by His Lordship. This has all now been supplied.

I have kept the case back, pending the receipt of the report of the Famine Commission. As the report has not yet been heard of, I send up the project for orders.

The investigations made, since the case was first dealt with, show, I think, that the project may be fairly classed as a Productive Public Work, and recommended for execution when funds are available.

(Signed) J. CROFTON.

8th July 1880.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

2nd June 1881, No. 352 I.

Irrigation.
Account.

Read the following paper:—

No. 6. From Major-General J. CROFTON, R.E., Deputy Secretary to the Government of India, Public Works Department, (Civil Works—Irrigation,) to the Secretary to the Government of Madras, Public Works Department, dated Simla, 6th May 1881, No. 188 I.

REFERRING to the correspondence ending with your docket, No. 607 I., of the 14th October 1879, regarding the Sungum project in the Nellore district, I am directed to forward copy of a despatch* from the Secretary of State according sanction to the execution of the project at an estimated total cost of Rs. 35,69,049† from the Productive Public Works grant.

* No. 10, dated 24th February 1881.

† | | Rs. |
|---|---|
| Direct charges ... ... | 28,96,437 |
| Indirect ,, ... | 6,72,612 |
| | 35,69,049 |

2. I am at the same time to forward extracts from a note by the Inspector-General of Irrigation, dated 25th September 1875, and a further note by the same officer, dated 8th July 1880, and to bring to the notice of the Government of Madras the very unsatisfactory way in which the project was submitted to the Government of India. The Chief Engineer had not even attempted to condense the information into an easily intelligible shape; numbers of disjointed papers were submitted, from which it was a matter of time and labor to extract what was wanted.

3. As regards the provision of funds for the work, I am to inquire how much could be spent on it during the current year.

4. The sanction communicated in paragraph 1 of this letter has been registered in this office as No. 4 I. of 1881-82.

No. 7. ORDER THEREON, 2nd June 1881, No. 352 I.

COMMUNICATED to the Chief Engineer for Irrigation, who will report at once the amount required for expenditure during the current year.

(True Extract.)

(Signed) J. O. HASTED, Lieut.-Colonel, R.E.,
Ag. Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation, with two enclosures.
,, Superintending Engineer, First Circle.
,, Examiner of Public Works Accounts.
,, Revenue Department.

Exd. E. C. Shunker.
Spare Copies

6.6.07

IRRIGATION.
ACCOUNT.

Govt. of {1881} Madras.

PUBLIC WORKS.

To

THE CHIEF ENGINEER FOR IRRIGATION,

&c., &c., &c.

Dated June, 2nd.

Issued

Recd. *Encl.*

G. O., 2nd June 1881, *No.* 352 I.

JUNE.

Nos. 6-7.

Sungum Project in the Nellore District.—Letter from the Government of India forwarding with remarks copy of a despatch from the Secretary of State according sanction to the execution of the — at an estimated cost of Rs. 35,69,049, communicated to the Chief Engineer for Irrigation with instructions.

GENERAL.
ESTABLISHMENT.

Govt. of {1881} Madras.

PUBLIC WORKS.

To

Dated February, 8th.

Issued

Recd. *Encl.*

G. O., 8th February 1881, *No.* 336 W.

FEBRUARY.

Nos. 19—23.

Normal Establishment of the Public Works Department of the Madras Presidency.—On the subject of the — .

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

8th February 1881, No. 336 W.

General.
Establishment.

Read the following papers :—

No. 19. From Government of India, dated 23rd October 1880, No. 169-A I.
No. 20. From " " " 29th " " " 326 I.
No. 21. From Examiner of P.W.A., " 26th November " " 157 W.
No. 22. From " " " 6th December " " 164 W.

No. 23. ORDER THEREON, 8th February 1881, No. 336 W.

ORDERED that the following letter be sent to the Government of India.

(Here enter No 337 W., dated 8th February 1881.)

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

Exd. E. C. Shunker.
Spare Copies

A.

An Approximate Comparative Statement showing the Cost of Establishment, Public Works Department, Madras, as it stood on 30th September 1879 and on the 30th September 1880, and the probable Net Savings to Government effected by the recent general Reductions.

Effective Establishment as it stood on 30th September 1879.					Effective Establishment as it stood on 30th September 1880.					Additional cost of Establishment sanctioned by Local Boards transferred to Local Fund Works since 30th September 1879.	Cost of Pensions and Gratuities to retired Officers and Subordinates.					Total present Cost.		Difference.							
																		Excess.				Less.			
Particulars.	Cost per Mensem.				Particulars.	Cost per Mensem.					Number retired.	Pensions and Gratuities.				Columns 8+11+16.	Column 10.	Number.	Permanent.	Number.	Temporary.	Number.	Permanent.	Number.	Temporary.
	Number.	Permanent.	Number.	Temporary.		Number.	Permanent.	Number.	Temporary.			Monthly Pensions.	Gratuities and Bonuses.	Monthly Value of Gratuities and Bonuses.	Total of Columns 13 and 15.										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
EXECUTIVE BRANCH.																									
	(a)	Rs.		Rs.		(a)	Rs.		Rs.	Rs.	(a)	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.		(b) Rs.		Rs.		Rs.
Engineer Establishment ..	74	56,715	..	..	Engineer Establishment ..	56	40,622	..	..	10,175	16	2,769	1,11,110	747	3,516	54,313	..	..	..	..	..	18	2,402	..	..
Upper Subordinate Establishment	241	27,495	2	300	Upper Subordinate Establishment.	150	18,499	2	120	4,180	79	2,833	95,740	634	3,467	26,146	120	..	..	..	..	91	1,349	..	180
Lower Subordinate do. ..	217	7,812	..	..	Lower Subordinate do. ..	..	..	20	600	6,840	(d) 10	..	(e) 4,470	32	32	6,872	600	..	20	600	(d)	217	940	..	..
Office Establishment ..	904	22,828	12	195	Office Establishment	397	14,280	108	1,800	5,451	390	(f) 743	(g) 28,836	207	950	20,681	1,800	..	96	1,605		507	2,147	..	..
Total ..	1,436	1,14,850	14	495	Total ..	603	73,401	130	2,520	26,646	(e) 495	6,345	2,40,156	1,620	7,965	1,08,012	2,520	..	116	2,205		833	6,838	..	180
	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	2,205					7,018		
Petty Establishment	4	253	854	7,804	Petty Establishment	..	..	380	2,781	(j)	..	..	..	..	..	..	..	..					2,205		
																					Net ..		4,813		
																		cost of additional establishment ioned since 30th September 1880, er paragraph 6 of letter, No. W., dated 26th November 1880, rding this statement.				2,980		
																		Net on present date ..				(r) 1,833		
ACCOUNTS BRANCH.																									
Examiner's Establishment ..	3	(k) 3,063	..	..	Examiner's Establishment ..	3	(l) 2,961	..	..	750	..	..	..	..	..	3,711	..	(n) 648	..	..	..	..	..	..	..
Accountants and Clerks ..	164	10,150	40	800	Accountants and Clerks ..	92	6,234	39	880	2,863	(m) 67	..	1,140	25,333	174	1,314	10,411	880	261	2	(o) 80	..	..	..	..
Total	..	13,213	..	800	Total	..	9,195	..	880	3,613	..	1,140	25,333	174	1,314	14,122	880	(p) 909	..	80	..	..	..	..	..
	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	989				....			
																	Net ..	(r) 989				....			

Remarks.

(a) This column represents difference between columns 2 and 7.
(b) Do. do. between do. 4 and 9.
(c) Of this total the numbers against "Engineer" and "Upper Subordinate" Establishments are actuals. Those against "Lower Subordinate" and "Office" Establishments approximates.
(d) It is believed that mostly all the Lower Subordinates whose services were not required in the Public Works Department have been kept on under the Local Fund Boards. No applications for pensions or gratuities have been received from su
(e) This amount has been arrived at by assuming that the less cost (7,812—600—6,840) viz., 372, is the average emoluments of the total number of persons (Lower Subordinates) who are entitled to average gratuity of 12 months' pay for service ears and under 15 years. Average age 40 years.
(f) This amount represents the pension of 66 men at an average of Rs. 11-4-2 per man. The average has been arrived at by dividing the total amount of pensions checked by this office and recommended for sanction by the number to whom these efer.
(g) This represents the total amount of gratuities of 324 men at an average per man of Rs. 89. This average has been arrived at by dividing the total amount of gratuities checked by this office and recommended for sanction by the number of om these gratuities refer.
(h) The amounts entered in this column have been calculated on the total amounts of gratuities and bonuses on the principles laid down in tables A and C, Appendix E, of the Civil Pension Code. In the case of Engineer and Upper Subordinatements actuals, and in the case of Lower Subordinate and Office Establishments approximates. Average age 40 years.
(j) It has been found impracticable to ascertain the present cost of this establishment. Nearly all the men belonging to this establishment were regarded as belonging to the temporary establishment, and it is believed on their ceasing to belong ublic Works Department were taken over by Local Fund Boards along with the Local Fund Works, excepting a few appertaining to lascars who were on the permanent establishment before September 1878, but who transferred to Petty Establishment. No applications for pensions or gratuities have b ted to this office on behalf of this establishment.
(k) This represents the pay and allowances of one Examiner and two Deputy Examiners, the normal strength of officers for this office. But at this time (ber 1879) an additional officer (Assistant Examiner Mr. Barrow) was also temporarily this office. His pay and allowances, amounting to Rs. 420 per mensem, have been omitted from the figures entered in this statement.
(l) The difference (Rs. 102) between this amount and that entered at (k) is due to the difference in the pay and allowances of Major Conway-Gordon, th Examiner, and of Major Trail, the present Examiner.
(m) This number were actually retired in the Accounts Branch giving an actual reduction of Rs. 2,007 per mensem. But on account of the cost of Audit of the Accountant-General, Madras, and Presidents, Local Fund Boards, an excess of r mensem has actually resulted.
(n) The *actual* excess against Examiner Establishment is Rs. 750 per mensem, caused by the appointment of a Local Fund Auditor in the Accountant-General's (Madras) Office. This amount has been reduced by the difference noticed in remark
(o) represents pay of two retired Accountants, whose services are at present being temporarily retained on the temporary establishment under orders of Government.
(p) Omitting the cost of temporary establishment, the actual excess which has resulted by the change in the audit of Local Fund Accounts is Rs. (261+750) 1,011 per mensem.
(q) The non-agreement of the differences in the numbers entered in columns 2 and 7 with those entered in column 12 is due to absentees on furlough and special leave out of India, and on other duties, to deaths, resignation, remand to military du he Accounts Branch.
(r) This saving of Rs. 1,833 will further be reduced or altogether disappear on the arrangements referred to in paragraph 8 of letter, No. 157 W., dated 26th November 1880, being sanctioned and carried out: necessarily causing also a *further*

(Signed) D. H. TRAIL, Major, R.E.,
Offg. Examiner, Public Works Accounts.

Madras,
November 1880.

B.

ESTIMATE of the Cost of the Public Works Establishments according to the proposals contained in letter No. 2,277 W., dated 1st October 1880.

NUMBER. 1880-81.	NUMBER. 1881-82.	Particulars.	Salary of Office.	ESTIMATE FOR 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		ENGINEER ESTABLISHMENT.	RS.	RS.	RS.	RS.	RS.	
		Chief Engineers.						
1	1	Chief Engineer, 1st Class, and Secretary to Government, General and Buildings and Roads Branches.	2,500					
		Net Military pay proper of a Colonel, R.E.	304⅔	2,804				
1	1	Chief Engineer, 2nd Class, and Joint Secretary to Government, Irrigation Branch.	2,000					
		Net Military pay proper of a Colonel, R.E.	304⅔	2,304				
2	*2	Total, Chief Engineers ..	..	5,108	61,296	..	61,296	* Omitting Col. Shaw-Stewart, R.E., as Railway Branch Officers are not included.
		Superintending Engineers.						
2	2	Superintending Engineers, 1st Class.	1,600	3,200				
1	1	Do. do. 2nd Class ..	1,350	1,350				
1	1	Do. do. 3rd ,, ..	1,100	1,100				
		Difference between consolidated salary and the aggregate of Staff pay and Military pay and allowance of a Lieutenant-Colonel, R.E. (*Superintending Engineer, 1st Class*).	202½	202				
		Net Military pay proper of a Lieutenant-Colonel, R.E. (*Superintending Engineer, 1st Class*).	243½	244				
		Difference between the aggregate of Staff pay and Military pay and allowances and the consolidated salary of a Lieutenant-Colonel, R.E. (*Superintending Engineer, 2nd Class*).	402¼	402				
		Difference between the aggregate of Staff pay and Military pay and allowances and the consolidated salary of a Major, R.E. (*Superintending Engineer, 3rd Class*).	240⅞	241				
4	4	Total, Superintending Engineers.	..	6,739	80,868	..	75,852	
		Executive Engineers:						
5	†5	Executive Engineers, 1st Grade.	950	4,750				† Omitting Major C. J. Smith, as Railway Branch Officers are not included.
6	‡8	Do. do. 2nd Grade ..	800	6,400				
6	9	Do. do. 3rd ,, ..	650	5,850				
7	11	Do. do. 4th ,, ..	550	6,050				
		Difference between the pay of the Consulting Architect and Executive Engineer, 1st Grade.	250	250				‡ Omitting Captain Coaker, R.E., do. do.
		Difference between the aggregate of Staff pay and Military pay and allowances and the consolidated salary of four (Majors, R.E.)	290⅞	1,164				
		Difference between consolidated salary and maximum salary of one Major, R.E.	282⅝	283				

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		ENGINEER ESTABLISHMENT—*cont.*	RS.	RS.	RS.	RS.	RS.	
		Executive Engineers—cont.						
		Difference between consolidated salary and the aggregate of Staff pay and full Military pay and allowances of two Captains, R.E.	133⅓	267				
		Net Military pay proper of two Captains, R.E.	140	280				
		Difference between the aggregate of Staff pay and Military pay and allowances of a Captain, R.E.	183⅓	184				
		Net Military pay and allowances of four Lieutenants, R.E.	70	280				
24	*33	Total ..	..	†25,758				
		Deduct moiety of pay and allowances of a Lieutenant, R.E. (Lieutenant Baddeley) chargeable to Public Works Workshops.	..	335				
		Net Total, Executive Engineers.	..	25,423	3,05,076	..	2,26,524	
		Assistant Engineers.						
12	15	Assistant Engineers, 1st Grade.	450	6,750				
24	26	Do. do. 2nd Grade ..	350	9,100				
..	3	Do. do. 3rd „ ..	250	750				
		Three Supernumerary Assistant Engineers, 2nd Grade.	350	1,050				
		Net Military pay proper of two Lieutenants, R.E.	70	140				
		Difference between the consolidated salary and the Staff pay and Military allowances of three Lieutenants, R.E.	65¾	197				
36	44	Total, Assistant Engineers.	..	17,987	2,15,844	..	1,65,900	
		Total, Engineer Establishment.	..	..	..	6,63,084		
		Special allowance at Rs. 100 each for five Superintendents of Works.	100	500	6,000	6,000		
		Grand Total, Engineer Establishment.	..	..	..	6,69,084	5,29,572	
		UPPER SUBORDINATE ESTABLISHMENT.						
		Sub-Engineers.						
4	6	Sub-Engineers, 1st Grade ..	400	2,400				
4	5	Do. 2nd „ ..	300	1,500				
6	11	Do. 3rd „ ..	250	2,750				
		Difference of Military pay of a Lieutenant and Deputy Assistant Commissary (Warrant Officer) on receipt of consolidated salary of an Assistant Engineer, 1st Grade.	50	50				
		Extra pay of a Captain and Deputy Commissary on receipt of pay and allowances of an Upper Subordinate.	150	150				
14	22	Total, Sub-Engineers ..	..	6,850	82,200			

* Omitting two Railway Branch Officers.

† Does not include the special allowance at Rs. 100 for five Superintendents of Works added at end of "Engineer Establishment."

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		UPPER SUBORDINATE ESTABLISHMENT—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	
		Supervisors.						
12	17	Supervisors, 1st Grade ..	200	3,400				
18	28	Do. 2nd ,, ..	150	4,200				
		Military pay and allowances of two Conductors.	20	40				
		Do. do. of seven Sub-Conductors.	30	210				
30	45	Total, Supervisors ..	..	7,850	94,200	..	64,440	
		Overseers.						
30 30 40	* 111	Overseers	80	8,880				* Distribution of Overseers among grades not given; cost calculated on mean pay (*i.e.*) $\left(\frac{60+80+100}{3}\right)$ Rs. 80 per mensem.
		Military pay and allowances of about thirteen Sergeants.	46	598				
100	111	Total, Overseers ..	..	9,478	1,13,736	..	99,120	
		Total, Upper Subordinate Establishment.	..	..	2,90,136			
		Deduct the pay of a Sub-Engineer, Third Grade, chargeable to Workshops.	250	250	3,000			
		† *Net Total, Upper Subordinate Establishment.*	..	..	..	2,87,136	2,15,160	† Actuals on this date.
10	18	*Sub-Divisional Allowance for 18 Upper Subordinates.*	30	540	6,480	6,480	3,600	
		Grand Total, Upper Subordinate Establishment.	..	..	..	‡2,93,616	2,18,760	
		LOWER SUBORDINATE ESTABLISHMENT.						
..	(*a*) 5	Sub-Overseers, 1st Grade ..	60	300				(*a*) Two for Kurnool and three for Trichinopoly.
..	(*b*) 15	Do. 3rd Grade ..	20	300				(*b*) Six for Kurnool, two for Vizagapatam, and seven for Trichinopoly.
		Total, Lower Subordinate Establishment.	..	600	7,200	7,200	..	G.O., No. 1,935 W., dated 12th August 1880; and G.O., No. 95 W., dated 15th January 1880; No. 137 W., dated 19th January 1880.
		PETTY ESTABLISHMENT.						
..	25	Store-keepers as per G.O., No. 1,204 W., dated 28th May 1880.	15, 20, 25 & 30	600				§ G.O., No. 1,382 W., dated 14th June 1880.
..	1	§ Assistant Apothecary ..	62½	62½				G.O., No. 1,346 W., dated 8th June 1880.
..	4	§ Hospital Assistants with Jeypore allowance at Rs. 25 for one.	25, 40 and 60	175				G.O., No. 1,148 W., dated 14th May 1880.
..	1	§ Gumastah	5	5				G.O., No. 1,935 W., dated 12th Aug. 1880.
..	1	‖ Maistry	40	40				‖ G.O., No. 1,837 W., dated 22nd July 1880.
..	11	§ Lascars, Toties, Cook, &c., of the Medical Establishment.	2 to 7	44½				

N.B.—(1) The additional Military pay and allowances of Military Officers and Subordinates entered in column "Estimate for 1881-82" represent actuals (*i.e.*) the allowances which are actually being drawn on this date.

(2) The cost of Upper Subordinate Establishment as shown above has been arrived at by distributing the total number (178) into grades as per "statement annexed to letter No. 2,277 W., dated 1st October 1880, to the Government of India. But if the provisions of Government of India Resolution No. 1,789 G., dated 15th October 1880, sanctioning revised proportions as regards grades are adopted, the cost of this establishment (total 178) *excluding* Military allowances will be Rs. 26,720 per mensem or ‡ Rs. 320,640 per annum.

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		PETTY ESTABLISHMENT—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	
360	* 450	Lascars	6	2,700	..	..	25,920	* This includes the 12 lascars sanctioned for Public Works Stores.
		Total, Petty Establishment.	..	3,627	43,524	43,524	25,920	
		OFFICE ESTABLISHMENT.						
		For Chief Engineer and Secretary to Government, Public Works Department.						
1	1	Chief Assistant	† 600	600				† *Vide* Office note from the Secretary to Government, Public Works Department, dated 9th December 1880.
1	1	Second Assistant	† 300	300				
1	1	Clerk, 1st Class, 3rd Grade..	225	225				
2	2	Do. 2nd ,, 2nd ,, ..	140	280				
1	1	Do. 2nd ,, 3rd ,, ..	110	110				
5	5	Do. 3rd ,, 2nd ,, ..	70	350				
3	3	Do. 3rd ,, 3rd ,, ..	55	165				
1	1	Do. 4th ,, 1st ,, ..	45	45				
2	2	Do. 4th ,, 2nd ,, ..	35	70				
1	1	Do. 4th ,, 3rd ,, ..	25	25				
				2,170				
2	2	Draughtsmen, 1st Class ..	60	120				
1	1	Do. 2nd Class ..	42½	42½				
				162½				
2	2	Muchies or Daftries ..	13 & 14	27				
2	2	Head Messengers ..	9 & 11	20				
7	7	Messengers	7	49				
		Total, Public Works Secretariat.	..	2,428½	29,142	..	29,100	
		‡ *Lithographic Establishment.*						‡ *Vide* G.O., No. 1,449 W., dated 21st June 1880.
	1	Superintendent	250	250				
	1	Head Draughtsman ..	120	120				
	1	Second do. ..	100	100				
	1	Third do. ..	80	80				
	1	Fourth do. ..	60	60				
	1	Fifth do. ..	40	40				
	1	Sixth do. ..	30	30				
	1	Seventh do. ..	25	25				
	1	Eighth do. ..	20	20				
	1	Ninth do. ..	15	15				
	1	Tenth do. ..	10	10				
	1	Tracer and Recordkeeper ..	25	25				
	1	Do. and Muchi ..	16	16				
	1	Head Printer	20	20				
	1	Second do.	12	12				
	1	Third do.	12	12				
	2	Pressmen	9	18				
	6	Do.	8	48				
	2	Do.	7	14				
	2	Do.	5	10				
		Total, Lithographic Establishment.	..	925	11,100	..	3,000	
		§ *For Chief Engineer and Joint Secretary to Government, Irrigation Branch.*						§ G.O., No. 491 W., dated 3rd March 1880.
	1	Clerk, 1st Class, 3rd Grade..	225	225				
2	1	Do. 2nd ,, 2nd ,, ..	140	140				
	1	Do. 2nd ,, 3rd ,, ..	110	110				
	1	Do. 3rd ,, 1st ,, ..	90	90				
1	1	Do. 3rd ,, 2nd ,, ..	70	70				

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		Office Establishment—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	
		**For Chief Engineer and Joint Secretary to Government, Irrigation Branch*—cont.						* G.O., No. 491 W., dated 3rd March 1880.
1	1	Clerk, 3rd Class, 3rd Grade..	55	55				
..	2	Do. 4th „ 1st „ ..	45	90				
3	3	Do. 4th „ 2nd „ ..	35	105				
4	1	Do. 4th „ 3rd „ ..	25	25				
2	1	Draughtsman, 1st Class ..	60	60				
2	2	*Do. 2nd „ ..	42½	85				
..	2	Do. 3rd „ ..	25	50				
3	1	Reference-picker	10	10				
	1	Muchi	10	10				
	1	Head Messenger	8	8				
..	2	Do.	7	14				
1	2	Do.	6	12				
3	3	Lascars	7	21				
22	27	Total Office Establishment for Engineer for Irrigation.	..	1,180	14,160	..	11,256	
..	4	Office Establishments for 4 Superintending Engineers. For the cost of each, *vide* Appendix C, No. 4, G.O., No. 3,674 W., dated 18th September 1878.	413½	1,654	19,848			
..	14	Office Establishments for 5 Superintendents of Works and nine First-class Divisions. For cost of each, *vide* Appendix C, No. 5, above.	273	3,822	45,864			
..	10	Office Establishments for 10 Second-class Divisions. For the cost of each, *vide* Appendix C, No. 6, G.O., No. 3,674 W., dated 18th September 1878.	253	2,530	30,360			
..	4	Office Establishment for 4 Third-class Divisions. For cost of each, *vide* Appendix C, No. 7, G.O., No. 3,674 W., dated 18th September 1878.	220½	882	10,584			
		Office Establishment for Consulting Architect as per particulars below :—						
		One Clerk, 4th Class, 1st Grade	Rs. 45					
		One Draughtsman and Estimator ..	145					
		One Draughtsman and Estimator, 2nd Class	†42½					† *Vide* G.O., No. 1,950 W., dated 14th August 1880.
		One Draughtsman and Estimator, 3rd Class	25					
		One Messenger at 7..	7					
		One do. at 6..	6					
			270½	270½	270½	3,246		
		Office Establishment for Public Works Stores‡ as under :—						‡ G.O., No. 1,147 W., dated 14th May 1880.
		One Storekeeper (Clerk), 2nd Class, 2nd Grade ..	Rs. 140					
		One Assistant Storekeeper (Clerk), 3rd Class, 2nd Grade.	70					
		One Clerk, 4th Class, 2nd Grade ..	35					
		One Clerk, 4th Class, 3rd Grade ..	25					
		One Duffadar ..	8					
		Two Peons at 7 ..	14					
		Two do. at 6½ ..	13					
			305	305	305	3,660		

See last page "Office Establishment."

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		Office Establishment—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	
		**For Chief Engineer and Joint Secretary to Government, Irrigation Branch*—cont.						* G.O., No. 491 W., dated 3rd March 1880.
		Office Establishment to be provided for 4 Executive Engineers on special projects.	40	160	1,920			
		Office Establishment to be provided for 51 Sub-Divisional Officers. Appendix C, No. 10, G.O., No 3,674 W., 18th Sept. 1878—						
		One Clerk, 4th Class, 3rd Grade .. 25	Rs.					
		One Messenger .. 6						
			31	31	1,581	18,972		
		Office Establishments for 50 Upper Subordinates above the rank of Overseer at—						
		One Clerk, 5th Class, 1st Grade.	17½	875	10,500			
		Office Establishments for 111 Overseers.	12½	1,387½	16,650			
		Toll Establishment for the upkeep of Buckingham Canal as per G.O., No. 2,510 W.,† 2nd Nov. 1880.	761	761	9,132			
		Pay of Sooba Row,‡ Clerk, Superintending Engineer's Office, Third Circle (not absorbed yet).	25	25	300			† For details, see G.O. quoted. ‡ G.O., No. 1,581 W., dated 6th July 1880.
		Total "Office Establishment" under "Construction." (*See Budget* 1880-81.)	..	..	2,25,438	..	1,08,910	
		NOTE.—No personal allowance has been provided for, as the mean pay entered will, it is believed, cover the charges on account of such allowances.						
		Total, Office Establishment.	..	..	..	2,25,438	1,52,266	
		Irrigation Establishment.						
		Survey	..	..	15,000	§ 15,000	15,000	§ Details for Irrigation Establishment not yet received from the Chief Engineer for Irrigation. The amount provided for in the last year's budget has therefore been taken as an approximation.
		Water Regulation ..	..	..	84,038			
		Navigation	..	..	28,989			
		River Conservancy ..	..	..	2,568			
						§ 1,15,595	1,15,595	
		Special Revenue Investigations by Mr. Wilson.						
		Office Establishment required for the preparation of Irrigation Accounts—*Vide* G.O., No. 443-A. I., dated 6th August 1879.	..	..	10,000	10,000	13,000	
		Total, Irrigation Estabt. ..	..	..	..	1,40,595	1,43,595	
		Temporary Establishment.	..	..	..	35,000	25,000	
		Local Allowances.						
		Upper Godávari Allowance.	50	50	600	..	..	G.O., No. 1,203 W., dated 20th May 1880 ; G.O., No. 2,560 W., dated 8th Nov. 1880 ; and paras. 33, 35, and 673 of the Madras Public Works Code.
		Wynaad Allowance	..	..	2,000	..	..	
		Potingy Ghat or Jeypore Allowance.	..	..	3,000	..	..	
		Presidency House Rent ..	..	555	6,660	..	..	
		Do. Allowances ..	..	600	7,200	..	..	
		Total, Local Allowances..	..	..	19,460	19,460	10,000	
		Total, Salaries (see Abstract next page).	..	..	..	14,33,917	11,05,113	

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		LOCAL ALLOWANCES—*cont.*	RS.	RS.	RS.	RS.	RS.	
		Travelling Allowances ..	..	..	..	2,00,000	1,10,000	
		Contingencies including postage—						
		4 Superintending Engineers' Offices.						
		5 Superintendents of Works' Offices.						
		24 Executive Divisional Offices.						
		—						
		33 at Rs. 100 per mensem ..	..	3,300	..	..	..	
		2 Chief Engineers—						
		Secretary to Government, Public Works Department .. RS. 500						
		Chief Engineer for Irrigation 150						
		650	..	650	..	..	..	
				3,950	47,400	47,400	40,200	
		Grand Total, Executive Branch.	..	..	..	16,81,317	12,55,313	
		Abstract of the foregoing.						
		Engineer Establishment ..	..	..	6,69,084	..	5,29,572	
		Upper Subordinate Establishment.	..	..	2,93,616	..	2,18,760	
		Lower Subordinate Establishment.	..	..	7,200	..	..	
		Petty Establishment ..	..	..	43,524	..	25,920	
		Office do. ..	..	..	2,25,438	..	1,52,266	
		Irrigation do. ..	..	..	*1,40,595	..	1,43,595	
		Temporary do. ..	..	..	35,000	..	25,000	
		Local Allowances	..	..	19,460	..	10,000	
		Total, Salaries ..	..	..	14,33,917	..	11,05,113	
		Travelling Allowances ..	..	..	2,00,000	..	1,10,000	
		Contingencies ..	..	..	47,400	..	40,200	
		Grand Total, Executive Branch.	..	..	..	16,81,317	12,55,313	
		Grand Total, Accounts Branch.	..	..	..	1,57,060	1,30,720	
		Total, Public Works Department, Madras Presidency.	..	..	..	†18,38,377	†13,86,033	
		ACCOUNT ESTABLISHMENT.						
		Examiners.						
1	1	Examiner, 1st Class, 2nd Grade.	1,350	..	..	..	..	
		Difference between the Staff pay and Military pay and allowances and the consolidated salary of a Major, R.E.	40⅞	1,390⅞	..	..	..	
2	2	Deputy Examiners, 1st Grade.	550	1,100	..	..	..	
		Difference between the pay and allowances of a Staff Corps Officer and that of a Civilian.	50	50	..	..	..	
3	3	Total, Examiner Establishment.	..	2,540⅞	30,490	..	32,190	
		Accountants.						
1	1	Accountant, 1st Grade ..	400	400	..	..	..	
3	3	Do. 2nd ,, ..	295	885	..	..	..	
4	4	Do. 3rd ,, ..	200	800	..	..	..	

*Details for Irrigation, Survey, Water Regulation, Navigation and River Conservancy Establishment not yet received from Chief Engineer for Irrigation. The amounts as shown in the last year's budget have therefore been taken.

† This does not include the pay and allowances of the Railway Branch Officers and Establishment.

Estimate of the Cost of the Public Works Establishments, &c.—*cont.*

Number. 1880-81.	Number. 1881-82.	Particulars.	Salary of Office.	Estimate for 1881-82. Per Mensem.	Per Annum.	Total.	Estimate for 1880-81.	Remarks.
		ACCOUNT ESTABLISHMENT —*cont.*	RS.	RS.	RS.	RS.	RS.	
		Accountants—cont.						
		Accountant, 4th Grade ..	115	1,150	..	..	..	
		Do. 5th ,, ..	57½	1,955	..	..	..	
10	10							
34	34	Total, Accountants ..	..	5,190	62,280	..	62,280	
52	52							
		Clerical Establishment.						
		Clerk, 2nd Class, 2nd Grade.	140	140	..	..	..	
1	1	Do. 3rd ,, 1st ,,	90	90	..	..	..	
1	1	Do. 3rd ,, 2nd ,,	70	70	..	..	..	
1	1	Do. 3rd ,, 3rd ,,	55	165	..	..	..	
3	3	Do. 4th ,, 1st ,,	45	225	..	..	..	
5	5	Do. 4th ,, 2nd ,,	35	210	..	..	..	
6	6	Do. 4th ,, 3rd ,,	25	250	..	..	..	
10	10	Do. 5th ,, 1st ,,	17½	52½	..	..	..	
3	3							
		Total, Clerks ..	..	1,202½	14,430	..	..	
		Menial Servants ..	..	102½	1,230	..	..	
		Total, Office Establishment.	..	..	15,660	15,660	15,660	
		Local Allowances..						
		Presidency House Rent Do. Allowance	..	..	18,000	18,000	10,000	
		Total Salaries	..	..	..	1,26,430	1,20,130	
		Travelling Allowances	..	..	..	2,400	2,400	
		Contingencies ..	..	..	..	4,500	4,500	
		Grand Total, Permanent ..	..	..	..	1,33,330	1,27,030	
		Deduct contributions for four Accountants as follows :—						
		Madras Harbour Works. 1						
		Presidency Workshops. 1						
		Dowlaishweram do. .. 1						
		Central Office 1						
		—						
		4	..	..	..	5,910	5,910	
		Net Total, Permanent Establishment.	..	..	..	1,27,420	1,21,120	
		Temporary Office Establishment for the preparation of Capital and Revenue Accounts—*Vide* G.Os., Nos. 3,443, 412 I., and 948 I., dated 3rd December 1875, 15th May 1878, and 21st November 1878, respectively ; *vide* also this Office No. 145 W., dated 18th November 1880.	..	800	9,600	9,600	9,600	
		Grand Total, Account Establishment.	..	..	..	1,37,020	1,30,720	
		Accountants.						
		Additional Account Establishment which will be necessary according to rule if the proposals embodied in letter, No. 2,277 W., dated 1st October 1880, to the Government of India are sanctioned.	..	..	1,055	..	..	
		Clerks and Menial Servants.	..	..	265	..	..	
		Presidency Allowance and House Rent.	..	..	350	..	..	
			..	..	1,670	20,040	..	
		Grand Total, Account Establishment.	..	..	..	1,57,060	..	

MADRAS,
December 1880.

(Signed) D. H. TRAIL, Major, R E.,
Offg. Examiner, Public Works Accounts.

C.

Statement of Irrigation of various classes extracted from Part II, Famine Commission Report, Section V.

Class.	—	Funds.	Punjab.	North-West Provinces.	Oudh.	Madras.	Bengal.	Bombay.	Sindh.	Remarks.
			ACRES.	ACRES.	ACRES.	ACRES.	ACRES.	ACRES.	ACRES.	
I.	Perennial Canals...	Public ...	740,000	1,694,000	...	*1,700,000	360,000	† 17,000	...	In the Punjab, North-West Provinces, and Oudh it is believed that the acreage both of the Khareef and Rabbi crops are given. Were this done in Madras the acreage would be greatly increased in the returns. Moreover in Madras no entry is made under "Small Channels, &c.," of which there are large areas in the Southern Districts.
II.	Tanks	Public or Private according to circumstances.	...	...	...	3,522,000	...	...	...	
III.	Inundation Canals.		933,000	...	...	...	...	...	1,800,000	
IV.	Small Channels, &c.	Private ...	642,000	1,985,000	1,982,000	...	...	450,000	500,000	
V.	Ponds		143,000							
VI.	Wells		3,176,000	4,480,000	1,314,000	2,000,000	600,000			
		Total ...	5,634,000	8,159,000	3,296,000	7,222,000	960,000	467,000	2,300,000	
				11,455,000				2,767,000		

* Cauvery, Kistna, and Godávari only. † Rose to 25,000 in 1877.

10

D.

Receipts.	Estimated Receipts in 1870-71.	Actuals for 1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	Remarks.
	Rs.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
Imperial Allotment for Provincial Services.	73,94,880	76,96,292	79,74,658	81,59,040	85,38,539	83,08,266	81,13,735	80,83,000	80,75,063	* 84,86,120	*Including four lakhs for Stationery.
Jails	73,000	2,64,856	1,65,807	2,11,923	2,36,656	2,56,524	3,19,804	3,39,597	3,27,023	2,58,887	
Registration	3,40,000	3,54,749	3,26,402	3,31,150	3,71,800	3,80,530	3,92,035	4,45,524	5,20,375	5,30,164	
Police	3,23,500	82,458	28,646	26,995	26,250	37,680	57,270	78,457	1,01,948	1,63,639	
Education	69,000	1,04,088	1,20,950	52,916	55,397	28,698	63,024	37,035	1,58,545	1,54,479	
Medical	...	10,048	11,626	11,051	1,86,513	62,213	37,072	35,279	52,351	1,45,993	
Printing	12,600	28,031	31,933	27,408	27,340	26,723	26,125	27,244	27,020	31,806	
Marine	...	...	...	24,779	24,373	25,141	19,618	11,118	12,331	17,629	
Miscellaneous ...	...	39,059	90,974	84,683	1,01,178	1,32,850	1,39,365	1,45,963	95,180	3,10,127	
Public Works ...	...	55,064	86,451	57,802	51,836	79,669	1,01,418	1,92,968	1,76,190	2,61,665	
Total ...	...	86,34,645	88,37,447	89,87,747	96,19,882	93,38,294	92,69,466	93,96,185	95,46,026	†1,03,60,509	† This year's receipts are not much above those of preceding years; if the new grant of 4 lakhs for Stationery be excluded, and 2 lakhs under "Miscellaneous," representing recoveries, much of the remaining difference is due to the receipts from the Buckingham Canal.
Charges.	Estimated Charges in 1870-71.										
Jails	9,19,830	8,23,384	8,54,306	9,53,703	8,61,909	10,57,532	13,66,118	9,75,918	12,20,187	13,31,818	
Registration	2,29,700	2,38,292	2,32,921	2,30,106	2,44,781	2,66,562	2,82,636	3,06,471	3,47,597	3,65,131	
Police	35,07,300	33,96,293	33,83,985	34,56,133	35,67,250	35,39,907	40,01,750	34,40,060	37,18,517	38,20,703	
Education	9,00,520	8,06,853	8,72,273	9,96,352	7,30,575	8,75,308	8,54,220	9,32,888	9,91,300	10,05,461	
Medical	6,16,960	4,24,057	5,03,708	6,66,378	7,29,714	5,87,429	5,72,979	6,76,042	7,10,450	6,32,876	
Printing	2,58,400	2,47,157	2,39,952	2,50,981	2,21,997	2,46,357	2,75,088	3,13,555	3,06,990	2,74,096	
Marine	...	..	10,964	8,409	11,886	...	...	...	7,074	26,840	
Miscellaneous ...	...	2,15,668	2,31,218	4,02,753	3,08,663	14,66,033	5,66,735	2,47,828	4,69,903	4,56,435	
Minor Establishments.	...	...	1,89,806	1,42,317	1,44,506	2,30,831	2,38,195	2,15,029	1,98,911	2,01,329	
Public Works ...	23,34,550	20,41,337	22,51,572	29,81,235	26,47,962	10,91,566	17,41,153	19,31,710	17,81,450	14,69,101	
Office Rent, Rates and Taxes	...	46,863	65,777	58,319	67,853	85,032	73,911	82,783	87,251	1,20,421	
Refunds	...	...	19,686	4,657	2,648	4,601	4,389	7,762	15,183	8,515	
Stationery	...	...	...	...	...	...	...	...	...	4,16,174	
Total ...	...	82,39,904	88,56,168	1,01,51,343	95,39,744	94,51,158	99,77,174	91,30,046	98,54,813	1,01,28,900	

Abstract.

	RS.
Total Receipts 1871-72 to 1879-80	8,39,90,205
Do. Charges do.	8,53,29,250
Excess Charges ..	13,39,045

11

PUBLIC WORKS DEPARTMENT.

General.
Establishment.

No. 337 W.

No. 24.

FROM

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
Public Works Department,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
Public Works Department.

Embodied in Go. 2781 W 2 Dec 1880

SIR,—With reference to your letter, No. 1,918 G., of 4th November 1880, calling on this Government to reconsider the scheme for the normal establishment of the Department of Public Works in this Presidency, submitted with my No. 2,277 W. of 1st October 1880, and which has been pronounced (paragraph 13) "from an economical point of view to be entirely unsatisfactory," I am desired to offer the following observations for the favorable consideration of His Excellency the Governor-General in Council.

2. The proposals of this Government as regards the number of Chief Engineers, Superintending Engineers, and with reference to the bestowal of the powers of a Superintendent of Works on Mr. Chisholm as Consulting Architect, having been accepted by the Government of India, no remark appears called for with reference to paragraphs 1, 2, and 3 of the letter under reply.

3. Paragraph 4 states the specific objections to the appointment of five selected officers with powers of Superintendents of Works and an extra staff salary of Rs. 100 per mensem. These are—(1) that the Chief Engineer for Irrigation considered that Superintendents of Works for the ~~Cauvery~~ and Kistna Deltas were unnecessary, and that he objected to the Tanjore and Negapatam Divisions forming a charge for an officer of this class; (2) that it does not appear that the combined charge of Ganjam with Vizagapatam and (3) the Buckingham Canal require Superintendents of Works.

/ Godavari

4. With reference to (1) and (2), I am to observe that, in the last re-organization of the department (September 1878), the following six Executive Divisions comprehended in the First Circle, viz.:—

Ganjam,
Vizagapatam,
Eastern Godávari,
Western do.,
Eastern Kistna,
Western do.,

were formed into a charge for one Superintending Engineer, and that notwithstanding the appointment of the best officer in the department of this grade to the post, the arrangement, after a sufficiently long trial, broke down in such a way as to satisfy this Government that it could in nowise be adhered to or be again recommended for adoption.

5. The proposals made by the Chief Engineer for Irrigation took in the four Delta Divisions, but left Ganjam and Vizagapatam entirely outside of his scheme, to form part of a charge of a Superintending Engineer, which at the same time was to include divisions placed so widely apart as Cuddapah, Kurnool and Bellary, and even the Western Coast, involving a circuit of not less than two-thirds of the whole Presidency.

6. It is almost needless to say that such an arrangement was very much more impracticable than the one it was proposed to replace, and as such it was necessarily rejected by this Government. Colonel Mullins' proposals in fact aimed solely at creating an exclusive Irrigation Branch Establishment without sufficiently considering the requirements of the "Roads and Buildings" Branch and the general needs of the Presidency; but, as will be observed from paragraphs 41 and 42 of my letter, No. 2,277 W., of 1st October 1880, proposals of this character after mature consideration have had to be negatived by this Government. No further remark is here called for.

7. On the other hand, it had been distinctly recognized that for the management of the Delta Works relatively small charges under the old system of District Engineers (who had similar powers to the proposed Superintendents of Works) had a very marked advantage, as providing an officer of experience in each district, who should carry with him all the powers of a Superintending Engineer, though graded lower in the department and drawing less salary.

8. After the practical experiment which has now been made of officers in this position (Mr. Walch as Superintendent of Works for the two Godávari Divisions and Mr. Rundall for the two Kistna Divisions), it may be safely said that it would be impossible to secure better or closer supervision for these important works, and that to replace them now, after the advantages of the arrangement have been sufficiently proved in practice, by a single Superintending Engineer, would, in the opinion of this Government, be a retrograde measure, which they would regret to see adopted. The provision of this description of supervising authority having thus shown itself to be the best for these Northern Delta Divisions, it is needless to say that it would be equally applicable to, and necessary for, the works in the Cauvery Delta.

9. It follows on this that Ganjam and Vizagapatam must, as the outlying inaccessible charge to the north and as forming in themselves too small a circle for a Superintending Engineer, be provided for by a similar agency, though it may be admitted that, unless the present low limit for the Provincial assignments can be materially increased, the work of an officer of this grade would mainly be confined to the projection of the works which are so greatly needed for opening this most backward portion of the Presidency.

10. Lastly, it is clear from the great length (250 miles) and peculiar character of the works of the Buckingham Canal, involving the projection of a series of heavy engineering works, control of traffic, &c., that in the same way they cannot be advantageously linked with any circle forming the charge of a Superintending Engineer.

11. The arrangement of a number of charges for officers in the grade of Superintendents of Works in addition to the four Superintending Engineers' circles proper as submitted for the approval of the Government of India is thus shown to be the only one that is feasible having regard (1) to that efficiency in supervision by which alone true economy can be secured, and (2) to the geographical arrangement of the various charges.

12. The distribution of the whole of the Presidency of Madras into five circles for Superintending Engineers was proved to be impracticable from the experience gained by the re-organization of September 1878, and it is therefore needless to say that the division into four as required by the Government of India must be still more so.

13. If, after considering what has above been advanced, the Government of India are still indisposed to sanction any officer in the grade of Superintendents of Works, the only arrangement giving a chance of success would, I am to observe, be that of six Superintending Engineers' circles as already stated in my letter to the Government of India of 1st October, but in the opinion of this Government this would be greatly inferior to the scheme put forward therein.

14. Should the Government of India, however, accept the scheme sent up, this Government trusts that their decision to refuse any charge allowance may be also reconsidered on the grounds that, as these officers exercise much higher powers and

have considerably greater responsibility than ordinary Executive Engineers, it is only right and in accordance with the practice of other departments that they should receive some such allowance, not a very high one in this case—of Rs. 100 per mensem.

15. An allowance of this character is distinctly permitted by the Code of the Government of India, and, it is believed, that officers in this position have invariably in all other provinces drawn up to Rs. 200 per mensem extra to the ordinary pay of their grade.

16. In compliance with the instructions given in paragraph 4 of the Government of India letter under reply, the extra allowances have, I am to state, already been stopped from the 1st December, but this Government would urge the propriety of their being again given, at least to the present incumbents, as the duties are precisely those contemplated by the Code, and as the amount is after all but small.

17. Paragraphs 5 to 9 inclusive of the letter under reply deal with the cost of establishment, and, with a view to clear up all doubts on the subject, the Examiner has framed two statements annexed, (A) and (B), showing, *first*, the effect of the reductions ordered in establishment in 1879 as a general financial measure, and, *second*, the cost of the proposed normal establishment as sent up with my letter of 1st October.

18. It will be observed from (A) that taking into account temporary establishments and the value of the pensions, and calculating the gratuities and bonuses to retired officers on the principles laid down in the Civil Pension Code, the total saving in the Executive Branch has been only Rs. 1,883 per mensem, and in the Accounts Branch Rs. 989 after allowing for changes recently introduced in the system of auditing Local Funds under Madras Act IV of 1871 (which is not a State charge, and which changes were not induced by the Public Works reductions as a necessary consequence and relate to other services beside works), and this notwithstanding that 495 individuals in the first and 67 in the second branch were actually retired. But as the pensions of many of the retired men who took service under the Local Fund Boards have been stopped by the orders of the Government of India, the actual saving to the State while this order holds good is necessarily much greater than shown by Major Trail's figures.

19. After allowing for the cost of the new agency engaged by Local Fund Boards the saving is about Rs. 15,000 per mensem, reducible to Rs. 6,838 if the value of the compensation pension and gratuities be deducted. These figures exclude Petty Establishment which had been a purely Local Fund charge, and also the portion due to the Account Department, neither of which, properly speaking, affect the question of the Public Works Establishment under Government.

20. Whatever its results, the measure of transferring the execution of Local Fund Boards' works was, as noted in previous communication, one which gave that reality to Act IV of 1871 which its framers contemplated, and which, if that Act be retained in the Statute Book, must sooner or later have been brought about; it also enabled the Public Works Establishment to free itself of many inefficient members, and to take a much more sound position as a professional body than was possible under the old organization.

21. Even, however, if these results had not been so fully attained as is the case, it is now, I am to observe, clear that the step has been finally taken and that there is no revoking it.

22. With regard to the observation in paragraph 10, that the "Government of Madras has assigned 41 lakhs of expenditure to Local Boards," I am to submit that there is no question of assignment, as the money belongs to the several Local Fund Boards by law, and that there would thus seem to be a misapprehension on the part of the Government of India as to the character of these funds, which are derived from special rates levied for a special purpose under a special law which provides for their administration by a special agency.

23. Turning now to statement (B), it will be observed that, whereas the existing Provincial Establishment for the whole department, "Provincial" and "Imperial," costs Rs. 13·86 lakhs per annum, the normal one proposed will probably amount to

18·38 lakhs. Some adjustments on both sides of the account may have to be made, *e.g.*, if effect be given to the provisions of the Government of India Resolution, No. 1,787 G., of 15th October 1880, sanctioning revised proportions in the grades of the Upper Subordinates, about Rs. 27,000 per annum will have to be added to the total; but on the other hand certain contributions from (1) Local Fund Boards in Kurnool, Trichinopoly, &c., and (2) payments for work done by the Lithographic Establishment, &c., will come in as "*per contra*" credits.

24. It may therefore be accepted that, whereas the re-organization scheme of 1878 amounted to 21·38 lakhs (see paragraph 8 of General Fraser's letter), the proposed normal establishment will cost about 18·38 or 3 lakhs less.

25. If all the needful adjustments were made the difference would be fully 3½ lakhs in favor of the present scheme for the normal establishment.

26. The Government of India, in paragraph 9 of the letter under reply, observe that the proportion the establishment bears to works is "out of the question after making all allowances for the area to be supervised," and again that by the proposal sent up "it will cost nearly 10 annas to spend a rupee on Public Works." From these observations and others it has become evident to this Government that the grounds of their proposal and the peculiar circumstances of this Presidency have not been so fully understood and appreciated by the Government of India as could be desired.

27. The total outlay (Provincial and Imperial) supervised by the department is at present as nearly as possible 50 lakhs, and the establishment charge for spending this, viz., 18·38, would thus amount to 36·8 per cent. and not to 60 per cent. as supposed by the Government of India; but even this gives an incorrect view as compared with other provinces, as here much of the charge for establishment employed on (Imperial) Irrigation Works is borne by the Public Works Department instead of being debited to "Revenue," a matter which it is intended shortly to submit for consideration.

28. Again, as will be seen from paragraph 35 of my letter, No. 2,277 W., of 1st October, the special want of the department, which it was intended by the normal scale to meet, was "the provision of adequate establishment for investigating projects either of general importance or specifically for famines," and was not merely a work establishment. This with the immediately succeeding observations appear, I am to observe, to have escaped the Government of India, as no notice whatever of them ~~appears~~ has been taken in the letter under reply.

29. Taking all these circumstances and observations into consideration, it appears to the Right Honorable the Governor in Council that the time has arrived, when it becomes his imperative duty, to draw the very serious attention of the Government of India to the anomalous position which Madras has held ever since the decentralization order (Resolution of Government of India, No. 3,334, of 14th December 1870). The working of this order will at once be seen from an examination of the attached statement marked (D).

30. Here taking the "charges" side it will be observed that, while under all the sub-heads, Jails, Registration, Police, Education, Medical, Miscellaneous, &c., the Provincial expenditure has, from causes beyond control, run up to an amount far above what it was only ten years ago, the Provincial income remaining practically constant, the outlay under Public Works has perforce gradually dwindled to a fraction of its former amount. In 1873-74 the Provincial outlay on Public Works was Rs. 29,81,235, whereas in 1879-80 it had been reduced to Rs. 14,69,101, of which, small as it is, one lakh had to go to meet an interest charge on the Madras Water Works. A careful review of the figures will show that if some consideration be not given by the Government of India to the question now

NOTE.—In the nine years 1871-72 to 1879-80 there has been an excess of Rs. 13,39,045 of charges over receipts.

NOTE.—The charge for Roads and Miscellaneous Public Improvements is now borne by Municipal and Local Funds raised under Madras Acts III and IV of 1871, which aggregated nearly 28¼ lakhs in 1879, showing that every effort has been made by this Presidency to accept local burdens.

pressed on their attention, and if matters be allowed to proceed in the future as in the past the total extinction of the Department of Public Works in this Presidency, so far as concerns Provincial Works, is a foregone conclusion.

31. The establishment has been simply living from hand to mouth, and although on all sides there are projects of the highest promise and of the most vital importance to the welfare of the Presidency demanding the fullest consideration, and although the orders of the Government of India as to the necessity of being prepared with projects of works in case of famine are distinct and precise, it has been absolutely impossible for this Government to give that full consideration or to carry out these orders. There have been no officers to spare even for the preliminary work of investigation, still less for detailed preparation, so that, if famine were again to come upon this Presidency, there are only a very few, and those comparatively unimportant, projects in a sufficiently advanced state to admit of their being at once put in hand, and it is needless to point out the folly, extravagance, and waste of great opportunities which results from works being suddenly undertaken, the real utility of which has not been thought out and their mode of construction properly decided upon and estimated.

32. In proof of this it may be as well to say that the great work of the last famine, the Buckingham Canal, upon which over 36 lakhs have been spent, and on which at one time no less than 100,000 people were employed, has never even yet been properly estimated for.

33. Madras, it must at the same time be observed, claims a larger proportional share of outlay than any other province as tested by principles recognized by the Government of India for the apportionment of public funds;

First, it has admittedly the most extensive zone over which famine is possible, calling for the execution of *protective* works. In the last famine 1876-1878, as shown in paragraph 60, Famine Commission Report, Part I, 19½ millions of people were affected by this great calamity in Madras on an area of 83,800 square miles;

Second, it has in its facilities for the creation of new and the development of already existing Irrigation works, a perfectly unrivalled field for works classed as "*Productive*."

34. In regard to this latter point, attention is invited to the annexed tabular statement marked C, the facts recorded in which are extracted from Part II, Section V, of the Famine Commission Report. By that report Madras with 7,300,000 acres shown as ordinarily irrigated stands second to the North-Western Provinces and Oudh with 11,500,000, but large as is the proportion thus given to Madras even these statements are utterly misleading as will at once be seen by a reference to the attached statement. The large figure given for the latter province is made up of:—

	ACRES.
Well irrigation	5,794,000
Rivers and ponds	3,967,000

while canals on ~~the only~~ permanently irrigated land with unfailing sources of supply have only 1,694,000; and in addition to this it appears that even this ~~large~~ acreage is made up by adding the whole area irrigated separately in the Kharif and Rabbi crops together, much of the acreage being thus counted twice over, and an incorrect impression being given as to the area irrigated at any one time.

35. The fact is that in Irrigation works Madras stands practically alone. On its three great Delta works, it has 1,700,000 acres under irrigation at one time, and were other works of the same class added, the area under permanent irrigation of the first class would be found to be not less than two and a half, if not three, times as much as in the whole North-Western Provinces and Oudh. In fact it is not too much to assert that tested in any equitable manner Madras has more first-class irrigation than the whole of the rest of India taken together, and stands quite the leading country in the world in this respect. Moreover the character of the irrigation supplied under the Northern Canals at the best is merely flooding, only needing one-fifth of the water required in the Madras irrigation (chiefly rice) with necessarily a very much smaller yield in food crops acre for acre.

36. The Famine Commission, Part II, page 161, observe that there "can be no question as to the value of the Delta works," and consistently urge both the extension of these and others on the serious attention of the Government of India concluding with the following words, paragraph 66, page 165:—"In short we consider that in the Madras Presidency the subject of irrigation requires a more comprehensive and systematic treatment than it has ever yet experienced. We have little doubt that it cannot be put on a satisfactory basis without increased expenditure * * *. But without a policy of vigour as well as of judgment, irrigation in Madras will not be brought into a condition in which it will supply to the country all these extremely great advantages it can confer or afford the full protection against famine which can be obtained from it, and which in our judgment the British Government is bound to secure for the people." Yet from the way in which the provision of a proper establishment and the means for even framing the requisite projects are denied to the department, this Government cannot but feel that the just claims of the Presidency have not received the attention they deserved; not as the Right Honorable the Governor in Council feels certain owing to any desire on the part of the Government of India to undervalue the importance of the subject to the welfare of the Presidency and its people, but from the inherent difficulty of fully realising the position, and this is shown even in the letter from the Government of Madras is used as an argument to prevent any improvement being made in what it must be evident is a very deplorable condition for any department to be reduced to.

37. As serving to show the widely different considerations accorded to the claims of the Bombay Presidency, (for instance) it may be seen from the public accounts that the land revenue of Madras for the fourteen years, 1862-63 to 1876-77, exceeded that of Bombay by nearly 1,100 lakhs, whereas in the sixteen years extending to end of 1877-78, Bombay had assigned to it under Ordinary and Extraordinary (Productive) Works 635 lakhs more than Madras. The Madras Government, in their letter, dated 2nd April 1879, to the Government of India, with accompanying papers, has also pointed out that under an equitable estimation of the *net* Imperial revenue for ten years, while Bengal* contributed a net annual surplus of £5,667,009 and Bombay† only £2,433,615, Madras‡ had given £5,400,540.

No. 781, Agricultural.

* Area square miles	... ...	157,989
Population	... ...	... 60,502,897
† Area square miles	... ...	124,462
Population	... ...	... 16,349,206
‡ Area square miles	... ...	139,971
Population	... ...	... 31,358,125

38. The population of Bombay is only about one-half that of Madras, but the Right Honorable the Governor in Council desires to rest the case of Madras, not on comparison with any other province of India, but on its own inherent claims; considering, however, the capabilities for Productive Works, the frequent famines and the great population of the Presidency, it is impossible to arrive at any other conclusion but that Madras has not hitherto received that amount of consideration which the importance of its interests demand.

39. An examination of the "forecast of expenditure on Irrigation works for the five years ending 1883-84" submitted to the Famine Commission by the Bombay Government brings out this fact in a more decisive manner. From this statement it would appear that Bombay has already secured an outlay on—

	LAKHS.
A. Sanctioned works	97·00
B. Famine relief works	101·64
	198·64

and evidently intends to secure the whole of the Rs. 3,76,90,736 demanded. Notwithstanding the singular, and indeed inconsistent, support given to the Bombay schemes by the Famine Commission, they are compelled to admit it to be "mortifying" to find that only 19,300 acres received the benefit of irrigation during 1877-78. The last received Administration Report showed in fact that the accumulated deficit already amounts to over 24 lakhs, and that the actual areas under irrigation were most meagre, amounting to some 23,000 acres.

40. Comparison with Madras here and its existing irrigated area of 5,300,000 acres is quite unnecessary, and yet the fact remains that whereas Bombay has a large establishment and ample outlay on its Public Works, Madras is reduced to such an extent that it cannot even frame projects suitable for famine relief. The manner in which the Productive Works of this Presidency have been starved while other provinces have received apparently every consideration from the Government of India will however be best seen from the following brief table extracted from the Proceedings of the Government of India, 2nd November 1880, No. 174-A I.

—	Grants, 1880-81.	Actuals. 1879-80.	1878-79.	1877-78.
	RS.	RS.	RS.	RS.
Madras	1,55,000	1,24,241	2,40,815	3,55,279
Bombay	3,00,000	2,24,787	3,32,404	4,70,890
Bengal	14,00,000	15,80,528	25,57,900	23,74,338
North-Western Provinces and Oudh.	20,00,000	16,99,208	22,60,876	27,57,539
Punjab	23,00,000	22,65,725	26,74,380	23,46,500
Reserve	1,45,000	...	...	...
	63,00,000	58,94,489	80,66,375	83,04,546

41. In part I of the recently received report by the Indian Famine Commission it is laid down, paragraph 127, that the relief of the able-bodied should "be tendered promptly and before the people have begun to lose strength from want of food;" in paragraph 128, that the selection of the works thus required "should be the duty of the Public Works Department * * * who should be held responsible for *keeping a list of such works ready to be put in hand without delay when any such emergency occurs.* If possible one such work should be opened in each sub-division of a district in which such distress prevails."

42. In the opinion of this Government it is no exaggeration to say that in the face of these and other similar injunctions by the Famine Commission any orders by which this department are deprived of all means for fulfilling this most obvious duty of having works in readiness for famine have almost the appearance of cruel mockery.

43. It cannot be too often or too emphatically submitted that to improvise works, which can in any true sense be considered reliable (especially Irrigation works which often need years for the collection of the data) when famine has once declared itself, is simply impossible; the time for proper projection of such work has then passed, and nothing but financial failure must be counted on as the inevitable result.

44. The deplorable financial results of the Madras Irrigation and Canal Company, which was the hasty outcome of the famine of 1854 and those of probably the majority of all schemes similarily entered on in other provinces, not even excepting the late Bombay schemes, prove this incontestible fact.

45. Any Government which has only half worked out projects at hand, or which has to improvise such schemes has necessarily no other course than to make the best selection it can usually, a haphazard one, when famine appears; and that this is a position fraught with financial danger it is unnecessary to insist upon.

46. Such, however, is the position of the Madras Presidency at this moment, although the late terrible famine only closed, it may be said, yesterday; and this state of matters must in the view of this Government be perpetuated and rendered incurable if the establishment of this department is not given the means of meeting the requirements of its position.

47. The scheme sent up with my letter, No. 2,277 W., of 1st October 1880, will, it is believed, on a careful review be found to be framed on the most economical scale commensurate with efficiency, and with the most pressing needs of the Presidency. A small addition to it will probably be very soon needed owing to the lately purchased Madras Irrigation and Canal Company's works having to be provided for—

a contingency foreseen, but not specifically provided for in the normal scale sent up for acceptance.

48. It may be that the views here expressed may, if accepted, lead to the reconsideration of the Provincial assignments made by the Government of India in their Financial Department Resolution of the 14th December 1870, No. 3,334 (Accounts); but, looking to the urgent necessity for relieving the Public Works Department from its present helpless condition, the Right Honorable the Governor in Council most earnestly hopes that the much needed sanction may not be withheld pending the discussion of a question of such a complicated character.

49. I am to add that a copy of this correspondence will be forwarded for the information of the Secretary of State for India.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

FORT ST. GEORGE,
8th February 1881.

Exd. E. C. Shunker.
Spare Copies

GENERAL.
ESTABLISHMENT.

Govt. of {1881} Madras.

PUBLIC WORKS.

To

THE SECRETARY TO THE
GOVERNMENT OF INDIA.

Dated February, 8th.

Issued

Recd. *Encl.*

G. O., 8th February 1881, *No.* 337 W.

FEBRUARY.
No. 24.

SUBMITTING, for favorable consideration, certain observations on letter from the Government of India requesting to reconsider the scheme for the normal establishment of the Public Works Department of the Madras Presidency.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

22nd February 1881, No. 479 W.

General.
Account.

No. 87. Read again Proceedings of the Government of India in the Public Works Department (Account—Irrigation), dated 17th December 1880, Nos. 193-94 A.I.

No. 88. ORDER THEREON, 22nd February 1881, No. 479 W.

ORDERED that the Government of India be addressed.

2. The Government consider that the drafts of all orders in the Irrigation Branch which have a bearing upon general questions in regard to either finance or establishment should be submitted through the Secretary to Government, Public Works Department.

(Here enter No. 480 W., dated 22nd February 1881.)

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer for Irrigation.

Exd. E. C. Shunker.
Spare Copies

28/2/81
22/2/81
6.6.81

GENERAL.
ACCOUNT.

Govt. of {1881} Madras.

PUBLIC WORKS.

To

THE CHIEF ENGINEER FOR IRRIGATION.

Dated February, 22nd.

Issued

Recd.

Encl.

G. O., 22nd February 1881, *No.* 479 W.

FEBRUARY.
Nos. 87-88.

Finance and Administrative Accounts of the Irrigation Branch, Madras, for the year 1879-80.—Directing that the Government of India be addressed on the subject of their Resolution on the —.

PUBLIC WORKS DEPARTMENT.

No. 14.

TO THE MOST HONORABLE THE MARQUIS OF HARTINGTON,
SECRETARY OF STATE FOR INDIA.

MY LORD MARQUIS,—We have the honor to forward for your Lordship's information the accompanying copies of correspondence ending with our Secretary's letter, No. 337 W., dated 8th February 1881, to the Government of India, on the subject of the normal Establishment to be allowed to the Madras Government for the execution of public works in this Presidency.

2. We particularly desire to invite your Lordship's attention to the arguments which have been adduced to show the unfavorable position in which Madras has been placed as compared with other parts of India, not only in regard to the strength of its Public Works Establishments, but also in respect to the amount of the grant for useful and remunerative public works.

3. Projects of the greatest promise are perforce deferred for want of the requisite Engineering Establishment to investigate and elaborate their details; while the experience of the recent wide-spread and destructive famine in Southern India, and the recommendations of the Famine Commission for the mitigation of future calamities of the kind, point alike to the imperative necessity of having schemes suitable for this object investigated with the least possible delay.

4. We have endeavoured to impress upon the Government of India the fact that unless the Establishments of the Public Works Department of this Presidency are maintained on an efficient footing, we shall be as unprepared to cope with future famines as we were when visited by the last, and we hope to receive your Lordship's support in our efforts to give practical effect to that part of the Report of the Famine Commission in which it is enjoined that a list of works should be kept in readiness by the Public Works Department so as to be available without delay on the occurrence of any emergency, as also in regard to "Productive" Public Works, for the construction of which this Presidency offers quite unrivalled advantages.

We have the honor to be,
My Lord Marquis,
Your Lordship's most obedient, humble servants,

(Signed) W. P. ADAM.
(„) W. HUDLESTON.

FORT ST. GEORGE,
15 March 1881.

Exd. S. T. Austin.

22/11/80

FORT ST. GEORGE.

PUBLIC WORKS DEPARTMENT.

Letter to the Most Honorable the Secretary of State for India.

Dated 15th March.

No. 14 of 1881.

On the subject of the normal Establishment of the Public Works Department of the Madras Presidency.

No. 539-4

All communications should be addressed to the Secretary.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

General

To

The Secy: to the Govt of Madras

Public Works Department

Simla 13th April 1881

Sir,

I am directed to draw attention to Public Works Department letter No 842 G dated 13th April 1880 and to request that the Government of India may be informed without delay of the number of passed students of the Royal Indian Engineering College, who will have completed their year of practical training in October 1882, that will be required in Madras, distinguishing those required with specialities as indicated in the letter

letter above quoted.

P. W. 1881. Deptt

I have the honor to be
Sir,
Your Most Obdt Servt

No 2422

W. Hudleston

Under Secy to the Govt of India

7-5-80 to 1102 A-B W
3-2-81 - 305 A W
17-3 - 739 W
27-4 - 1166 W

Dated 13 April
Rec'd 19 1881

No 539-G.

Sent to Govt 20-4-81 R. 2d May 1881.

Hon W. Hudleston
H.M.'s Secretariat

For orders

Jaffrey Rec
Vide P. 23/4

BPA 27/4/81

With reference to the annexed letter No 539 G of 13th inst. from the Govt of India Works Department intimating its intention to carry out if the usual Scale of Establishment now under reference to India be not sanctioned there will be no vacancies in the present Establishment to fall in

2 or absences not involvable the usual Scale be sanctioned there would in all obtaining for 2 Executive Engineers

R. 2d May 1881.
Cir 23/4 - Of S. 16

the next year be
7 vacancies i.e. in
the Lubs proportion that
in addition to our
normal scale the S of S
provide (as indeed they
are certain to do) for
a Lubs. Establt. for the
Madras Irrigation Co.s Canal

Of these 7 it would
be right to reserve
one for the Madras
C E College

Again it may be an
open question whether
with reference to the
late correspondence with
the S of S the Govt
might not be desirous
of promoting the
2 Assist Lubordinates
who have been the
Subject of that corres-

pondence (Lubs Engineers
Ottmann and Ellis)
definitely to the permt
positions of Asst Engineers
the S of S having finally
declined to allow them
the honorary position

All the Govt of India
have said in reference
to the proposed grant
of permant promotion
to these men is that
the demands of the R C
Coolgum Hill and of the
two R.E.s shall first
be met

If therefore the Govt
desires to promote the
men the S of S might be
so informed in replying
to this reference adding
that in this case there
could only be 4 vacancies
to be filled by your
R E Officers and by
passed Students of

Scott

25/3/87.

Letter

PW 1881 Depte

In RC. Coopers Hill

Attd

23/4/81

7-5-
3-2-
17-3
27-

No. 1134W.

Government of Madras.

PUBLIC WORKS DEPARTMENT.

To

The Secretary to the
Government of India.

2nd May 1881.

SIR,

I am directed to acknowledge the receipt of your letter No. 539 G dated 13th April 1881 enquiring the number of passed students of the Royal Indian Engineering College, who will have completed their years of practical training in October 1882, that will be required in Madras.

2. In reply I am to say that should the normal scale of Establishment for

R.S.

this Presidency now before the Government of India be not sanctioned, there will be no vacancies in the Department to fill up. In the event, however, of this scale being approved for adoption, it is calculated that, allowing for a sufficient Establishment for the Madras Irrigation and Canal Company, there will be 7 vacancies to be provided for. Of these, the Right Honble the Governor in Council considers that it would be right to reserve one for the Madras Civil Engineering College; and, with reference to the correspondence quoted in the margin, in which the Government of India decline to accede to the proposals of this Government for granting honorary promotion to certain

Letter to Govt of India
dated 3d Feby 1881 No 305 A W
Letter from do - dj 1st Mar/81 No 345 G
Letter to - do - dj 17 Mar/81 - " 739 W
Letter from do - dj 4th April/81 No 492 G -

Upper Subordinates of the Department, it is proposed to give permanent promotion to the two senior Sub Engineers, Messrs Ottmann and Ellis. There will thus be four vacancies to be filled up by young officers of Royal Engineers and passed students of the Royal Engineering College at Cooper's Hill.

3. A knowledge of hydraulic engineering would be desirable in the case of any students entering the Dept from Cooper's Hill in 1882.

It is supposed that this is what is wanted - but there is nothing in the office letter to show

RS

25.4.87

Read
3-5-87

10-1-94
6-6 07

Bk. 1134 W 3 22 May 1894