

Public Works (1898) Department.

322/27/98
V
G.O., No. 161-2 J

DATED 3rd March 1898

[Despatch Abstract.]

Administration Report of the P.W. Dept., Sivagangai Branch.

Ordered that 40 copies of ^{the} Madras Presidency
for 1896-97 and of the P.W. embodying it be forwarded
to the Govt. of India.

Do — Forwarding ^{to the Govt. of India} 40 copies of the
Madras Presidency. In 1896-97 and of the P.W. embodying
it.

Forwarding to the Government of India 40 copies of the —, Madras Presidency, for 1896-97 and of the Proceedings embodying it.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

Administration Report of the Public Works Department, Irrigation Branch,
Madras Presidency, for 1896-97.

No. 15 I.

Submitted to Government.

2. The report was due with the Government of India on the 30th November 1897, but its submission has been unavoidably delayed as the Board of Revenue did not furnish in time the revenue and other particulars required, owing to the late completion of the annual settlement in several taluks of the districts affected by famine. The last instalment of the revenue information was furnished in Board's Proceedings, Mis. No. 10050, dated 18th December 1897. Owing to pressure of famine and other work and also to the introduction of the new settlement rates into the four taluks of Dharmavaram, Penukonda, Anantapur and Kalyandrug in the Anantapur district, the revenue information for "Minor works for which neither Capital nor Revenue accounts are kept" has not yet been reported * by the Board of Revenue, nor has the usual review, explaining the causes of the variations in year, been furnished. To avoid further delay, the report is submitted without the above information.

20th January 1898.

(Signed)

W. HUGHES,
Chief Engineer for Irrigation.

ORDER—No. 161 I., dated 3rd March 1898.

The report deals with 10 Major works and 26 Minor works for which Capital and Revenue Accounts are kept, and numerous other irrigation and agricultural works individually small, for which such accounts are not kept. Nine of the Major works are classed as productive, and one, the Rushikulya project, as protective. All the Major works were in operation, and the construction estimates of eight of them have been closed.

2. Of the 26 Minor works, 22 are irrigation systems and 4 are tidal canals intended for purely navigation purposes. With the exception of the Munnyeru, Dondapad and Sagilérú projects and the Ganjam-Gopalpore tidal canal, all the Minor works were in operation. The construction estimates have been closed for all the works in operation, except the Lower Coleroon anicut system.

3. The transactions of the year may be summarized as follows:—

The capital outlay incurred during the year was on Major works Rs. 10,20,205 and on Minor works for which Capital and Revenue accounts are kept Rs. 7,31,418, making a total of Rs. 17,51,623.

The total charges to the end of the year amounted to Rs. 6,96,96,115 on Major works, and to Rs. 1,75,36,421 on Minor works for which Capital and Revenue accounts are kept.

The Major works irrigated 2,606,435 acres, and the Minor works 523,424 acres; the net return on the capital invested being 6.71 per cent. on the former class of works and 8.97 per cent. on the latter.

4. The capital outlay incurred on the Major and Minor works during and up to the end of 1896-97 was as follows:—

	Number of works.	During the year 1896-97.							Total direct and indirect charges to end of 1896-97.
		Works.	Establishment.	Tools and plant.	Less receipts on Capital account.	Total direct charges.	Indirect charges.	Total direct and indirect charges.	
1	2	3	4	5	6	7	8	9	10
<i>Major works.</i>		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Protective Irrigation works (account head, 35)	1	1,67,744	37,817	— 90	913	2,04,058	10,225	2,14,283	44,79,371
Irrigation works not charged to Revenue (account head, 49)	9	6,83,722	1,39,012	— 46,174	331	7,76,229	29,693	8,05,922	6,52,16,744
<i>Minor works and Navigation.</i>									
Works for which Capital and Revenue Accounts are kept (account head, 43)	26	5,41,730	1,15,021	49,056	2,298	7,03,509	27,909	7,31,418	* 1,75,36,421

* Exclusive of the Ganjam Minor Works system for which complete Capital Accounts up to the end of 1896-97 have not yet been prepared.

5. The capital outlay during the year under Major works was incurred chiefly on the Kistna delta system and the Rushikulya project.

The capital outlay on the former system was Rs. 6,02,844 including indirect charges and was incurred on various improvements to head works, canals, distributaries and drains. The capital outlay on the latter project was Rs. 2,14,283, including indirect charges. Most of the distributaries of the Rushikulya canal were completed and good progress was made with the Surada reservoir. The failure of the north-east monsoon created an unusual demand for water, and from October the Russellkonda reservoir was, it is observed, the only source available to supply lands in the Goomsur and Berhampore taluks.

The outlay including indirect charges on the Periyár project during the year was reduced to Rs. 52,502 owing to a recovery of expenditure to the extent of Rs. 86,446 by the sale, &c., of machinery and tools and plant belonging to the project.

Under Minor works the Capital outlay was incurred chiefly on the Munnyeru and Sagilérú projects, the Lower Coleroon anicut system and the Buckingham canal.

On the Munnyeru project the capital outlay was Rs. 1,61,747, including indirect charges. The anicut repairs and improvements, the head sluices, the main channel and six bridges and nine under-tunnels were completed and several other masonry works were in progress.

On the Sagilérú project the capital outlay was Rs. 1,07,701, including indirect charges. The anicut head and scouring sluices were completed. The supply channel and several minor masonry works were in progress. The Government notices with satisfaction that it is considered that the works of this project have been exceedingly well carried out and reflect great credit on Mr. S. B. Murray, the Executive Engineer, and his Sub-division officer, Mr. R. Enright.

On the Lower Coleroon anicut system the capital outlay was Rs. 1,00,601, including indirect charges. The Chidambaram drainage scheme, the extension of the Shatiatope branch channel and improvements to the Oosi voikal and the Lower Coleroon anicut were in progress.

On the Buckingham canal the capital outlay was Rs. 2,45,646, including indirect charges. Seven locks and one flood gate were completed, and three locks, one sluice and some improvements were in progress.

6. The following statement shows the revenue receipts and working expenses of each work in operation for which Capital and Revenue accounts are kept:—

Serial Number.	Systems.	Capital outlay.	Gross revenue receipts, 1896-97.			Working expenses.			Net actual revenue.	Deduct receipts less maintenance charges on account of old irrigation.	Net revenue attributable to outlay of Government Capital.	Percentage of return.
			Irrigation revenue.	Miscellaneous receipts.	Total.	Direct.	Indirect.	Total.				
1	2	3	4	5	6	7	8	9	10	11	12	13
MAJOR WORKS.												
1	Gódavari ..	Rs. 1,28,97,345	Rs. 28,26,851	Rs. 1,01,545	Rs. 29,28,396	Rs. 6,63,494	Rs. 32,559	Rs. 6,96,053	Rs. 22,32,343	Rs. 1,15,500	Rs. 21,16,843	Rs. 16.41
2	Kistna ..	1,27,84,247	22,06,481	49,557	22,56,038	8,16,104	31,697	8,47,801	14,08,237	66,100	13,42,137	10.50
3	Pennér ..	18,96,667	2,71,737	438	2,72,175	52,089	2,864	54,953	2,17,232	87,000	1,30,232	6.87
4	Sangam ..	38,28,121	3,34,860	561	3,35,421	73,578	3,758	77,336	2,98,085	1,14,000	1,84,085	3.76
5	Kurnool ..	2,17,13,494	1,84,354	8,744	1,93,098	33,105	3,250	36,355	46,743	..	46,743	0.22
6	Barur ..	4,25,045	11,536	..	11,536	4,139	173	4,312	7,224	1,850	6,374	1.26
7	Cauvery ..	18,55,198	42,89,024	3,179	42,92,203	4,27,399	38,230	4,65,629	88,26,574	29,75,797	8,50,777	46.86
8	Sriyankuntam ..	14,63,483	1,85,894	1,421	1,87,315	86,190	3,364	89,554	98,761	66,500	32,261	2.20
9	Periyar ..	83,53,144	2,66,899	..	2,66,899	57,766	2,238	60,004	2,05,895	2,15,524	..	0.10
10	Rushikulya ..	44,79,371	1,08,249	..	1,08,249	42,898	1,021	43,919	65,161	45,308	19,853	0.44
Total, Major Works, 1896-97 ..												
		6,96,96,115	1,06,35,835	1,66,276	1,08,02,161	23,15,762	1,19,154	24,34,916	83,67,245	36,87,579	46,79,666	6.71
Total for 1896-96 ..												
		6,03,75,268	1,03,60,527	1,78,234	1,05,38,761	20,48,378	1,13,146	21,61,524	83,77,237	36,43,526	47,33,711	7.84
MINOR WORKS.												
I. Irrigation.												
11	Ganjám minor rivers ..	..	1,24,624	340	1,24,964	13,234	297	13,531	1,11,433	83,822	27,611	..
15	Cumbum tank ..	..	33,777	..	33,777	1,175	26	1,201	32,576	30,048	2,528	3.98
16	Thadapalli channel ..	..	1,06,809	75	1,06,884	10,390	185	10,575	96,309	76,710	19,599	15.04
17	Aikenkota do. ..	..	27,771	23	27,794	2,972	52	3,024	24,770	19,021	5,749	5.58
18	Kalingaroyen channel ..	..	1,05,419	..	1,05,419	7,669	139	7,808	97,611	84,382	12,679	21.03
19	Ponney anicut ..	..	2,64,237	2,614	2,66,851	66,168	1,586	67,754	1,89,097	1,21,100	67,997	8.29
20	Cheyaru anicut ..	..	94,498	281	94,779	13,413	312	13,725	65,639	38,160	27,479	11.86
21	Chembraankam tank ..	..	2,64,237	394	2,64,631	2,856	718	3,574	44,325	19,953	24,372	4.92
22	Madras water-supply ..	..	46,747	144	46,891	6,163	132	6,295	40,606	9,100	31,506	4.23
23	Valluru anicut ..	..	21,241	19,845	41,086	9,072	1,449	10,521	30,565	6,200	24,365	1.38
24	Tirukkóvilur anicut ..	..	9,348	40	9,388	935	19	9,407	8,434	5,092	3,342	5.24
25	Mekasattur do. ..	..	94,719	420	95,139	10,607	237	10,844	84,295	59,696	24,599	9.67
26	Viduthalam do. ..	..	15,170	48	15,218	4,044	89	4,133	11,055	2,096	8,959	12.65
27	Shatiatope do. ..	..	24,589	78	24,667	5,875	132	6,007	18,660	8,462	10,288	20.62
28	Pelandurai do. ..	..	1,27,337	232	1,27,569	21,604	435	22,039	1,05,540	21,107	84,433	60.84
29	Lower Coleroon anicut ..	..	34,346	214	34,560	18,815	454	19,269	15,291	2,850	12,441	2.48
30	Nandayar channel ..	..	4,36,707	1,655	4,38,362	44,553	796	45,349	8,93,073	1,52,093	2,40,980	33.79
31	Maradur anicut ..	..	15,567	..	15,567	2,111	43	2,154	13,413	16,500	..	5.54
32	..	..	1,86,330	45	1,86,375	24,480	548	25,028	1,61,347	1,14,892	46,455	103.72
Total, I. Irrigation ..												
		74,42,869	18,38,339	26,448	18,64,787	2,93,136	7,629	3,00,765	15,64,092	8,96,146	6,67,876	8.97
II. Navigation.												
33	Chilka lake canal ..	..	..	..	..	..	..	..	..	..	..	..
34	Buckingham canal ..	..	..	1,14,772	1,14,772	315	8	323	..	..	..	1.04
35	Vedaramiyam canal ..	..	..	917	917	99,310	3,710	1,03,020	11,752	..	11,752	0.13
Total, II. Navigation ..												
		90,96,447	..	1,15,689	1,15,689	1,05,841	3,865	1,09,706	5,983	..	5,983	0.06
Total, Minor Works, 1896-97 ..												
		1,65,39,316	18,38,339	1,42,137	10,80,476	3,98,977	11,494	4,10,471	15,70,005	8,96,146	6,73,859	4.07
Total for 1896-96 ..												
		1,61,30,104	18,67,658	1,24,638	19,92,296	3,43,365	9,020	8,52,415	16,39,881	9,02,216	7,37,665	4.57

7. The gross revenue derived from the Major Works was Rs. 2,63,400 more than in the previous year. The increase occurred under all the systems except the Kistna and Cauvery deltas and the Pennér anicut systems. The decrease in the two former systems was due to larger remissions having been granted owing to floods and in the latter system to the unfavourable character of the season. There was an increase of Rs. 2,73,322 in the working expenses, of which Rs. 60,004 represent the first expenditure on working expenses of the Periyár project. The balance of the increase was chiefly expended on the Górávari, Kistna and Cauvery deltas and the Srívaikuntam anicut system in repairing damages caused by abnormal floods. The net revenue from Major works attributable to the outlay of Government Capital was Rs. 46,79,666, which is equivalent to a return of 6.71 per cent. on the capital outlay as compared with 7.84 during the previous year.

The interest on the Major works amounted to Rs. 25,87,820 during the year, and to Rs. 4,40,17,284 up to the end of the year. The surplus revenue after deducting the interest charges was Rs. 20,91,846 during the year and amounted to Rs. 5,68,91,706 up to the end of the year.

8. On the Minor Irrigation works for which Capital and Revenue Accounts are kept, the revenue attributable to the outlay of Government Capital was Rs. 63,806 less than during the previous year. There was an increase in the working expenses of Rs. 58,056. The percentage of net revenue on Capital outlay was 8.97 as against 10.04 during the previous year.

Of the four Minor Navigation works, the Buckingham Canal alone paid its working expenses, the net revenue of Rs. 11,752 derived from it representing a return of 0.13 per cent. on the capital outlay. The net loss on the other three works was Rs. 5,769 or Rs. 2,173 more than in the previous year.

9. The total irrigation revenue derived from Major works amounted to Rupees 1,06,35,885, in which is included a sum of Rs. 320 on account of a portion of the revenue of the previous year on the Kistna delta system which was brought into the accounts of the Public Works Department in 1896-97. Of the total revenue, Rs. 1,01,83,243 represented the share of land revenue due to irrigation, and Rupees 4,52,642 was the irrigation share of enhanced land revenue.

10. The following statement shows the Irrigation receipts and the areas under first and second crops charged as irrigated:—

Systems	Revenue derived from Irrigated lands.		Area charged as irrigated.		Rate per acre.	
	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.
	1	2	3	4	5	6
Major Works.	RS.	RS.	ACS.	ACS.	RS.	RS.
Górávari	28,26,851	25,96,077	739,849	683,126	3.8	3.8
Kistna	(a) 22,06,481	22,38,791	482,633	481,375	4.6	4.6
Pennér	2,71,737	2,84,906	68,153	70,128	4.0	4.0
Sangam	3,34,860	3,30,586	79,786	77,347	4.2	4.2
Kurnool	1,34,354	1,31,112	87,226	82,903	1.5	4.0
Barúr	11,536	11,052	4,440	4,229	2.6	4.6
Cauvery	42,89,024	45,45,893	977,123	957,103	4.4	4.6
Srívaikuntam	1,85,894	1,58,543	40,147	33,962	4.6	4.6
Periyár	2,66,899	..	63,751	..	4.2	..
Rushikulya	1,08,249	63,567	63,327	..	1.7	1.7
Total, Irrigation Works not charged against Revenue ..	(a) 1,06,35,885	1,03,60,527	2,606,435	2,406,090	4.1	4.3
Minor Works.						
I. Irrigation—	18,38,339	18,67,658	523,424	534,227	3.5	3.5
Grand Total	1,24,74,224	1,22,28,185	3,129,859	2,940,317	4.0	4.2

(a) Inclusive of Rs. 320, the revenue of the previous year derived from the Kistna delta system.

Under Major works the area irrigated was 200,345 acres more than in the previous year. Of the increase, 63,751 acres, which include old irrigation formerly otherwise accounted for, appertain to the Periyár project. Irrigation under this project was charged for the first time during the year under review. The revenue derived was Rs. 2,75,358 more than in the previous year. The increase occurred under all the systems except the Pennér anicut and Cauvery delta systems.

Under Minor works the area irrigated and revenue derived were 10,803 acres and Rs. 29,319 respectively, less than in the previous year. The bulk of the decrease occurred under the Pálar anicut system.

11. The following table gives details of the average water-rate per acre for first and second crops under Major works, excluding areas irrigated free of charge:—

				First crop.						Second crop.
				Government lands.		Zemindari lands.		Inam lands.		
				Wet crop.	Dry crop.	Wet crop.	Dry crop.	Wet crop.	Dry crop.	
				RS.	RS.	RS.	RS.	RS.	RS.	RS.
Gó dávari delta	..	..	..	4.81	2.55	5.29	3.29	5.02	3.09	3.25
Kistna do.	..	..	..	4.91	3.94	4.74	3.78	5.00	4.36	3.63
Pennér anicut	..	..	..	4.51	2.52	..	..	3.99	2.61	2.46
Sangam do.	..	..	..	4.58	2.23	..	..	3.91	2.66	3.06
Karnool-Cuddapah canal	..	..	..	3.29	1.24	..	..	3.66	1.20	2.29
Barúr tank	..	..	..	3.74	2.90	..	4.61	4.03	3.84	1.26
Cauvery delta	..	..	..	4.96	2.50	..	..	3.96	2.65	3.76
Srívaikuntam anicut	..	..	..	6.22	3.42	3.90	2.22	4.05	5.00	3.28
Periyár project	..	..	..	4.78	3.20	4.95	..	4.18	3.83	2.71
Rushikulya project	..	..	..	1.90	2.45	2.13	1.39	2.03	2.16	1.51

12. The area irrigated under first crop on Major works was 2,308,529 acres and under second crop 278,231 acres, making a total of 2,586,760 acres. These figures are less than those shown in the statement in paragraph 10, as the latter includes the area of "waste charged."

Of the total area, 97.06 per cent. was irrigated by flow and 2.94 per cent. by lift.

13. The following statement shows the details of the working expenses, including the old maintenance charges, for each of the Major works and for the Minor works in the aggregate:—

Systems.	1896-97.					1895-96.
	New works and repairs.	Establishment.	Tools and plant.	Indirect charges.	Total.	Total.
Major Works.	RS.	RS.	RS.	RS.	RS.	RS.
Górávari	2,61,857	3,63,512	38,125	32,559	6,96,053	6,56,112
Kistna	4,32,147	3,32,872	51,085	31,697	8,47,801	7,21,792
Pennér	23,866	28,192	31	2,864	54,953	59,818
Sangam	36,937	36,641	..	3,758	77,336	84,788
Kurnool	61,971	29,934	1,200	3,250	96,355	1,09,310
Barúr	2,517	1,622	..	173	4,312	3,843
Cauvery	1,03,439	3,19,913	4,047	38,230	4,65,629	4,54,240
Srívaikuntam	55,818	29,372	..	3,364	88,554	39,903
Periyár	(a) 40,000	17,766	..	2,238	60,004	..
Rushikulya	31,648	10,438	812	1,021	43,919	31,718
Total, Major Works	10,50,200	11,70,262	95,300	1,19,154	24,34,916	21,61,624
Per acre irrigated	..	..	..	..	0.93	0.89
Minor Works and Irrigation	2,71,040	1,21,118	6,819	11,494	4,10,471	3,52,415
Grand Total	13,21,240	12,91,380	1,02,119	1,30,648	28,45,387	25,13,939

(a) Rent of land or compensation paid to the Travancore Government.

The cost of maintaining the Major works was 22.54 per cent. of the gross revenue derived from them against 20.51 per cent. in the preceding year.

14. The charge for establishment in column 3 of the statement in the last paragraph is made up as follows :—

						Major works.	Minor works and navigation.	Total.	
						RS.	RS.	RS.	
Revenue management	{	Direction and execution		..	..	6,21,164	14,215	6,35,379	
		Collection charges		..	..	3,24,405	46,319	3,70,724	
			Total	..	9,45,569	60,534	10,06,103		
Maintenance of works	..	..	..	..	..	2,24,693	60,584	2,85,277	
					Grand Total	..	11,70,262	1,21,118	12,91,380

The cost of revenue management on the Major works was 8·8 per cent. of the gross revenue realized from them.

15. The report shows that there are now in actual operation 3,561 miles of canals, of which 990 are for irrigation and navigation, 2,267 miles for irrigation only, and 304 miles for navigation only. From the irrigation canals 6,884 miles of distributary channels are taken off. The total ultimate irrigable area under the canals is 3,277,146 acres, and the area irrigated during the year was 2,919,496 acres, the crops grown being valued at Rs. 6,97,52,897 or Rs. 82,17,587 more than in the previous year. The estimated outturn of the year compares with the corresponding figures of the previous year as shown below :—

				1896-97.	1895-96.
				RS.	RS.
Paddy	...	...	...	6,49,15,969	5,75,76,343
Ragi	...	...	...	4,33,305	3,32,816
Other crops	...	...	...	44,03,623	36,26,151
Total ..				6,97,52,897	6,15,35,310

16. The following table gives details regarding navigation on the four principal canals :—

		Length of navigable canals.	Receipts.	Expenditure.	Value of goods.	Ton mileage.	Passengers.
		MILES.	RS.	RS.	RS.		NO.
Gódvári delta canals	..	493	87,745	70,749	2,12,93,691	7,622,288	228,112
Kistna do.	..	307	31,679	89,692	1,27,52,625	10,539,225	97,143
Kurnool-Cuddapah canal	..	190	1,598	8,788	3,19,788	193,747	36
Buckingham canal	..	262	1,14,788	64,143	2,25,81,355	23,272,363	78,492
Total for 1896-97 ..		1,252	2,35,810	2,33,372	5,69,47,459	41,627,623	403,783
Total for 1895-96 ..		1,252	2,33,449	2,21,758	6,49,01,772	51,294,170	465,657

17. The following table gives details regarding works for which neither Capital nor Revenue accounts are kept :—

		Area, first and second crops.	Irrigation revenue.	Rate per acre.	Outlay, direct and indirect, and collection charges.	Rate per acre.
		ACS.	RS.	RS.	RS.	RS.
I. Works under Public Works Department for which a continuous record of expenditure is kept individually		164,012	6,52,058	..	..	..
II. Other works under Public Works Department		(b) 1,178,659	(b) 33,14,479	..	..	..
III. Works under the Revenue Department		(b) 1,506,514	(b) 34,37,657	..	..	..
Total, 1896-97 ..		(b) 2,849,185	(b) 74,04,194	2·59	(a) 16,79,699	0·59
Total, 1895-96 ..		3,392,165	91,64,415	2·70	16,12,627	0·48

(a) Inclusive of Rs. 4,08,029, the outlay incurred by Civil officers and not included in the accounts of the Examiner of Public Works Accounts.

(b) Exclusive of the area and revenue of the Anantapur district.

The total area irrigated was made up of 2,150,304 acres of first crop and 698,881 acres of second crop, and the irrigation revenue was Rs. 17,60,221 less than in the previous year.

18. The following statement shows the outlay on agricultural works, i.e., river conservancy and embankments :—

				RS.	RS.
Original works	...	...	...	1,37,212	
Repairs	...	...	...	5,99,692	
Establishment	...	...	...		7,36,904
Tools and plant	...	...	...		1,63,303
	...	...	...		11,018
Total ..				9,11,225	

The receipts realized from the plantations along river embankments amounted to Rs. 23,223 against Rs. 23,903 in the previous year.

19. Six investigating parties were employed on the Tank Restoration Scheme, the expenditure on which during and up to the end of the year was as follows :—

		Expenditure during 1896-97.				Expenditure to end of 1896-97.
		Repairs.	Establishment.	Tools and plant.	Total.	
		RS.	RS.	RS.	RS.	RS.
Investigation	..	..	..	..	..	..
Execution	..	4,42,072	1,01,112	6,593	5,49,777	12,57,129
Total ..		4,42,072	1,01,112	6,593	5,49,777	52,07,585
						64,64,714

Up to the end of the year 34,187 square miles had been completely investigated, and estimates for 4,863 works to the amount of Rs. 50,26,491 had been sanctioned.

20. The following figures relate to the discharge of some of the principal canals which do not draw the greater part of their supply from storage works and the areas irrigated from them :—

		Area actually irrigated, first crop.	Maximum discharge as designed.	Maximum discharge during the year.	Average discharge at head.	Acres irrigated per cubic foot per second of average discharge.
		ACS.	CUB. FT. PER SECOND.	CUB. FT. PER SECOND.	CUB. FT. PER SECOND.	FIRST CROP.
Gódvári	..	631,411	* 8,516	11,697	6,263	100·82
Kistna	..	479,711	8,126	not known.	4,000	119·92
Pennér	..	61,955	2,306	1,313	102	607·40
Sangam	..	68,853	4,800	3,804	288	239·07
Kurnool	..	77,896	1,468	1,381	691	112·73
Cauvery	..	851,568	not known.	38,715	17,193	49·53

* Previous to the construction of the extra vents built in 1887-88 to the Dowlaiswaram head-sluice.

21. During the year, the investigations commenced in the previous year for the preparation of the completion estimates for the Cauvery delta system were continued. The Jangamaheswarapuram, Chilakalurpad and Atmakur tank projects in the Kistna Northern division, the Madavaram tank project in the Bellary division and the Pattukkóttai project in the Tanjore division were under investigation during the year.

22. An outlay of Rs. 15,524 was incurred during the year in the execution of works undertaken for the purposes of famine relief in the Cuddapah, Kurnool and Bellary districts.

23. From local Irrigation Cess Fund Rs. 10,361 were spent on Minor works and repairs in the Salem and Trichinopoly divisions.

24. A sum of Rs. 6,753 was also spent on irrigation works in the estates under the Court of Wards.

25. A diagram of the Periyár lake, two photographs connected with the Periyár project, together with a descriptive note and the annual diagrams of the principal rivers connected with Major works have been appended to the report.

26. Ordered that forty copies of the Administration report and of these Proceedings be forwarded to the Government of India.

[Here enter No. 162 I., dated 3rd March 1898.]

(True Extract.)

(Signed) W. HUGHES,
Joint Secy. to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" all Superintending Engineers.
" the Consulting Engineer for Railways.
" the Acting Chief Engineer, Public Works Department.
" the Examiner, Public Works Accounts.
" the Revenue Department.
" the Public Department.

ENDORSEMENT—No. 162 I., dated 3rd March 1898.

Forwarded.

(By order.)

(Signed) W. HUGHES,
Joint Secy. to Government,
Irrigation Branch.

Administration Report of the
Public Works Department, Irrigation
Branch, Madras Presidency, for
1896-97. 1P

Encls 1
Dec: 28. 1. 98

Submitted to Government.

2. The report was due with the Government of India on the 30 November 1897. But its submission has been unavoidably delayed as the Board of Revenue did not furnish in time the revenue and other particulars required, owing to the non-completion of the annual settlements in several taluqs of the districts affected by famine. The last instalment of the revenue information was furnished in Board's Proceedings No 10,050 Muz, dated 18th December 1897. Owing to pressure of famine and other work and also to the introduction of the new settlement rates into the four taluqs of Dharmavaram, Pudukonda, Anantapur and Kalayandrug in the Anantapur district, the revenue

revenue information for "Minor Works for which neither Capital nor Revenue Accounts are kept" has not yet been reported by the Board of Revenue nor has the usual review explaining the causes of the variations in the area irrigated and revenue derived during the year as compared with the previous year, been furnished. To avoid further delay, the report is submitted without the above information.

19/1/98
 20 1-98

* vide Proc. Board of Revenue, No. 8873 M. dated 1 Nov. 1897.

efflagged L

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Ad. Report of the P.W.D. Engineer
 Branch for 1896-97

UNDER date the

READ the following

Endorsement of the Chief Eng for Irrigation
 No. 15 - 9 & 29 Jan 1901.

Note for the Engineer, P.W.D.
 Please send clear proof of the P.W.D. Report.

No. 161/9 3.3.98.
 The report deals

with 10 Major works & 26 minor works for which Capital & Rev. Accounts are kept, & numerous other irrigation and agricultural works individually small, for which such accounts are not kept. Nine of the major works are classed as Productive & one, the Ruckittulyn Propit, as Protective. All the major works were in operation & the construction estimates of eight of them have been closed.

To be printed & issued emergently

* final proof which has already been ordered for has been obtained. 28/1/98.

HC. Works M. - Please instruct the Press to send a clear proof of the P.W.D. Report before striking off copies. The P.W.D. report itself also should not be struck off until the

2. Of the 26 minor works 22 are irrigation

new systems & 4 are tidal
for canals intended for
purely navigation pur-
poses. With the exception
of the Munyem, Dondapad
& Sagileru projects & the
Gangam - Gopulpore
tidal canal, all the
minor works were in
operation. The construction
estimates have been
closed for all the works
in operation except the
Lower Cheroon Ancient
System.

3. The transactions
of the year may be
summarised as follows:-

The capital outlay
incurred during the
year was on major
works Rs 10,20,205 & on
minor works for which
Capital & Res. accts
are kept Rs 7,31,418,
making a total of
Rs 17,51,623.

The total charges
to the end of the year
amounted to ~~Rs~~ (on major works)
Rs 6,96,96,115 & on minor
works for which Capital
& Res. accts are kept
to Rs 17,51,623.

The major works
irrigated 260,643.5 acres
& the minor works
523,424 acres; the
net return on the capital
invested being 6.71 per
cent on the former class
of works & 8.97 per
cent on the latter.

4. The capital outlay
incurred on the major
& minor works during
& up to the end of
1896-97 was as follows:-

During the year 1896-97

	Number of Works	Works	Establishment	Tools & Plant	Less Receipts on Capital Account	Total direct charges	Indirect charges	Total direct & indirect charges	Total direct & indirect charges to end of 1896-97
1	2	3	4	5	6	7	8	9	10
		Rs	R	R	Rs	Rs	Rs	Rs	Rs
Major Works									
Protective Irrigation works (account head, 35) . . .	1	167744	37317	-90	913	204058	10225	214283	4479371
Irrigation Works not charged to Devt. (account head, 49) . . .	9	683722	139012	-46174	331	776229	29693	805922	65216744
Minor Works & Navigation Works for which Capital & Devt. Accts are kept (account head, 43) . . .	26	541730	115021	19056	2298	703509	27909	731418	17536421

(a). Exclusive of the Ganjam Minor Works System for which complete Capital Accounts up to the end of 1896-97 have not yet been prepared.

5. The capital outlay during the year under major works was incurred chiefly on the Krishna Delta System & the Rushikulya Project.

The capital outlay on the former system was Rs 602,844 including indirect charges & was

incurred on various improvements to head works, canals, distributaries & drains.

The capital outlay on the latter project was Rs 214,283 including indirect charges.

Most of the distributaries of the Rushikulya canal were completed & good progress was made with the Surada Reservoir.

The failure of the north-east ^{monsoon} created an unusual demand for water & from October the Russalkonda reservoir was, it is observed, the only source available to supply lands in the Gumsour & Berhampore taluqs.

The outlay including indirect charges on the Perijar project during the year was

reduced to Rs 52,502
owing to a recovery
of expenditures to the
extent of Rs 86,446 by
the sale of machinery
& tools & plant belonging
to the project.

Under Minor Works
the capital outlay was
incurred chiefly on the
Mungern & Sagileru
projects, the Lower Coleroon
Ancient System & the
Buckingham Canal.

On the Mungern
project the capital
outlay was Rs 161,747
including indirect
charges. The ancient
repairs & improvements,
the head sluices, the
main channel & six bridges
& nine under tunnels
were completed &
several other masonry
works were in progress.

Since read
10/12
15/1/85

The Sup^r Engr. P. C. Chich
will expedite the sub-
mission of the revised
estimate for this project.

On the Sagileru
project the capital
outlay was Rs 107,701
including indirect
charges. The ancient
head & scouring sluices
were completed. The
supply channel &
several minor masonry
works were in progress. The
Govt notices were
satisfactory that it is
considered that the
works of this project
have been exceedingly
well carried out &
reflect great credit on
Mr. S. B. Churray,
the Engr. & his sub-
ordinate, Mr. D.
Enright.

On the Lower Coleroon
Ancient System the capital

outlay was Rs 100,601 in-
cluding indirect charges.
The Chidambaram drainage
scheme, the extension of
the Shatitopu branch
channel & improvements to
the Oosi Vorkal & the
Lower Coberoon Aqueduct
were in progress.

On the Buckingham
canal the capital outlay
was Rs 245,646 including
indirect charges. Seven
locks & one floodgate
were completed & three
locks, one sluice &
some improvements
were in progress.

6. The following
statement shows the
revenue receipts & working
expenses of each work
in operation for which
Capital & Rev. Accts
are kept. —

P.W. 3844/98

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the

Read the following

From the Government of India, P.W. (H.E. No. 77-I, dated 29.4.98).

Order thereon.

The following deferred telegram
will be sent: —

To The Joint Secretary to the Govt.
of India, P.W.D.

"No 3. your telegram 77 I. dated

"29. Ultimo + 70 $\frac{3}{4}$ miles

"Periyar distributaries in report

"95-96 is an error the distributaries
being included in the 108 miles

of main canals and branches

given in same report. Report

for that year also included

as completed work portions

of incomplete channels while

in last year's report only.

"Completed & opened portions

"are included. The branches

"from main canal and

"distributaries from branches

"are now all classed as

"dis distributaries. Difference

"in total length of completed

"distributaries due to omission

"of mileage for Don dapa

"tank project"

"No 3. Your telegram 77 I twenty-ninth

Ultimo + 70 $\frac{3}{4}$ miles Periyar distrib-

utaries in report 1895-96 is a

clerical error + 108 miles in same

report represents length of main canal

and branches completed + The

difference between this and subse-

quent report figure due to exclusion

of all branch channels completed

but not actually opened for iriga-

tion + Difference in total length

of completed distributaries due to

omission

[20/ 12/11
715798

omission through oversight of
"mileage for Dondapad tank
project."

6/5
58

Issue

1

To
The Chief Engineer for Irrigation.

Public Works (1897) Department.

CURRENT No. 145 M.D.

Order

From

The Superintendant
of the

No. 1663 Ind.

Dated 16 November 1897.

Received 18 — do —

Enclosures

Spare copies

SUBJECT.

Statistical Statement
H. A. for 1896-97 of the
Priyaz Project —
Explaining the discre-
pancies pointed out
in the —

Attested
by
[Signature]

1897

1897

BACK PAPERS.

FURTHER PAPERS.

No.	Date.
✓ 115 Ind 24-10-97	
✓ 86 Ind 27-11-97	

No.	Date.
Under 249.8	10/5/58

From A. Joyce Esquire, Executive Engineer, Periyar Works, Madurai, to the Super Engineer, Circle, No: 118 S.E. of 11 November 1897: —

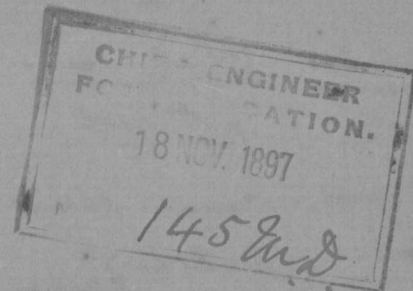
In reply to Irrigation Chief Engineer No: 115 Ind. of 21-10-97 bearing your endorsement No: 10 Ind. dated 30-10-97, I have the honor to subjoin the following explaining the variations noticed therein —

Statement II A for 1895-96 of 22-7-96	Statement II A for 1896-97 of 17-7-97	Explanation for Variations.
1	2	3.
<u>Works Same - timed</u>	<u>Works Same - timed</u>	
Canaals and Branches 131 miles	Canaals. 36 miles Distributaries } 114 $\frac{1}{4}$ miles	The figure (131 miles) entered in Col: 1 is the total of 38 miles of main canal and 93 miles of Branch channels, whereas the figure given in Col. 2 is 36 miles of main canal (the difference of 2 miles being due to 12' Reach included in the statement for 95-96 being classed under 12' Branch channel in that for 96-97). 93 miles of Branch channels and 18 $\frac{1}{4}$ miles of pure Distributaries.
	$\begin{array}{r} 2 \\ 93 \\ 18\frac{1}{4} \\ \hline 113\frac{1}{4} \end{array}$	
<u>Works Completed</u>	<u>Works Completed</u>	
Canaals and Branches 108 miles	Canaals. 36 miles Distributaries } 50 miles	The figure in Column 1 (108 miles) is 38 miles of main canal and 70 miles of Branch channels whereas that given in Col: 2 is 36 miles of main canal (the explanation for the difference of 2 miles is the same as noted above) and 50 miles of Branch channels alone, the difference being due to the entry

in the statement for 96-97
only such of the completed
channels as are actually opened
for irrigation. None of the distri-
-butories either were opened for
irrigation.

No. 1663. L.D. dated 16th November 1897
2/17

Copy submitted to the
Chief Engineer for Irrigation, for
information, with reference to his me-
-morandum quoted above.



O. J. D. Kelly, Lt. Col. R.E.
Superintendent, "Circle"

16/11/97

Public Works (1897) Department.

IRRIGATION BRANCH.

ISSUE No. 115th 0

To

The Supg Engineer
at the Circle.

Recd no 117
19/11/97

(Reply to letter No. , dated)

Dated 21.10.97

Despatched 22.10.97

Enclosures *

* Particulars of Enclosures.

SUBJECT.

Statistical Statements II A. Penjar
Project for 1895-96 & 1896-97 —
Requests to explain the cause
of the within noted variations in
the figures entered in — and
to report the correct figures as
soon as possible

Del
Reply has not yet been
received. Reminder
to be submitted for approval.

By
28/11/97

Indexed

BACK PAPERS.

No.	Date.
R 145 nd	13-2-97
under 249-1	10-5-98
<p>Sent to Government with No. 1., dated 1897.</p> <p>Printed with G.O., No. 1., dated 189 .</p>	
<p>REMINDEES ISSUED.</p> <p>No. 1, dated 13 11 1897.</p> <p>" 2 "</p> <p>" 3 "</p> <p>" 4 "</p> <p>" 5 "</p>	
<p>KEEP WITHS.</p>	

FURTHER PAPERS

No.	Date.
R 145 nd	16-11-97
under 249-1	10-5-98

11
No 15th of 24. 1097
Memo.

The Super. Engineer, Sixth Circle,
is requested to be so good as to
explain the cause of the following
variations in the figures entered
in Statistical Statements II-A, Peri-
for 1895-96 and 1896-97,
-yer project, and to report the
correct figures as soon as possible.

Statement II-A for 1895-96
dated 22nd July 1896.

Statement II-A for 1896-97
dated 17 July 1897.

Works sanctioned.

Canals & branches. — 131 miles.

Works completed.

Canals & branches — 108 —

Works sanctioned.

Canals. — 36 miles.

Distributaries. — 114 $\frac{1}{4}$ miles.

Works completed.

Canals. — 36 —

Distributaries. — 50 —

[Signature]

To The Super. Engineer,
Sixth Circle.

[Signature]
20/10/87.

Public Works (1897) Department.

CURRENT No. 86 M.D

Order

From

The Supy Engineer
M. Circle

No. 1013. M. D.

Dated 17th July 1897

Received 20-7-97

Enclosures 1

Spare copies

SUBJECT.

Statement of Reservoir
projects — for wards
a — (II. A.) in connection
with Periyar works.

Dep memo to SE proff-
20/7/97
✓

1008
20/7/97 ✓

29/8/97
R 10-10/97 protup with R 11/6/97
sent to SE for appl. of ass- paid at 100
to the former

R 38-10/97 with her letter
20/8/97

P. 20-7

BACK PAPERS.

No.	Date.
R 10-VI. 27 19. 6. 97✓	

FURTHER PAPERS

No.	Date.
L 115th 21-10-97	
R 145th 16-11-97	
use R 249th 10-5-98.	

No. 1013. In. D.

OFFICE OF THE SUPERINTENDING ENGINEER,

6TH CIRCLE,

Trichinopoly,

17th July 1897.
219th.

From

Lt Col. C. V. Boddy, C.E.
Superintending Engineer,
6th Circle.

To

The Chief Engineer,

for Irrigation

SIR,

/ ENCLOSURES.

I have the honor to forward herewith a statement (I.A) of Reservoir projects in connection with Periyar works which forms one of the enclosures to the Irrigation Administration Report for 1896-97, submitted in No: 1078 T.C. dated 17 June 1897.

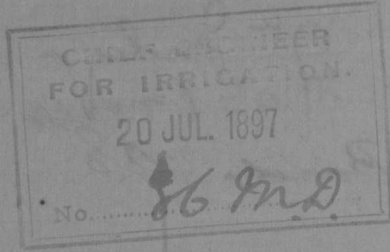
I have the honor to be,
Sir,

Yours most obedient Servant.

C. V. Boddy

Lt Col. C.E.

Superintending Engineer
6th Circle



W. L. Wick
Madras Division
II. (a) Statement of Reservoir Project in the Madras Presidency

Source of Supply of Water	Periar Project No. 9.	Remarks
If supplied by rainfall { Area of Catchment. Sq. miles Amount average rainfall inches	Periar & Vaigai rivers 300 75.57	
Contents of Tank between limits of surface of full supply & sill of canal & 100 Sluices. Millions of Cft.	6,480	
Area of Surface at full supply. acres.	6,395	
Gross area Commanded. — " —	768,000	
Culturable — do —	Not ascertained	
Area irrigable by Complete Project. — " —	1,14,000	
do at present. — " —	50,000	
Wells supplied by tank. — " —	None	
Sanctioned Estimate		
Direct Charges. Rs.	85,65,183	
Indirect Charges. " "	279,000	
Total Estimate. Rs.	88,44,183	

roughly estimated

not not included
in the estimate

Expenditure Total of 1896-97.

CHIEF CLERK
FOR IMMIGRATION.
20 JUL 1897
86 m. 8

Direct Charges 81,344.040
Indirect Charges "

Total Expenditure \$ 813,404.0

Works as now sanctioned
Dam (Earth on masonry) total height - feet.
Canals

155
(masonry)
36
114 1/4

Distributaries

Works Completed at the end of 1896-97.

Dam (Height Completed) - feet
Canals

155
36
50

Distributaries

(f) Branch 2, 4, 6, 9 and (except this) shown for irrigation; full shown

Super. T. W. S. Smythe
Executive Engineer
Spl. Engineer
9.7.97

J. V. Halliday
Super. Engrs, 11 Canals
17-7-97

FORMER CASES.

No. 257K dated 29-6-1896
" " 189
" " 189
Receipt No. 611K
Dated 24-7-1896

LATER CASES.

R No. 145K dated 15-11-1897
" " 189
" " 189

Sent to Government with No. I of
189
Printed with G.O., No. , dated
189

REMINDERS RECEIVED.

No. 1, dated 189
" 2 " "
" 3 " "
" 4 " "
" 5 " "

KEEP-WITHS.

Receipt No. 611K

From

The Supy Engr
of the Circle

No. 84848

Dated 22-7-1896

(Reply to E.I.'s Memo. No. , dated
189)

Subject - Adv. Report
of the Peruvian Project
for 1895-96 - forward to the
statistical statement
II to accompany the

BR
24-7-96

ENCLOSURES/

From

Intered
Record

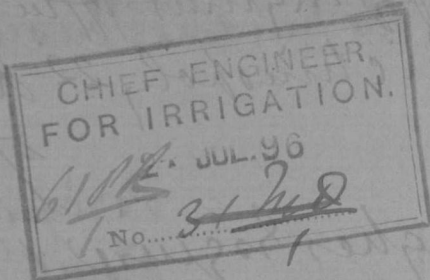
WCS
Wys

Orders and Proceedings in File.

No.	Date.	No.	Date.

II A. Statement of Reservoir Projects in the Madras Presidency

	Periyar Project	Remarks.
Source of Supply of water	Periyar and Vaigai Rivers	
If supplied by rainfall { Area of Catchment Sq. miles	300	
{ Average Annual Rainfall inches	75.57	{ at Periyar average of 8 years.
Contents of tanks between levels of Surface of full supply and sill of cutting to tunnel - millions of Cft.	6480	
Area of Surface at full supply. Acres + decimals	6395.78	
Culturable area	not ascertained	
Area irrigated by Complete project	90000	
Do at present	not known	
Wells supplied by tank	none	
<u>Sanctioned Estimate</u>		
Direct Charges	Rs 84,71,000	
Indirect Charges	" 2,79,000	
Total Estimate	87,50,000	
<u>Expenditure to end of 1895-96</u>		
Direct Charges	Rs 80,76,000	
Indirect Charges	" "	
Total expenditure	80,76,000	
<u>Works as now sanctioned</u>		
Dam (earth or masonry) total height feet	155 masonry	
Canals and branches miles	131	
<u>Works Completed at the end of 1895-96</u>		
Dam height completed feet	155	
Canals and branches miles	X 108	
<p>Remarks on draft review with reference to 70 3/4 miles of distribution lines is all wrong - See figures given by Mr. [unclear] with some months ago. I think as distribution lines were not included branches are treated as such " [unclear] W. Hughes Sub Engineer Circle</p>		
<p>S/- 22. 7. 96. The 70 3/4 miles [unclear] have been struck out and [unclear]</p>		



No. 848 Ind.

Superintendent's Office
Richinopoly 22 July 1896
of 23/

From

W. Hughes Esquire
Superintendent's Office

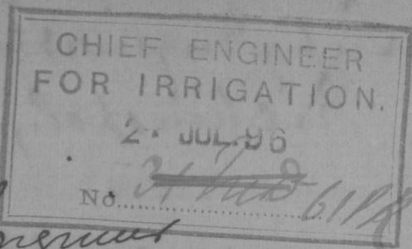
To

The Chief Engineer
for Irrigation.

Sir,

Enc 1.

With reference to para 2 of your
Memorandum to 25 O.R. dated 29 June 1896,
I have the honor to forward herewith the
Statistical Statement II A to accompany
the Administration Report of the Periyar
Project works for 1895-96. It will be seen
that the 102 miles of minor distributaries,
provided in the original estimate, (vide
para 76 of the report with which the project
estimates were submitted for sanction)
have been omitted in the revised estimate
sanctioned in G.O. no 97.2. dated 3rd Feb'y 94.
2. As regards para 3 of your memo-
randum under reply, I have to inform you
that no register of rain fall was kept at
Thekady except for a short time, and that
the total rain fall at Periyar during 95-96
has been 85.06 inches and the average
for 8 years 75.57.



From
The Superintendant
of Leirick

To
The Chief Engineer
for Irrigation

No. 848 Ind.
D. 22 July 1896.

Enclosure: — 1.

Administration Report
of the Periyar Project Works
for 1895-96 — Forwarding
the Statistical Statement
I. A. to accompany the

1/14 Since March last
3. ~~For this year~~ the rain fall
is being registered at Thakkady
only.

Have the honor to be
Sir
your most obedt. servt.
W. Hughes
Superintendant
of Circle

VI Leirick
Appendix A

Statement showing the outlay during 1896-97 on Irrigation and
Navigation, Minor Works, for which neither Capital nor Revenue
accounts are kept, estimated to cost Rs 2500 each or more.

Executive Division	Description of Works	Amount of Expenditure	Outlay during 1896-97	Outlay & end of 96-97	Remarks
	Minor Works for which neither Capital nor Revenue accounts are kept.				
Trichy	Adanur large and small tanks - put Improvements to	3600	1102	3757	Completed
- do -	Thuvagudi Periyari & Chikkari Improving the	3500	10	10	In progress
- do -	Improving Kottapoliem tank	3800	374	2518	- do -
	Total	.	1486	.	
Madura	Vypravarur ancient - Extending the and constructing a head sluice & the channel therefrom	6020	113	6098	Completed
- do -	Diversion of Vypravarur river about No. 51. Thothan ancient	2580	83	864	In progress
- do -	Constructing an under tunnel at 3200 feet from the head of Seeliam - putty channel	2710	19	19	In progress
	Total	.	215	.	
Tinne- velly	Puliyur Periyakulam tank and channel - Improving the Deduct contribution	5160 2095			
	Government share	3065	3000	3000	- do -
	Carried over	.	3000	.	

Executive Division	Description of works	Amount of Estimate	Outlay during 96-97	Outlay to end of 96-97	Remarks
	<u>Bk. Forward</u>		3000		
Tinnevely	Thiruvengadamathur Periyakulam Improving the	2980	200	2708	In progress
do	Sivalaperi Channel - Improving the	6700	1833	5333	do
do	Vadukashimattil Tank and chan. - Improving the	3820	428	428	do
	<u>Total</u>		5459		
	<u>Agricultural Works.</u>				
do	Tambapanni river right flood bank below S. A. 10 inch in Sedukhuroi - These village - Diversion of	18250	14610	14610	do
	<u>Total</u>		14610		
Trichinopoly	Agandalaauvery Right bank - Raising and strengthening the	5190	1878	4869	do
do	Raising the revetment of the Kodamurthy Right Flood Bank	4640	267	267	do
	<u>Total</u>		2143		

Trichinopoly
17th June 1907.
9/18.

A. T. Boddy Lt. Col. R.E.

Superintending Engineer
Trich

16/6/07

CHIEF ENGINEER
FOR IRRIGATION.
18 JUN 1897
10-41

Appendix A

Statement showing the
outlay during 96-97 on
Irrigation & Navigation,
Minor Works for which nei-
ther Capital nor Revenue
accounts are kept, esti-
mated to cost \$2,500
each or more.

Encls: No 1. 15 SE No 1078 TC
17-6-97

N.E. June 1897
S. J. C. C. C.

Trichinopoly
17th June 1897
S. J. C. C. C.

J. B. B. B. B.
Superintendent of Works

Works as now sanctioned		Total
18.58	Navigation	28
19	Navigation	62
20	Navigation	Nil
21	Navigation	28
22	Navigation	28
23	Navigation	62
24	Navigation	Nil

16
17
18

Systems	Capital		Gross revenue receipts, 1896-97		W.C.		Minor Expenses		Receipts		Not revenue receipts attributable to other	
	On May	Capital	Receipts	Total	Direct	Indirect	Total	Actual	Revenue	of old irrigation	of new irrigation	of other
1 Godavari	128,973.45	28,268.81	101,545	29,283.96	66,349.4	32,539	69,605.3	22,323.43	115,500	13,442.137	10.50	
2 Krishna	127,842.47	22,064.81	49,557	22,560.38	8,16,104	31,697	8,47,801	114,082.37	66,100	13,022.22	6.87	
3 Pennar	18,96,667	2,71,737	438	2,72,175	52,089	2,864	54,953	2,17,222	87,000	1,44,085	3.76	
4 Sangam	38,28,121	3,34,860	561	3,35,421	73,578	3,758	77,336	2,58,085	1,14,000	46,743	0.22	
5 Tirumool	217,13,494	1,34,354	8,744	1,43,098	93,106	3,250	96,355	46,743	18,500	5,374	1.26	
6 Nerur	4,25,045	11,536		11,536	4,139	173	4,312	7,224	8,50,777	32,261	2.20	
7 Canvey	18,55,198	4,28,924	3,179	4,29,203	4,27,399	38,230	4,65,629	38,265.74	29,75,797	8,629	-0.10	
8 Sivrikuntam	14,63,483	1,85,894	1,421	1,87,315	85,190	3,364	88,554	98,761	66,500	19,853	0.44	
9 Periyas	83,53,144	2,66,899		2,66,899	57,766	2,238	60,004	2,06,895	2,15,524	36,757.9	6.71	
10 Perichikuly	44,79,371	1,08,249	831	1,09,080	42,898	1,021	43,919	65,161	45,308	47,337.11	7.84	
Total, Major Works, 1896-97	696,96,115	10,35,885	1,66,276	10,802,161	23,15,762	1,19,154	24,34,916	83,67,245	368,757.9	46,79,666		
Total for 1895-96	603,75,268	103,60,527	1,78,234	10,538,761	20,48,378	1,13,146	21,61,524	83,77,237	364,352.6	47,337.11		

I. Irrigation

14 Gargam mis river
15 Cumbur tank
16 Madapalli channel
17 Ar Munkota

	2	3	4	5	6	7	8	9	10	11	12	13
18 Kelingayaru channel		60,278	1,05,419			7,669	139	7,808	97,611	84,932	12,679	21,03
19 Palam Ament		2065,236	2,54,237	2,614	2,56,851	66,168	1586	67,754	1,89,097	1,21,100	67,997	3,29
20 Poiny do		231,779	79,083	281	79,364	13,113	312	13,725	65,639	38,160	27,479	11,86
21 Choyaru do		4,05,415	94,458	394	94,852	29,856	718	30,574	64,278	44,325	19,953	4,92
22 Chembrambakam tank		7,44,038	46,747	144	46,891	6,163	122	6,285	40,606	9,100	31,506	4,23
23 Madras Water Supply		17,54,045	21,241	19,845	41,086	9,072	1,449	10,521	30,565	6,200	24,365	1,38
24 Vallur Ament		63,805	9,348	40	93,88	935	19	954	84,314	5,092	3,342	5,24
25 Tirukkovalur Ament		2,54,470	94,719	420	95,139	10,607	237	10,844	84,295	59,696	24,599	9,67
26 Melamattur do		71,047	15,170	48	15,218	4,044	89	4,133	11,085	2,096	8,989	12,65
27 Viddachalam do		49,737	24,589	78	24,667	5,875	132	6,007	18,660	8,402	10,258	20,62
28 Mettur do		1,38,769	12,733	232	12,756	21,604	425	22,029	1,05,540	21,107	84,433	60,84
29 Palandurai do		5,01,198	34,346	214	34,560	18,815	454	19,269	15,291	2,850	12,441	2,48
30 Lower Coleroon do		7,13,132	4,36,767	1,655	4,38,422	44,553	796	45,349	39,307	1,52,093	2,40,980	33,79
31 Wandyan channel		55,708	15,567		15,567	2,111	43	2,154	13,413	16,500	-3,087	-5,54
32 Marudur Ament		44,789	1,86,330	45	1,86,375	24,480	548	25,028	1,61,347	1,14,892	1,64,55	103,72
Total, I. Irrigation		74,42,869	18,38,339	26,448	18,64,787	2,93,136	7,629	3,00,765	15,64,022	8,96,146	6,67,876	8,97
II. Navigation												
Chilka lake canal		31,027				315	8	325	-323		-323	-1,04
Verinichingham do		89,29,247		1,14,772	1,14,772	99,310	3,710	1,03,020	11,752		11,752	0,13
Verinichingham do		1,36,173		917	917	6,216	147	6,363	-5,146		-5,146	-3,99
Verinichingham do		90,96,447		1,15,689	1,15,689	1,05,841	3,865	1,09,706	5,983		5,983	0,66
Total, II. Irrigation		1,65,39,316	18,38,339	1,42,137	19,80,476	3,98,977	11,494	4,10,471	15,70,005	8,96,146	6,73,839	4,07
for 1895-96		1,61,30,104	18,67,658	1,24,638	19,92,296	3,43,395	9,020	3,52,445	16,39,881	9,02,216	7,37,665	4,5

7. The gross revenue derived from the major works was Rs 2,63,400 more than in the previous year. The increase occurred under all the systems except the Krishna & Cauvery deltas & the Pennar Ament systems. The decrease in the two former systems was due to larger remissions having been granted owing to floods & in the latter system to the unfavourable character of the season. There was an increase of Rs 273,392 in the working expenses, of which Rs 60,004 represent the first expenditure on working expenses of the Periyar project. The balance of the increase was chiefly expended on the Godavari.

previous year.

9. The total irrigation revenue derived from

major works amounted to Rs 106,35,885, in

which is included

a sum of Rs 320 on

account of a portion

of the revenue of the

previous year on the

Kistna Delta System

which was brought into

the accounts of the P.W.D.

in 1896-97. Of the total

revenue, Rs 101,83,243

represented the share of

land revenue due to

irrigation, & Rs 462,642

was the irrigation share

of enhanced land

revenue.

10. The following

statement shows the

irrigation receipts

& the areas under first

1 second crops charged as irrigated:

System	1896-97		1895-96		1896-97		1895-96		1896-97		Rate per acre
	Rs	As	Rs	As	Rs	As	Rs	As	Rs	As	
Major Works	28,26,851		25,96,077		7,39,849		6,83,126		3.8		3.8
Godavari	22,06,481		22,38,791		4,82,633		4,81,375		4.6		4.6
Kistna	2,71,737		2,84,906		68,153		70,128		4.0		4.0
Pennar	3,34,860		3,30,586		79,786		77,347		4.2		4.2
Tamiraparani	1,34,354		1,31,112		87,226		32,903		1.5		4.0
Turnoos	11,536		11,052		4,440		4,229		2.6		2.6
Canary	4,28,902		4,54,589		977,123		987,103		4.4		4.6
Irri-Kumtham	1,85,894		1,58,543		40,147		33,962		4.6		4.6
Periyar	2,66,899				63,751				4.2		
Rushikulya	1,08,249		63,567		63,327		35,917		1.7		1.7
Total Irrigation Works (a)	106,35,885		103,60,527		2,60,6435		2,40,6090		4.1		4.3
not charged against Revenue											
Minor Works											
I. Irrigation											
Total	18,38,339		18,67,658		523,424		534,227		3.5		3.5
Grand Total	124,74,224		122,28,185		3,12,9859		2,94,0317		4.0		4.2

(a) Inclusive of Rs 320, the revenue of the previous year derived from the Kistna Delta System.

Under major works the area irrigated was 200,345 acres more than in the previous

year. Of the increase,
63,757 acres, appertain
to the Perijya project.

which include old irrigation
formerly otherwise accounted
for,

Irrigation under this
project was charged
for the first time
during the year under
review. The revenue
derived was Rs 275,358
more than in the
previous year. The
increase occurred
under all the systems
except the Pennar
Aminet & Cauvery
delta systems.

Under minor
works the area irrigated
& revenue derived were
10,803 acres & Rs 29,319
respectively, less than
in the previous year.

The bulk of the decrease
occurred under the
Palani Aminet system.

11. The following

table gives details of the
average water rate per
acre for first & second
crops under major works,
excluding area irrigated
free of charge.

	First crop				Second crop	
	Govt lands	Temindari lands	Inam lands			
	Wet crop	Dry crop	Wet crop	Dry crop	Wet crop	Dry crop
	Rs	Rs	Rs	Rs	Rs	Rs
Godavari delta	4.81	2.55	5.29	3.29	5.02	3.09
other do	4.91	3.94	4.74	3.78	5.00	4.36
Pennar aminet	4.51	2.52			3.99	2.61
Langam do	4.58	2.23			3.91	2.66
Turnool. Cuddalore canal	3.29	1.24	"	"	3.66	1.20
Barur tank	3.74	2.90	"	4.61	4.03	3.84
Cauvery Delta	4.96	2.50	"	"	3.96	2.65
Viraikurthi Aminet	6.22	3.42	3.90	2.22	4.05	5.00
Perijya Project	4.78	3.20	4.95	"	4.18	3.83
Rushikulya Project	1.90	2.45	2.13	1.39	2.03	2.16

12. The area irrigated
under first crop on
major works was 23,06,529
acres & under second
crop 27,82,311 acres,
making a total of
2,58,67,60 acres. These
figures are less than

24. Work shown in the statement in paragraph 10, as the latter includes the area of "waste charged."

Of the total area 97.06 per cent was irrigated by flow & 2.94 per cent by lift.

13. The following statement shows the details of the working expenses including the old maintenance charges, for each of the major works & for the minor works in the aggregate:—

Systems	1896-97					1895-96
	new works & repairs	Establishment	Tools & Plant	Indirect charges	Total	Total
	Rs	Rs	Rs	Rs	Rs	Rs
Major Work						
Godavari	261,857	363,512	38,125	32,559	6,96,053	6,56,112
Kistna	432,147	332,872	51,085	31,697	8,47,801	7,21,792
Pennar	23,866	28,192	31	2,864	54,953	59,818
Tamiraparani	36,937	36,641	"	3,758	77,336	84,788
Varaha	61,971	29,934	1200	3,250	96,355	1,09,310
Canal	2,517	1,622	"	173	4,312	3,843
Drainage	1,03,439	319,913	4,047	38,230	4,65,629	4,54,240
Forwaird Kantham	55,818	29,372	"	3,364	88,554	39,903
Regulation	(a) 40,000	17,766	"	2,238	60,004	"
Rushikulya	31,648	10,438	812	1,021	43,919	31,718
Total, Major Works.	10,50,200	11,70,262	95,300	1,19,154	24,34,916	21,61,524
Per acre irrigated.					0.93	0.89
Minor Works & Irrigation	2,71,040	1,24,118	6,819	11,494	4,10,471	3,52,415
Grand Total	13,21,240	12,94,380	1,02,119	1,30,648	28,45,387	25,13,939

(a) - Rent of land & compensation paid to the Government Govt.

The cost of maintaining the major works was 22.54 per cent of the gross revenue derived from them against 20.57 per cent in the preceding year.

The charge for establishment in column

3 of the statement in the last paragraph is made up as follows:-

	Major Works	Minor Works & Navigation	Total
	Rs	Rs	Rs
Revenue Management { Direction & execution	6,21,164	14,215	6,35,379
{ Collection charges	3,24,405	46,319	3,70,724
Total	9,45,569	60,534	10,06,103
Maintenance of works.	2,24,693	60,584	2,85,277
Grand Total	11,70,262	1,21,118	12,91,380

The cost of revenue management on the major works was 8.8 percent of the gross revenue realized from them.

15. The report shows that there are now in actual operation 3561 miles of canals, of which 990 are for irrigation & navigation, 2267 miles for irrigation only, & 304 miles for

navigation only. From the irrigation canals 6884 miles of distributory channels are taken off. The total ultimate irrigable area under the canals is 3,277,146 acres, & the area irrigated during the year was 2,919,496 acres the crops grown being valued at Rs 697,52,897 or Rs 82,17,587 more than in the previous year. The estimated out-turn of the year compared with the corresponding figures of the previous year as shown below:-

	1896-97 Rs	1895-96 Rs
Paddy	649,15,969	575,76,343
Ragi	4,33,305	3,32,816
Other crops	44,03,623	36,26,151
Total	697,52,897	615,35,310

16. The following table gives details regarding navigation on the four principal canals:-

	length of navigable canals miles	Receipts Rs	Expendi- ture Rs	W. lined Goods Rs	Ton mileage	Passengers No.
Godavari delta canals	193	87,745	70,749	212,936.91	7,622,288	228,112
Kistna delta canals	307	31,679	89,692	127,526.25	10,539,225	97,143
Turnoost Cuddapah Canal	190	1,598	8,788	3,197.88	19,974.7	36
Buckingham Canal	262	114,788	64,143	225,813.55	23,272,363	78,492
Total for 1896-97 -	1,252	2,35,810	2,33,372	569,474.59	41,627,623	403,783
Total for 1895-96	1,252	2,33,449	2,21,758	649,017.72	51,294,170	465,657

17. The following table gives details regarding works for which neither Capital nor Rev. Accts are kept: -

	Area, first & second crops Acres	Irrigation revenue Rs	Rate per acre Rs	Outlay, direct & in direct or collection charges Rs	Rate per acre Rs
I. Works under Pub Wks Dept for which a continuous record of expenditure is kept individually.	164,012	6,52,058			
II. Other works under Pub. Works Dept.	(1) 1,178,659	(1) 33,14,479			
III. Works under the Rev. Dept.	(1) 1,506,514	(1) 34,37,657			
Total, 1896-97	(1) 2,849,185	(1) 74,04,194	2.59	16,79,699	0.59
Total, 1895-96.	3,392,165	91,64,415	2.70	16,12,627	0.48

1a) Inclusion of Rs 4,08,029, the outlay incurred by Civil officers & not included in the accounts of the Engineer of P.W. Accounts.

1b) Exclusive of the area and revenue of the Mantapur district.

The total area irrigated was made up of 2,50,304 acres of first crop & 698,881 acres of second crop, & the irrigation revenue was Rs 17,60,221 less than in the previous year.

18. The following table must show the outlay on agricultural works, i.e., river conservancy & bankments: -

	Rs.	Rs.
Original Works.	1,37,212	
Repairs	5,99,692	
Total		7,36,904
Tools & plant.		1,63,303
		11,018
Total		9,11,225

The receipts realised from the plantations along river bankments amounted to Rs 23,223 against Rs 23,903 in the previous year.

19. Six investigating parties were employed on the Tank Restoration Scheme, the expenditure on which during & up to the end of the year was as follows:—

	Expenditure during 1896-97				Expenditure to end of 1896-97
	Repairs	Material	Tools & plant	Total	
	Rs	Rs	Rs	Rs	Rs
Investigation	-	-	-	-	12,577.129
Execution	4,42,072	1,01,112	6,593	5,49,777	52,07,585
Total	4,42,072	1,01,112	6,593	5,49,777	64,64,714

Up to the end of the year 34,187 square miles had been completely investigated, & estimates for 4,863 works to the amount of Rs 50,26,491 had been sanctioned.

20. The following figures relate to the discharge of some of the principal canals which do not draw

the greater part of their supply from storage works & the areas irrigated from them:—

	Area actually irrigated first crop	Maximum discharge as designed	Maximum discharge during the year	Average discharge at head	Acres irrigated per acre per second of average discharge
	Acres	Cub. feet per second	Cub. feet per second	Cub. feet per second	First crop
Godavari	631,411	8,516	11,697	6,263	100.82
Krishna	479,711	8,126	not known	4,000	119.92
Perur	61,955	2,306	1,313	102	607.40
Sangam	68,853	4,800	3,804	288	239.07
Turnool	77,896	1,468	1,381	691	112.73
Canary	851,568	not known	38,715	17,193	49.53

* Previous to the construction of the extra vents built in 1887-88 to the Dordaiishweram head sluice.

21. During the year the investigations commenced in the previous year for the preparation of the completion estimates for the Canary & other systems were continued. The Jangamakeswerapuram, Chalakalurpad & Atmakur tank projects in the Krishna Northern Dr.

the Madavaram tank
project in the Bellary
D^o & the Dattakottai
project in the Tanjore
D^o were under investigation
during the year.

22. An outlay of Rs
15514 was incurred
during the year in the
execution of works under-
taken for the purposes
of famine relief in
the Cuddapah, Tumkur
& Bellary Districts.

23. From local
irrigation cess fund
Rs 10361 were spent
on minor works &
repairs in the Salem
& Trichinopoly D^{os}.

24. A sum of Rs
6753 was also spent
on irrigation works
in the Estates under
the Court of Wards.

25. A diagram of

the Peryar Lake, two
photographs connected
with the Peryar project
together with a descriptive
note & the annual
diagrams of the
principal rivers con-
nected with major
works have been
appended to the
Report.

26. Ordered that
forty copies of the
Administration Report
& of these Docs. be
forwarded to the
Govt of India.

Indorsement.
No: 162 D. 3. 3. 98
Forwarded.

30 The Chief Insp for I.
All Supplies
Cons Insp for Rep
by Chief Insp P.W.D.
Sd/- I. W. A.
P.W. Dept.
Public Dept.

lcc
H/1/8/1/88

W.H.
20 8 98
3/3/98

Public Works (1898) Department.

CURRENT No. 2758

N^o 1980 CO/31-3-98

From The Public Works
Dept

No. 1834c

Government of Madras.
Public Works Department.

Memorandum.

Dated Madras 24th March 1898.

Errata in para 8 of G.O. No. 161 I dated 3rd March

1898

In line 2

-Do- -do.

-Do- 4.

For

Read

"Revenue"

"net revenue"

Rs.
63,806

Rs.
61,049

58,056

49,120

Shilam

Under Secretary,
Irrigation Branch.

The Chief Engineer for Irrigation.

„ Superintending Engineers.

„ Consulting Assistant

„ Consulting Engineer for Railways.

„ Acting Chief Engineer, P.W.D.

„ Examiner, P.W. Accounts.

„ Revenue Department.

„ Public Department.

Copy to the Joint Secretary to

the Government of India, P.W.D.

for information with reference

to endorsement No. 162 I d/ 3rd March