

Revenue (1899) Department.

MISCELLANEOUS SERIES.

G.O., No. 1523

DATED 24 April 99

[Despatch Abstract.]

Commng. to the Bd of Rev: Profs P.H. Dept
reviewing the Administration Report of the
Irrigation Branch of the S.H. Dept. Madras
Pres G. for 1897-98 & ordering that 40
copies of the report & of the Profs be
forwarded to the Govt. of India.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.
enc	4949/99						

Revenue (1899) Dept.

IRRIGATION.
ACCOUNT.

Government {1899} of Madras.
PUBLIC WORKS.

Current No. 2398

8/24/99

Recd. } 8th April
Regd. } 10th " } 1899.

Enclosures

Spare copies

G.O., No. 191 I., 23rd February 1899.

FEBRUARY.

S.P. Mis 1523 of 24 April 99
Communicated to

Board of Revenue.

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16 to the Board of Rev. (Rev. Secy)
10-4-99 Dec-28-4-99

Administration Report of the Irrigation Branch of the
Public Works Department 20-4-99

Reviewing the —, Madras Presidency, for 1897-98, and ordering that 40 copies
of the report and of the Proceedings be forwarded to the Government of India.

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers:—

Administration report of the Public Works Department, Irrigation Branch, for 1897-98.

No. 9 I.

Submitted to Government.

2. The submission of the report which was due with the Government of India on the 15th November 1898, was delayed owing to the non-receipt from the Board of Revenue of the usual review, explaining the causes of variations in the area irrigated and revenue derived during the year, as compared with the previous year, and describing the results attained by the opening of the Periyár project referred to in paragraph 4 of the Government of India observations embodied in Proceedings of Madras Government, No. 567 I., dated 22nd July 1898. To avoid further delay the report has been submitted without complete information on this point, but some explanatory remarks on the subject have been entered on page 40 of the report as far as information is yet available.

(Signed) W. HUGHES,
Chief Engineer for Irrigation.

21st January 1899.

ORDER—No. 191 I., dated 23rd February 1899.

The report deals with 10 major works and 27 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 nine of them have been closed.

2. Of the 27 minor works, 23 are irrigation systems, and 4 are tidal canals intended for purely navigation purposes. With the exception of the Chopaud project and the Ganjám-Gopalpore tidal canal, all the minor works were in operation. The construction estimates have been closed for all the works in operation except the Munnyeru, Dondapad and Sagileru projects, and 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. 10,11,670 and on minor works for which capital and revenue accounts are kept Rs. 4,66,648, making a total of Rs. 14,78,318.

The total charges to the end of the year amounted to Rs. 7,07,07,785 on major works, and to Rs. 1,80,87,274 on minor works for which capital and revenue accounts are kept.

The major works irrigated 2,705,915 acres, and the minor works 535,813 acres; the net return on the capital invested being 7.88 per cent. on the former class of works, and 4.44 per cent. on the latter.

4. The capital outlay incurred on the major and minor works during and up to end of 1897-98 was as follows:—

1	Number of works.	During the year 1897-98.							Total direct and indirect charges to end of 1897-98.
		Works.	Establishment.	Tools and plant.	Less receipts on capital account.	Total direct charges.	Indirect charges.	Total direct and indirect charges.	
		2	3	4	5	6	7	8	10
		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Major Works.									
Protective Irrigation Works	1	1,13,169	32,748	— 1,449	460	1,44,008	21,044	1,65,052	46,44,423
(Account head 85) ..									
Irrigation works not charged to Revenue (Account head 49) ..	9	6,18,768	1,23,679	55,108	..	7,97,555	49,063	8,46,618	6,60,63,362
Minor Works and Navigation.									
Works for which Capital and Revenue Accounts are kept ..	27	3,67,655	89,992	— 6,166	111	4,51,370	15,278	4,66,648	1,80,87,274

5. Under major works, the capital outlay during the year was incurred chiefly on the Kistna and Cauvery delta systems and the Periyár and Rushikulya projects. On the Kistna delta system the capital outlay amounted to Rs. 4,07,418, including indirect charges, and was incurred chiefly in constructing a new head sluice at Seetanagaram, improvements to the basin between the new and old head sluices at Seetanagaram, fitting falling shutters to the crest of the Kistna anicut, and extending the apron of the anicut near the Bezwada end.

The capital outlay on the Cauvery delta system was Rs. 1,39,380, including indirect charges, and was incurred chiefly on remodelling the Upper Coleroon anicut, and fitting lift shutters to the Grand Anicut.

On the Periyár project an outlay of Rs. 1,75,994 (including indirect charges) was incurred during the year. Of the 94 miles of branch channels and 46 miles of distributaries sanctioned, 68 and 12 miles, respectively, were completed to the end of the year under review.

The capital outlay on the Rushikulya project was Rs. 1,65,052, including indirect charges. The project was practically completed during the year with the exception of the Surada reservoir. Owing to there being no rain till June, the Russellkonda reservoir was the only source available in the beginning of the year both for agricultural and drinking purposes in the Goomsur and Berhampore taluks.

Under minor works the capital outlay was incurred chiefly on the Munnyeru and Sagileru projects and the Lower Coleroon anicut system.

On the Munnyeru project the capital outlay was Rs. 1,50,890, including indirect charges. Four bridges, eight undertunnels, and one regulator—incomplete works of the previous year—were completed, as also the Vemavaram tank weir, surplus weir at 14 miles 4 furlongs, and 10 head sluices to distributaries. The channel was opened for supply of water on the 20th July 1897.

On the Sagileru project the capital outlay was Rs. 56,162, including indirect charges. The supply channel to Porumilla tank, and all the masonry works except the lascars' lines at the head works, and alterations to the Cumbum road regulator, were completed.

The capital outlay, including indirect charges, on the Lower Coleroon anicut system was Rs. 95,069. The Chidambaram drainage scheme, and improvements to the Lower Coleroon anicut, and fitting it with screw-gearing shutters, 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:—

No.	Systems.	Gross revenue receipts, 1897-98.					Working expenses.			Net actual revenue.	Deduct receipts less maintenance charges on account of Government old irrigation.	Net revenue attributable to outlay of Government capital.	Percentage of revenue.			
		Capital outlay.		Total.			Direct.	Indirect.	Total.							
		3	4	5	6	7								8	9	10
1	2															
	Major Works.															
1	Gódravari delta system	1,29,78,073	31,88,059	96,371	32,84,430	32,84,430	6,50,455	33,310	6,83,765	26,00,665	1,15,500	24,85,165	19.15			
2	Kistna do.	1,31,91,665	25,00,755	45,040	25,45,795	25,45,795	7,11,051	30,368	7,41,419	18,04,376	67,000	17,38,276	13.18			
3	Pennar ancient system	18,99,192	2,81,221	376	2,81,597	2,81,597	47,559	2,811	50,370	2,81,227	87,000	1,44,227	7.59			
4	Sangam do.	38,56,008	8,24,964	1,311	8,26,275	8,26,275	63,316	7,055	70,371	2,55,904	1,14,000	1,41,904	3.68			
5	Kurnool-Cuddapah canal	2,17,17,739	1,50,124	6,096	1,56,220	1,56,220	1,19,646	4,396	1,24,042	32,178	1,14,000	32,178	0.15			
6	Barr tank system	4,25,045	11,624	3,152	43,43,460	43,43,460	3,676	176	3,852	7,772	1,850	5,922	1.39			
7	Canvey delta system	19,94,578	43,40,308	3,152	43,43,460	43,43,460	3,96,741	37,900	4,64,641	39,08,819	30,13,934	8,94,885	44.87			
8	Sriyankuntam ancient system	14,71,924	1,91,513	1,975	1,93,488	1,93,488	44,501	2,295	46,796	1,46,692	66,500	80,192	6.45			
9	Periyár project	85,29,188	3,74,575	684	3,75,259	3,75,259	1,03,614	3,898	1,07,512	2,67,747	24,44,337	23,310	0.27			
10	Bushikulya project	46,44,423	1,13,753	784	1,14,537	1,14,537	35,919	859	36,778	77,759	52,549	25,210	0.54			
	Total, Major Works, 1897-98	7,07,07,785	1,14,76,896	1,65,789	1,16,32,685	1,16,32,685	21,76,478	1,23,068	22,99,543	93,33,139	37,61,870	55,71,269	7.88			
	Total for 1896-97	6,96,96,115	1,06,35,885	1,66,276	1,08,02,161	1,08,02,161	23,15,762	1,19,154	24,34,916	83,67,245	36,87,579	46,79,666	6.71			
	Minor Works.															
	I. Irrigation.															
11	Ganjām minor rivers	44,486	1,30,885	230	1,31,115	1,31,115	26,946	664	27,610	1,03,505	96,992	6,513	14.64			
13	Dondapad tank project	1,48,921	36,796	1	36,797	36,797	852	17	36,969	35,941	30,151	5,790	9.02			
15	Cumbum tank	1,25,465	1,05,578	157	1,05,735	1,05,735	5,378	159	7,694	22,775	19,135	21,924	17.47			
16	Thadapalli channel	1,02,964	28,247	35	28,282	28,282	7,353	129	5,507	98,901	85,765	13,136	3.53			
17	Artenkoti do.	63,686	1,05,801	625	1,06,427	1,06,427	47,511	173	7,526	98,901	85,765	13,136	20.63			
18	Kalingarayan channel	20,71,959	2,70,698	2,131	2,72,829	2,72,829	10,469	1,073	48,584	2,24,245	1,21,100	1,03,145	16.59			
19	Palar ancient	2,31,596	92,415	416	92,831	92,831	15,828	215	10,684	82,147	35,943	23,613	6.82			
20	Cheyaru ancient	4,05,447	75,454	286	75,750	75,750	6,517	368	6,651	37,875	9,100	28,775	8.85			
21	Chembambakam tank	17,54,045	22,728	55	44,526	44,526	7,258	134	7,589	31,681	6,200	25,481	1.45			
22	Madras water-supply	64,554	9,470	16,542	39,270	39,270	1,043	331	7,589	8,405	5,080	3,325	6.15			
23	Vallur ancient	2,54,470	96,940	565	97,506	97,506	15,613	362	15,975	81,531	58,532	22,999	16.09			
24	Tirukkoyilur ancient	71,047	16,394	27	16,421	16,421	2,833	56	2,889	13,532	2,094	11,438	24.92			
25	Mechamattur do.	49,737	24,373	232	24,605	24,605	3,727	79	3,806	20,799	18,598	12,395	16.99			
26	Vridhachalam do.	1,68,929	1,25,996	358	1,27,354	1,27,354	18,028	335	18,363	1,08,991	2,850	90,093	53.83			
27	Shatidopei do.	5,52,020	35,597	323	35,920	35,920	14,757	319	15,076	20,844	2,850	17,994	3.26			
28	Pelandore do.	8,08,201	4,51,678	982	4,52,660	4,52,660	39,504	634	40,138	4,12,522	1,54,347	2,58,175	31.94			
29	Lower Coleroon ancient	55,708	90,125	90	20,215	20,215	4,249	89	4,338	1,72,705	16,731	57,578	128.51			
30	Nandiyar channel	44,805	1,87,220	384	1,87,604	1,87,604	14,524	275	14,809	16,49,190	9,06,274	7,42,926	9.49			
31	Marudur ancient		18,81,876	23,441	19,05,317	19,05,317	2,50,681	5,436	2,56,117	16,49,190	9,06,274	7,42,926	9.49			
32	Total, I. Irrigation	78,39,267	18,81,876	23,441	19,05,317	19,05,317	2,50,681	5,436	2,56,117	16,49,190	9,06,274	7,42,926	9.49			

II. Navigation.

Chilka lake canal

Buckingham canal

Vedranaiyam canal

Total, II. Navigation

Total, Minor Works, 1897-98

Total for 1896-97

33	Chilka lake canal	31,027	99,304	872	99,304	99,304	99,394	302	10	312	312	15,841	312	0.16
34	Buckingham canal	89,42,316	1,36,173	872	1,37,045	1,37,045	80,408	80,408	8,145	83,553	15,841	15,841	15,841	0.16
35	Vedranaiyam canal	91,09,516	1,00,266	1,00,266	1,00,266	1,00,266	87,102	87,102	3,332	90,434	9,832	9,832	9,832	0.11
	Total, II. Navigation	1,69,38,783	18,81,876	1,23,707	1,88,436	1,88,436	3,37,783	3,37,783	8,768	3,46,551	16,59,032	9,06,274	7,52,758	4.44
	Total, Minor Works, 1897-98	1,65,39,316	18,81,876	1,23,707	1,88,436	1,88,436	3,37,783	3,37,783	8,768	3,46,551	16,59,032	9,06,274	7,52,758	4.44
	Total for 1896-97	1,65,39,316	18,81,876	1,23,707	1,88,436	1,88,436	3,37,783	3,37,783	8,768	3,46,551	16,59,032	9,06,274	7,52,758	4.44

7. The gross revenue derived from major works was Rs. 8,30,524 more than in the previous year. The increase occurred under all the systems except the Sangam anicut system, the decrease under which was due to the unfavourable character of the season. The working expenses were Rs. 1,35,370 less than in the previous year during which extensive repairs were carried out in restoring works damaged by floods. The net revenue from major works attributable to the outlay of Government capital was Rs. 55,71,269 which is equivalent to a return of 7.88 per cent. on capital outlay against 6.71 per cent. in the previous year.

The interest on the major works amounted to Rs. 26,26,258 during the year and to Rs. 4,66,43,542 up to the end of the year. The surplus revenue after deducting the interest charges was Rs. 29,45,011 during the year and amounted to Rupees 5,98,36,717 up to the end of the year.

8. On the Minor Irrigation works for which Capital and Revenue accounts are kept, the net revenue attributable to the outlay of Government capital was Rs. 75,050 more than during the previous year. There was a decrease in the working expenses of Rs. 44,648. The percentage of net revenue on capital outlay was 9.49 against 8.97 during the previous year.

Of the four Minor Navigation works, the Buckingham canal alone paid its working expenses, the net revenue of Rs. 15,841 derived from it representing a return of 0.18 per cent. on the capital outlay. It should be noted, however, that although the accounts of this canal are kept separate the navigation system is intimately connected with the navigable canals of the Kistna and Godavari. The net loss on the other three works was Rs. 6,009 or Rs. 240 more than in the previous year.

9. Of the total revenue of Rs. 1,14,76,896 derived from major works, Rupees 1,10,12,562 was the irrigation revenue, and Rs. 4,64,334 was the irrigation share of 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.	
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
1	2	3	4	5	6	7
Major Works.	RS.	RS.	ACS.	ACS.	RS.	RS.
Godavari	31,88,059	28,26,851	779,435	739,849	4.0	3.8
Kistna	25,00,755	22,06,481	520,373	482,633	4.9	4.6
Pennéru	2,81,221	2,71,737	68,153	68,153	4.0	4.0
Sangam	3,24,964	3,34,860	76,277	79,786	4.3	4.2
Kurnool-Cuddapah canal	1,50,124	1,34,354	47,008	87,226	3.2	1.5
Barur tank	11,624	11,536	4,421	4,440	2.6	2.6
Cauvery	43,40,308	42,89,024	989,808	977,123	4.4	4.4
Srivaikuntam	1,91,519	1,85,894	41,668	40,147	4.6	4.6
Periyár	8,74,575	2,66,899	89,143	63,751	4.2	4.2
Rushikulya	1,13,753	1,08,249	67,318	63,327	1.7	1.7
Total, Irrigation works not charged against Revenue	1,14,76,896	1,06,35,885	2,705,915	2,606,435	4.2	4.1
Minor Works.						
I. Irrigation—Total	18,81,876	18,38,339	535,813	523,424	3.5	3.5
Grand Total	1,33,58,772	1,24,74,224	3,241,728	3,129,859	4.1	4.0

Under Major works the area irrigated and the revenue derived were 99,480 acres and Rs. 8,41,011, respectively, more than in the previous year. The increase occurred under all the systems except the Sangam anicut system.

In paragraph 4 of its review of the Administration Report for 1896-97, the Government of India expressed the hope that in the report now under review the results attained by the opening of the Periyár project will be more fully described and that they will be carefully compared with those forecasted in 1894. From the endorsement of the Chief Engineer for Irrigation it is understood that complete information required for the purpose is still awaited from the Board of Revenue.

The Board should be requested to expedite its submission. It will be observed from the remarks in the report that the area actually irrigated by the project in the year under review exceeds the area forecasted in 1894.

The area irrigated and revenue derived from minor works were 12,389 acres and Rs. 43,537, respectively, more than in the previous year.

It is observed that no revenue has been credited to the Munnyeru, Dondapad and Sagilérú projects for the areas irrigated under them during the year. It is believed that the revenue derived has been erroneously credited to "Minor Works for which neither Capital nor Revenue Accounts are kept." The necessary corrections in the Revenue Accounts should be made in due course.

11. The following table gives details of the average water-rate per acre for first and second crops under major works, excluding the 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.
				4.83	2.97	4.98	3.98	5.00	3.19	3.63
				5.03	4.52	5.18	3.63	5.16	4.80	4.35
				4.51	2.35	..	..	4.01	3.04	2.76
				4.60	2.25	..	..	3.97	2.37	2.97
				3.92	1.83	..	..	3.79	1.88	2.56
				3.70	2.51	..	4.00	3.53	3.93	1.33
				..	..	..	..	4.01	2.58	3.71
				4.99	2.48	..	..	4.02	2.67	3.34
				6.24	3.12	3.92	4.20	4.03	3.28	2.87
				4.76	3.07	4.13	6.00	2.03	2.32	1.59
				1.79	2.44	2.09	2.00			

on major works was 2,338,567 acres and

12. The area irrigated under first crop on major works was 2,338,567 acres and under second crop 321,622 acres, making a total of 2,660,189 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 97.15 per cent. was irrigated by flow, and 2.85 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 minor works, in the aggregate:—

Systems.	1897-98.					1896-97.
	New works and repairs.	Establishment.	Tools and plant.	Indirect charges.	Total.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.
Major works—						
Godavari delta	2,13,154	3,91,080	46,221	33,310	6,83,765	6,96,053
Kistna delta	3,14,914	3,38,090	58,047	30,368	7,41,419	8,47,801
Pennéru anicut	19,267	28,292	..	2,811	50,370	54,953
Sangam do.	29,156	34,067	93	7,055	70,370	77,336
Kurnool-Cuddapah canal	79,873	38,907	1,066	4,396	1,24,042	96,355
Barur tank	2,031	1,645	..	176	3,852	4,312
Cauvery delta	82,123	3,18,722	4,104	37,900	4,34,641	4,65,629
Srivaikuntam anicut	22,487	22,014	..	2,295	46,796	88,554
Periyár project	(a) 69,634	33,450	530	3,898	1,07,512	60,004
Rushikulya project	26,348	9,198	373	859	36,778	43,919
Total, Major Works	8,58,787	12,15,465	1,02,225	1,23,068	22,99,546	24,34,916
Per acre irrigated	2,23,947	1,10,662	3,174	8,768	3,46,561	0.93
Minor Works and Navigation	10,82,734	13,26,127	1,05,400	1,31,836	26,46,097	28,45,387
Grand total						

(a) Includes Rs. 40,000 rent of land or compensation paid to the Travancore Darbar.

The cost of maintaining the major works was 19.77 per cent. of the gross revenue derived from them against 22.54 per cent. in the previous 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. Collection charges.	6,69,575	12,380	6,81,955
	3,62,494	47,992	4,10,486
Total ..	10,32,069	60,372	10,92,441
Maintenance of works ..	1,83,396	50,290	2,33,686
Grand total ..	12,15,465	1,10,662	13,26,127

The cost of revenue management on the major works was 8.9 per cent. of the gross revenue realized from them.

15. The report shows that there are now in actual operation 3,696 miles of canals, of which 990 are for irrigation and navigation, 2,402 miles for irrigation only, and 304 miles for navigation only. From the irrigation canals, 6,967 miles of distributary channels are taken off. The total ultimate irrigable area under the canals is 3,289,491 acres, and the area irrigated during the year was 3,150,007 acres, the crops grown being valued at Rs. 9,63,98,432, or Rs. 2,66,45,535 more than in the previous year. The estimated outturn of the year compares with the corresponding figures of the previous year as shown below:—

	1897-98.	1896-97.
	RS.	RS.
Paddy ..	9,16,31,330	6,49,15,969
Ragi ..	7,10,320	4,33,305
Other crops ..	40,56,782	44,03,623
Total ..	9,63,98,432	6,97,52,897

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.
Górávari delta canals ..	493	76,577	70,000	2,10,40,926	7,521,515	225,363
Kistna do. ..	307	28,075	87,212	1,27,04,151	10,188,623	120,480
Kurnool-Cuddapah canal ..	190	1,278	8,334	1,22,633	129,079	32
Buckingham canal ..	262	99,394	54,241	1,86,25,747	17,767,559	74,033
Total for 1897-98 ..	1,252	2,05,324	2,19,787	5,24,93,457	35,606,776	419,908
Total for 1896-97 ..	1,252	2,35,810	2,33,372	5,69,47,459	41,627,623	403,783

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

	Area of first and second crops.	Irrigation revenue.	Rate per acre.	Outlay—direct and indirect and collection charges.	Rate per acre.
	ACRES.	RS.	RS.	RS.	RS.
I. Works under Public Works Department for which a continuous record of expenditure is kept individually ..	176,971	7,02,450	..	..	..
II. Other works under Public Works Department ..	1,262,136	36,28,779	..	..	..
III. Works under the Revenue Department ..	1,691,902	39,63,146	..	..	..
Total for 1897-98 ..	3,131,009	82,94,375	2.65	(a) 16,18,791	0.51
Total for 1896-97 ..	2,952,386	76,12,138	2.58	16,79,699	0.57

(a) Inclusive of Rs. 3,60,278, the outlay incurred by Civil officers and not included in the accounts of the Examiner Public Works Accounts.

The total area irrigated was made up of 2,330,192 acres of first crop and 800,817 acres of second crop, and the irrigation revenue was Rs. 6,82,237 more than in the previous year.

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

	RS.
Original works ..	1,24,175
Repairs ..	3,40,909
Establishment ..	4,65,084
Tools and plant ..	1,02,081
Total ..	6,466
Total ..	5,73,631

The receipts realized from the plantations along river embankments amounted to Rs. 42,185 against Rs. 23,223 in the previous year. The increase was due to the unusually large realizations by sales of "lankas" or "grass plots" in the Górávari and the Kistna districts.

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 1897-98.				Expenditure to end of 1897-98.
	Repairs.	Establishment.	Tools and plant.	Total.	
	RS.	RS.	RS.	RS.	RS.
Investigation ..	2,46,281	56,323	3,672	3,06,276	12,57,129
Execution ..	2,46,281	56,323	3,672	3,06,276	55,13,853
Total ..	2,46,281	56,323	3,672	3,06,276	67,70,982

Up to the end of the year 36,104 square miles had been completely investigated and estimates for 5,158 works to the amount of Rs. 52,50,203 had been sanctioned.

20. The areas (first and second crop) irrigated by some of the principal canals which do not draw the greater part of their supply from storage works, and the discharge at head for each acre of land irrigated during the year, are given below:—

	Area actually irrigated (first and second crops).	Cubic feet of water supplied at head for each acre of land irrigated during the year.
	ACRES.	
Górávari ..	804,999	194,015
Kistna ..	518,459	231,166
Pennér ..	67,448	142,302
Sangam ..	72,634	169,439
Kurnool-Cuddapah canal ..	46,004	401,443
Cauvery ..	954,519	304,403

From the note preceding statistical statement I-E., it is observed that the duty of water for each crop cannot be calculated as the crops actually overlap, and the definition of first crop, as accepted by the Revenue Department, does not relate to the crop raised during any particular period.

21. The investigation started in November 1895 for the preparation of the completion estimates of the Cauvery delta system was continued during the year, and investigations of irrigation projects in the Kistna Northern, Nellore and Bellary divisions were also carried out.

22. An outlay of Rs. 4,78,883 was incurred during the year in the execution of works undertaken for the purpose of famine relief in the Ganjam, Vizagapatam, Górávari, Bellary, Anantapur, Cuddapah and Kurnool districts.

23. From local Irrigation Cess Fund Rs. 6,467 were spent on minor works and repairs in the Coimbatore, Salem and Trichinopoly divisions.

24. A sum of Rs. 7,335 was also spent on irrigation works in the estates under the Court of Wards.

25. A half plan and two photo-prints of the lift shutters of the Grand anicut, Cauvery delta system, and photo-prints of fall No. 3, 12th branch channel, Periyár project, and of the head sluices to Porumámilla tank supply channel, Ságilérú project, with descriptive notes, have been appended to the report. As usual the annual diagrams of the principal rivers connected with the major works have been attached together with, for the first time, the financial diagrams of nine of the major works which form an interesting addition 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. 192 I., dated 23rd February 1899.]

(True Extract.)

[Signature]
Under Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineers of Circles.
" the Superintending Engineer on Special Duty,
" the Superintending Engineer for Railways.
" the Consulting Engineer for Railways.
" the Chief Engineer, Public Works Department.
" the Examiner, Public Works Accounts.
" the Revenue Department.
" the Public

Exd. W. D'Moss.

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