

ADMINISTRATION REPORT

OF THE

IRRIGATION BRANCH

OF THE

PUBLIC WORKS DEPARTMENT

IN THE

MADRAS PRESIDENCY

FOR THE YEAR

1904-1905.



MADRAS:

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**ADMINISTRATION REPORT**  
 OF THE  
**PUBLIC WORKS DEPARTMENT**  
**IRRIGATION BRANCH.**  
**MADRAS PRESIDENCY,**  
**1904-1905.**

Mr. A. H. Garrett was Chief Engineer for Irrigation throughout the year, except from 25th March to 1st May 1904, when he acted as Chief Engineer, Public Works Department. During this interval Mr. J. P. Davidson acted for him as Chief Engineer for Irrigation without prejudice to his own duties as Chief Engineer on Special duty.

Mr. M. R. Kharegat, Acting Assistant Chief Engineer for Irrigation, having been transferred to the Salem Division at the beginning of October last, was succeeded by Mr. T. W. S. Smyth who was permanently appointed to the office.

The expenditure incurred on, the area irrigated by, and the revenue derived from, irrigation works during the year were —

Class of work.	Expenditure including establishment and tools and plant.	Area charged as irrigated (1st and 2nd crops.	Revenue.
Class I.—Major Protective and Productive work.	Rs. 33,83,663	Acres 3,046,873	Rs. 28,62,883
Class II.—Minor Works and Navigation for which Capital and Revenue Accounts are kept.	9,96,612	521,786	18,39,361
Classes III and IV.—Minor works for which neither Capital nor Revenue Accounts are kept.	† 21,15,128	2,938,076	64,99,806
Class V.—Agricultural works	10,87,447	..	34,356
Total ..	75,82,850	6,496,735	2,12,06,405

\* This is expenditure from "Imperial" funds and includes also the expenditure incurred under "35" on investigation of Protective Irrigation works.

† Includes the expenditure incurred from Local Irrigation Cess funds.

Note.—The figures in column 2 include the expenditure incurred from contributions but exclude refunds of revenue.

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WORKS UNDER CLASS I.

CAPITAL ACCOUNT.

The direct and indirect outlay on each work during and up to the end of the year is shown below:—

Class.	Works.	Cost of construction as now estimated.	During the year.			Total direct and indirect charges to end of 1904-1905.
			Direct charges.	Indirect charges.	Total.	
Protective works (Account Head 35).	10. Rushikulya project .. ..	Rs. 50,98,536	Rs. 59,082	Rs. 1,635	Rs. 60,717	Rs. 50,04,088
	11. Mopad project .. ..	12,10,500	1,747	1	1,748	1,748
	Total .. ..	63,09,036	60,829	1,636	62,465	50,05,836
Productive works (Account Head 49).	1. Gódvári delta .. ..	1,90,99,481	1,80,091	6,354	1,86,445	1,56,93,341
	2. Kistna delta .. ..	1,55,90,298	4,35,438	28,434	4,63,872	1,53,12,551
	3. Pennér river canals .. ..	65,08,297	70,505	1,361	71,866	64,38,713
	4. Kurnool-Cuddapah canal * .. ..	2,21,05,761	8,773	205	8,978	2,17,71,294
	5. Barur tank * .. ..	4,34,415	3,513	68	3,581	4,34,841
	6. Cauvery delta .. ..	36,97,130	1,11,401	1,724	1,13,125	32,73,508
	7. Srivaikuntam aicut .. ..	16,84,738	52,646	487	53,132	15,97,016
	8. Periyár project .. ..	99,68,957	1,80,357	10,848	1,41,200	88,94,814
	Total .. ..	7,40,89,077	9,92,723	49,476	10,42,199	7,18,66,138
Total, "35" and "49" .. ..	8,03,98,113	10,53,558	51,112	11,04,664	7,68,71,974	

\* The outlay on these two systems is now met from Provincial—"43. Minor Works and Navigation".

Under the head "35. Construction of Protective Irrigation Works", a new work—the Mopad Reservoir project in the Nellore district—was sanctioned during the year. The principal works in progress during the year in connection with the Rushikulya project were—

(1) Removing the high ground and widening the approach channel of the Surada Reservoir surplus weir.

(2) Constructing a surplus weir to the Surada Reservoir beyond the Pathama crossing.

The work on the Mopad project was started towards the close of the year.

The outlay of the year under the main heads of classification was—

	Rs.
1. Head works .. ..	15,584
2. Main canals and branches .. ..	6,788
3. Distributaries .. ..	26,586
4. Drainage and protective works .. ..	.. ..
Total .. ..	48,958
Establishment .. ..	10,077
Tools and plant .. ..	1,794
Total .. ..	60,829

Under the head "49" the Nagavalli river project in the Vizagapatam district was sanctioned too late in the year to admit of any arrangements being made for putting the work in hand, which was consequently commenced in the succeeding year.

The total capital outlay under the main heads of classification was —

	Rs.
(1) Head works ... ..	2,95,677
(2) Main canals and branches ... ..	2,36,686
(3) Distributaries ... ..	1,53,461
(4) Drainage and protective works ... ..	1,56,176
Total ...	8,42,000
Establishment ... ..	1,47,717
Tools and plant ... ..	3,804
Less receipts on capital account ... ..	— 798
Total ...	9,92,723

The following were the principal works either in progress or completed during the year.

(1) *Head Works.*

- (i) *Gōdāvari Delta system.*—New under sluices to the Dowlaishweram anicut.
- (ii) *Kistna Delta system.*—A new head sluice at Bezwada; constructing a new river wall and flood bank at Bezwada head works.
- (iii) Remodelling the Upper Coleroon anicut.
- (iv) Remodelling the head works at Peranai and constructing a regulator at the site of the Periyar Right bank escape.

(2) *Main Canals and Branches.*

- (i) *Gōdāvari Delta system.*—
  - (a) *Main canal.*—Constructing two wharves on the main canal at Nidadavole.
  - (b) *Bank canal.*—Improvements to the old course of the Bank canal.
- (ii) *Kistna Delta system.*—
  - (a) *Main canal.*—Constructing an iron girder bridge.
  - (b) *Pulleru canal.*—Constructing a bridge over the canal at Pamarru.
  - (c) *Ryves' canal.*—Constructing a lock at 1/0 mile and reconstructing a regulator over the canal.
- (iii) *Penner River canals.*—Supply channel from the Penner above the Sangam anicut to the Nellore tank, and improving the distributaries from the tank, and improvements to the Kanigiri reservoir and excavation of Iebala channel.
- (iv) *Cauvery Delta system.*—
  - (a) Improvements to the Cauvery-Kodamurti regulators.
  - (b) Improvements to the Pillai voikal.

(3) *Distributaries.*

- (i) *Gōdāvari Delta system.*—Vemavaram project and the excavation of the Borampallam and the Komanapalli channels.
- (ii) *Kistna Delta system.*—Improvements to East side channel and its branches and excavation of Vellattur Main channel and its branches.
- (iii) *Srīcaikuntam Anicut system.*—Improvements to the Uppar Odai dam.

(4) *Drainage and Protective Works.*

- (i) *Gōdāvari Delta system.*—Excavation of a straight cut from 21 to 25 miles of Tekki drain, and the straight cut of the Yenamadurru drain tail end.
- (ii) *Kistna Delta system.*—Improvements to the Chendrayya drain and reconstructing bridge over Chendrayya drain at Yerikapad.
- (iii) *Cauvery Delta system.*—Improvements to the Palavar and to the Adapar drainages.

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WORKS UNDER CLASS I.

REVENUE ACCOUNT.

The revenue actually realized and the charges incurred against revenue (Account head 42) during the last two years are shown below :—

	1904-1905.			1903-1904.			Increase or decrease.
	Protective works.	Productive works.	Total.	Protective works.	Productive works.	Total.	
<i>Receipts.</i>	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Direct revenue .. .. .	751	1,95,525	1,96,276	1,958	2,05,561	2,10,819	14,542
Indirect do. .. .. .	1,65,501	1,19,79,450	1,21,44,951	1,56,977	1,14,05,918	1,15,65,595	5,73,356
Share of land revenue .. .. .	2,776	5,18,880	5,21,656	2,228	5,53,587	5,55,885	34,229
<b>Total ..</b>	<b>1,69,028</b>	<b>1,26,93,855</b>	<b>1,28,62,893</b>	<b>1,61,263</b>	<b>1,21,71,066</b>	<b>1,23,32,293</b>	<b>+ 5,20,584</b>
<i>Deduct revenue due to old irrigation .. .. .</i>	<i>65,575</i>	<i>41,11,416</i>	<i>41,76,991</i>	<i>64,225</i>	<i>40,97,204</i>	<i>41,61,429</i>	<i>+ 15,562</i>
<b>Net ..</b>	<b>1,03,453</b>	<b>85,82,439</b>	<b>86,85,892</b>	<b>97,038</b>	<b>80,73,862</b>	<b>81,70,870</b>	<b>5,15,022</b>
<i>Charges (Account head 42).</i>							
Direct charges .. .. .	64,489	25,20,995	25,85,487	60,274	24,51,786	24,52,050	1,93,427
Indirect do. .. .. .	1,854	1,39,340	1,41,194	1,652	1,33,108	1,34,750	5,454
<b>Total ..</b>	<b>66,343</b>	<b>27,60,335</b>	<b>28,26,681</b>	<b>61,926</b>	<b>25,84,894</b>	<b>25,86,800</b>	<b>1,99,871</b>
<i>Deduct old maintenance charges .. .. .</i>	<i>..</i>	<i>4,93,889</i>	<i>4,93,889</i>	<i>..</i>	<i>4,94,051</i>	<i>4,94,051</i>	<i>— 162</i>
<b>Net ..</b>	<b>66,343</b>	<b>22,66,449</b>	<b>23,32,792</b>	<b>61,926</b>	<b>20,70,843</b>	<b>21,52,759</b>	<b>2,09,033</b>
Net revenue .. .. .	37,110	63,15,990	63,53,100	35,092	60,03,019	60,18,111	3,14,989
Interest charges .. .. .	1,82,287	26,64,656	28,46,943	1,80,327	26,27,072	28,07,399	29,544
<b>Profit or loss ..</b>	<b>-1,45,177</b>	<b>36,51,334</b>	<b>35,06,157</b>	<b>-1,45,235</b>	<b>33,75,947</b>	<b>32,50,712</b>	<b>2,75,445</b>

The Productive works show a net revenue of Rs. 63,15,990 or a return of 8.79 per cent. on the total capital outlay to the end of the year. The net revenue after deducting the interest charges shows a clear gain of Rs. 36,51,334 or 5.09 per cent. This percentage would be increased to 8.82 per cent. if the Kurnool-Cuddapah canal were left out of account.

The area charged as irrigated, the revenue derived from, and the working expenses incurred on, each system were :—

	Area charged as irrigated.				Gross revenue.		Gross working expenses.	
	First crop.		Second crop.		1904-1905.	1903-1904.	1904-1905.	1903-1904.
	1904-1905.	1903-1904.	1904-1905.	1903-1904.				
<i>Productive.</i>	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.
1. Godavari delta system .. .	730,723	691,715	142,215	111,143	36,81,844	33,01,025	9,18,571	8,06,688
2. Krishna .. .. .	647,720	616,760	527	282	32,15,975	28,02,363	9,29,421	8,10,927
3. Pennér river canals system .. .	124,960	147,758	4,047	14,396	3,47,574	6,54,076	1,37,955	1,56,715
4. Kurnool-Cuddapah canal .. .	79,329	37,584	9,590	8,922	1,86,447	1,91,789	81,551	93,587
5. Barur tank system .. .. .	3,160	3,108	2,313	2,453	14,721	13,962	8,229	15,115
6. Cauvery delta system .. .. .	892,923	885,608	66,302	90,306	43,45,592	43,28,594	4,58,068	4,65,490
7. Srivaikuntam anicut .. .. .	23,831	24,143	20,243	19,835	1,97,767	1,99,509	30,018	52,082
8. Periyár project .. .. .	113,451	109,287	43,183	43,327	7,52,357	6,79,748	1,66,514	1,69,520
<b>Total ..</b>	<b>2,522,177</b>	<b>2,516,903</b>	<b>318,422</b>	<b>290,664</b>	<b>1,26,93,855</b>	<b>1,21,71,066</b>	<b>27,60,338</b>	<b>25,64,574</b>
<i>Protective.</i>								
10. Koshikulya project .. .. .	94,821	91,162	1,453	923	1,69,028	1,61,263	66,343	61,916
<b>Grand Total ..</b>	<b>2,716,998</b>	<b>2,607,195</b>	<b>319,875</b>	<b>291,587</b>	<b>1,28,62,888</b>	<b>1,23,32,289</b>	<b>28,26,681</b>	<b>26,26,810</b>

The revenue of the year as compared with that of the previous year shows an increase under all the systems except the Pennér river canals, the Kurnool-Cuddapah canal and the Srivaikuntam anicut system. The decrease under the Pennér river canals was due to the grant of large remissions and to a diminution in the area of second

crop cultivation on account of the unfavourable character of the season. Under the Kurnool-Cuddapah canal, the decrease was caused by the falling off in the water-rate collections in 1904-05. The decrease under the Srīvaikuntam ancient system was comparatively small and needs no notice.

The large increase under the Kistna delta system was due partly to the introduction of the resettlement rates in the Tenali and Bapatla taluks during the year and partly to there having been no necessity to grant large remissions on account of damages by floods as in the previous years. The increase under the Gódvári delta system occurred under all the items — "Government, Zamindari and inam" —, and that under the Periyár was mainly due to the increase under Inam. The increases under the other systems are small and call for no remarks.

Under "Working expenses," the increase occurred chiefly under the Gódvári, the Kistna and the Cauvery delta systems. The increase under the first-named system was chiefly due to the write-back of the original cost of the old Dowlaiswaram under sluices from the Capital to the Revenue Account and to the improvements carried out to drains. In the Kistna delta the increase was chiefly due to —

(1) the value of the bridges on the Pulleru and Ryves' canals and the Chendrayya drain, which were reconstructed during the year, having been written back from the Capital to the Revenue Account, and

(2) the adjustment of the outlay on the old river wall from the Capital to the Revenue Account.

The increase under the Cauvery delta system was chiefly caused by the large outlay incurred in providing the head sluices with screw-gearing for the improvement of irrigation in the delta.

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#### WORKS UNDER CLASS II.

The Ganjám-Gopalpur canal.  
 Atmakur tank project.  
 Ponnalur " "  
 Jangamahesweraipuram tank project.  
 Hajipuram tank project.  
 Yerur tank project.  
 Chapad project.  
 Vemula tank project.

The Annasamudram-Beraperu and Bbrugubunda tank projects though sanctioned in 1903-04 were not commenced during the year under review. All the projects in this class except those noted in the margin were in operation. The construction estimate of the Sagileru and Muniyeru projects have not yet been closed.

The following statement shows the outlay incurred, the area charged as irrigated and the revenue derived during the year:—

	Capital outlay including indirect charges.		Area charged as irrigated (1st and 2nd crop).		Revenue due to improvements.		Working expenses on improvements.		Net revenue due to improvements.	
	During 1904-1905.	To end of 1904-1905.	1904-1905.	1903-1904.	1904-1905.	1903-1904.	1904-1905.	1903-1904.	1904-1905.	1903-1904.
<b>CLASS II WORKS.</b>										
<i>Irrigation.</i>										
12. Ganjam minor rivers system .. .. .	16,224	2,45,917	70,441	79,178	55,920	49,594	48,966	42,811	6,054	6,783
13. Maniyera project .. .. .	6,360	5,92,916	2,221	3,322	8,554	12,900	6,190	19,813	3,364	6,518
14. Dondupad tank project .. .. .	6,171	1,35,306	61	142	193	550	604	655	411	75
15. Sogilera project .. .. .	899	4,57,748	8,693	6,789	824	7,322	7,106	7,618	6,789	206
16. Chapad do. .. .. .	27,740	5,39,853	..	..	..	..	238	183	238	183
17. Ponnalur tank project .. .. .	48,868	1,29,028	..	..	..	..	..	..	..	..
18. Jangamaheswarapuram tank project .. .. .	8,684	56,455	..	..	..	..	..	..	..	..
19. Venula tank project .. .. .	13,490	63,757	..	..	..	..	..	..	..	..
20. Cambum tank system .. .. .	..	86,255	7,779	10,558	931	11,554	593	890	338	10,664
21. Thadapalli channel system .. .. .	8,878	1,57,092	15,766	16,108	38,517	38,020	10,352	10,668	28,166	27,362
22. Arankota do. .. .. .	20,050	1,39,489	4,334	4,344	9,513	9,165	4,250	10,516	5,253	1,351
23. Kalugarayen do. .. .. .	33,180	1,56,190	22,166	22,810	25,647	24,089	8,901	9,159	16,746	14,930
24. Palur anicut system .. .. .	2,93,014	23,61,837	79,511	111,822	55,221	1,50,089	68,485	48,586	13,264	1,37,503
25. Poincy do. .. .. .	..	2,36,290	17,168	31,911	35,662	57,636	18,612	10,870	16,050	46,766
26. Cheyera do. .. .. .	..	4,12,179	29,032	35,890	36,790	49,851	23,059	16,941	13,731	32,910
27. Chembambakam tank system .. .. .	..	7,47,107	11,866	20,579	14,750	45,331	13,177	4,812	1,673	40,519
28. Madras water-supply and Irrigation extension .. .. .	10,729	17,72,920	7,940	10,767	25,102	34,667	10,748	11,375	14,354	23,292
29. Vallur anicut system .. .. .	..	65,254	4,078	5,548	8,723	4,507	775	888	3,898	3,624
30. Tirukkoyilur anicut system .. .. .	5,790	3,10,068	26,332	28,968	30,796	43,319	23,845	27,354	12,951	15,965
31. Mehamattar do. .. .. .	..	72,008	4,090	4,100	13,673	13,260	5,459	4,054	7,214	9,206
32. Vriddhachalam do. .. .. .	..	75,900	7,917	8,258	21,122	22,594	6,621	7,171	16,501	15,423
33. Shtatitope do. .. .. .	26,415	8,93,832	33,279	35,270	1,03,267	1,06,962	23,605	21,785	79,622	85,177
34. Polandurai do. .. .. .	..	5,94,844	11,177	11,094	35,448	38,162	14,612	12,582	20,836	25,580
35. Lower Coleroon do. .. .. .	27,768	14,05,499	111,453	111,314	2,90,706	2,58,268	17,724	69,129	2,18,982	2,29,139
36. Nandyar channel extension .. .. .	..	58,910	7,399	7,200	2,659	3,137	2,607	4,430	62	1,293
37. Marudur anicut system .. .. .	2,638	47,413	34,377	34,233	73,528	72,825	10,095	9,606	63,433	63,219
38. Hajipuram project .. .. .	75,824	89,695	..	..	..	10	..	1	..	9
39. Abnakoru tank project .. .. .	42,349	84,650	..	..	..	..	..	..	..	..
40. Yerer tank project .. .. .	19,509	44,757	..	..	..	..	..	..	..	..
Total ..	5,96,788	1,15,12,882	521,786	599,690	8,87,046	11,19,742	3,78,584	3,41,382	5,08,362	7,78,300
<i>Navigation.</i>										
43. Chilka lake canal .. .. .	..	31,027	..	..	..	..	411	387	411	387
44. Buckingham canal .. .. .	1,025	90,17,788	..	..	71,059	68,916	78,724	1,15,538	7,665	46,617
45. Vedranthiyam canal .. .. .	..	1,36,173	..	..	984	1,068	3,854	4,464	2,870	3,396
46. Ganjam-Gopalpur canal .. .. .	..	1,55,493	..	..	..	..	492	686	492	686
Total ..	1,025	93,40,481	..	..	72,043	69,984	83,481	1,21,970	11,438	51,086
Grand Total ..	5,95,762	2,08,53,363	521,786	599,690	9,59,089	11,89,726	4,62,165	4,62,452	4,06,924	7,27,274



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The major portion of the capital outlay was incurred on the restoration of the Pállár anicut, the Hajipuram, the Ponnalur, the Atmakur and the Chapad projects, the Lower Coleroon and the Shatiatope anicut systems and the Kalingarayan channel system.

The revenue due to improvements during the year was less than that during the previous year. The decrease occurred under all the systems except the Thadapalli, Arkankotta and Kalingarayan channel systems, the Vriddhachalam, and Marudur anicut, and the Ganjam Minor rivers systems. The decrease was chiefly due to the diminution in the area cultivated (both under first and second crop) and to the grant of large remissions owing to the unfavourable character of the season.

WORKS UNDER CLASSES III AND IV.

The outlay during the year is shown below :—

	Ordinary and Minor works.		Old main- tenance charges.	Tank Restoration works.	Total.
	Public Works Department.	Revenue Department.			
	RS.	RS.	RS.	RS.	RS.
Original works .. .. .	2,13,034	39,655	15,407	..	2,68,096
Repairs .. .. .	7,09,302	16,512	1,71,152	3,54,082	12,50,948
Establishment .. .. .	1,77,433	12,420	2,89,592	80,293	5,59,738
Tools and plant .. .. .	12,737	809	2,368	5,237	21,151
Total ..	11,12,406	69,396	4,78,519	4,39,612	20,99,933

The total area charged as irrigated and the revenue derived are compared below with those of the previous year :—

	Area charged as irrigated.		Revenue.	
	1904-1905.	1903-1904.	1904-1905.	1903-1904.
	ACS.	ACS.	RS.	RS.
Class III works .. .. .	220,350	226,371	7,37,823	7,63,162
Class IV works—				
(a) In charge of Public Works Department .. .. .	1,190,923	1,479,573	27,93,121	42,91,028
(b) In charge of Revenue Department .. .. .	1,526,803	1,888,762	24,54,134	45,48,060
Total ..	2,717,726	3,358,325	57,47,255	88,39,088
Grand Total ..	2,938,076	3,594,696	64,85,078	96,02,250

These figures indicate a decrease of revenue of Rs. 31,17,172 which is attributable to the unfavourable character of the season.

The total revenue together with the revenue collected in the Public Works Department was Rs. 64,99,806 and the total charges Rs. 33,73,043, viz., Rs. 27,55,413 in the Public Works Department and Rs. 6,17,635 in the Revenue Department, leaving Rs. 31,26,753 as the net revenue against Rs. 61,11,659 in the previous year.

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CLASS III WORKS.

The following statements show the area charged as irrigated under, and the revenue derived from, these classes of works during the revenue year ending June 1905 and the expenditure incurred on them during the official year 1904-1905.

	Area charged as irrigated and revenue derived during the revenue year ending with 30th June 1905.			Total irrigation revenue.	Outlay (including establishment and tools and plant charges) during the official year 1904-1905.
	Area.		Total irrigation revenue.		
	First crop.	Second crop.			
<b>PROVINCIAL.</b>					
<b>CLASS III.</b>					
<i>Vizagapatam.</i>					
Sarada river (8 anicuts and Sarada river channels) ..	19,521	18,441	45,852	}	..
Varaha river (4 anicuts and Varaha do. ) ..	20,154	18,608	54,844		
<i>Salem.</i>					
Ponnagandapuram tank .. .. .	373	367	251	}	4,570
Marandahalli .. .. .	..	..	..		
<i>Coimbatore.</i>					
Amaravati (twenty-two channels) .. ..	26,306	21,467	1,40,058		19,255
<i>Chingleput.</i>					
Madurantakam tank .. .. .	5,237	1,258	9,129		1,983
<i>South Arcot.</i>					
Myorenady-Kattunailur anicut .. .. .	492	71	2,252	}	39,354
Gadilam river .. { 1. Tiruvadi anicut .. .. .	7,059	2,148	35,084		
{ 2. Vanamadevi anicut .. .. .	334	412	5,067		
{ 3. Tiruvendipuram anicut .. .. .	2,070	1,061	11,460		
Kullar river—Vikravandy anicut .. .. .	2,078	158	5,234		
<i>Tinnevely.</i>					
Tambraparni river (6 anicuts) .. .. .	37,016	35,209	4,27,492		22,880
Total ..	121,150	99,200	7,37,823		87,155

CLASS IV WORKS.

	Minor Works—Public Works Department.				Minor Works—Revenue Department.			
	Area charged as irrigated and the revenue derived during the revenue year ending with 30th June 1905.			Outlay (including establishment and tools and plant charges) during the official year 1904-1905.	Area charged as irrigated and the revenue derived during the revenue year ending with 30th June 1905.			Outlay (including establishment and tools and plant charges) during the official year 1904-1905.
	Area.		Total irrigation revenue.		Area.		Total irrigation revenue.	
	First crop.	Second crop.			First crop.	Second crop.		
	ACS.	ACS.	RS.	RS.	ACS.	ACS.	RS.	RS.
Ganjám .. .. .	47,876	1,658	73,956	10,245	63,664	5,780	85,809	26,955
Vizagapatam .. .. .	29,183	24,400	96,172	26,010	42,178	36,240	1,12,340	22,860
Gódamari .. .. .	32,022	2,361	62,168	74,685	29,410	68	35,023	22,856
Kistna .. .. .	24,279	652	34,841	74,365	22,946	242	35,682	16,572
Guntur .. .. .	1,234	28	4,439	3,431	18,179	160	41,144	15,405
Nellore .. .. .	75,125	4,278	1,25,262	2,08,013	26,979	3,982	42,973	14,374
Cuddapah .. .. .	49,722	19,573	1,55,946	1,51,867	118,289	32,712	2,82,564	73,075
Anantapur .. .. .	40,975	7,425	1,40,522	4,760	69,574	19,830	2,04,107	26,858
Bellary .. .. .	31,557	4,660	1,82,844	1,43,855	20,165	5,098	60,346	36,634
Kurnool .. .. .	17,558	3,621	33,458	70,916	21,632	1,663	35,713	53,543
Chingleput .. .. .	193,967	11,175	2,19,970	2,12,164	106,736	6,546	1,09,613	72,864
North Arcot .. .. .	50,053	17,906	1,61,703	94,115	157,029	59,645	4,50,973	58,363
South Arcot .. .. .	87,935	15,868	2,79,978	1,55,376	185,221	31,901	5,79,983	69,197
Tanjore .. .. .	16,244	604	28,782	3,43,644	33,235	1,089	44,265	17,914
Triplicopoly .. .. .	76,991	30,964	4,07,575	50,663	43,477	10,680	76,216	50,425
Madura .. .. .	44,317	19,780	1,77,141	89,662	76,958	17,480	1,69,499	35,235
Tinnevely .. .. .	68,947	37,749	3,35,038	1,00,952	75,325	35,840	2,57,983	45,884
West Coast .. .. .	..	..	..	1,892	..	..	..	43
Coimbatore .. .. .	38,885	19,387	1,85,331	49,667	10,634	5,152	39,379	7,111
Salem .. .. .	26,104	25,869	87,895	76,754	73,557	75,909	2,60,522	40,303
Examiner's Division .. .. .	..	..	..	1,546	..	..	..	..
Presidency .. .. .	..	..	..	..	..	..	..	745
Total ..	942,964	247,959	27,93,121	* 19,43,382	1,176,166	350,637	29,54,134	† 6,57,031

\* Includes expenditure on Tank Restoration Scheme works.

† Includes Rs. 6,17,635, the outlay incurred by Civil officers, and accounted for in the Civil department.

## TANK RESTORATION SCHEME.

The total area of minor basins entered upon at the beginning of the year was 61,494 sq. miles, of which 53,836 sq. miles had been completed. These figures were, during the year under review, increased by 1,568 sq. miles and 705 sq. miles, respectively, thus bringing the total to 63,062 sq. miles entered upon and 54,541 sq. miles investigated. The average area of cultivation under all works in the presidency to be investigated under the Tank Restoration Scheme (class IV (a) and IV (b) works) is calculated to be about two and a quarter millions of acres. Of this acreage works commanding about 0.88 million of acres of irrigation or about 39 per cent. of the total have been investigated by the Tank Restoration Scheme up to the 31st March 1905 leaving a balance of area of works commanding 1.37 millions of acres of irrigation to be investigated on that date. The estimates sanctioned for Government works during the year amounted to Rs. 2,41,182 against Rs. 4,89,249 in 1903-04. The falling off is due to the fact that sanction to estimates amounting to Rs. 1.62 lakhs had to be deferred pending receipt from Superintending Engineers of current schedules of rates and that the estimates of Tank Restoration Scheme works in the Chingleput district amounting to Rs. 60,660 were kept over as the Superintending Engineer had already enough of such estimates in hand. The cost of investigation during the year was Rs. 28,132 or 11.66 per cent. of the amount of estimates sanctioned.

The total amount of estimates sanctioned for Government works from the beginning of the Tank Restoration operations up to the end of the year was Rupees 81,42,539, against which the total expenditure incurred on works was Rs. 66,79,903 or Rs. 83,01,670 including establishment and tools and plant charges.

The following statement shows the number and amount of estimates sanctioned during, and up to the end of, 1904-05 by districts.

Parties.	Districts.	Approximate area investigated in square miles.		Number of estimates sanctioned.		Amount of estimates sanctioned.	
		During the year 1904-1905.	To the end of the year.	During the year 1904-1905.	To the end of the year.	During the year 1904-1905.	To the end of the year.
1	2	3	4	5	6	7	8
Nos. I and II Parties	Madura ..	20	4,541	...	1,149	1,455	12,08,579
	Nellore ..	..	6,668	..	403	28,484	5,10,035
No. II Party	Tinnevely ..	..	2,714	4	616	11,554	7,46,936
Nos. II, III and IV Parties.	Kuruool ..	..	7,271	1	* 322	8,930	* 8,19,360
Nos. III and IV Parties ..	Chingleput ..	..	2,768	9	1,136	15,279	14,21,428
Nos. I, II, III and VI Parties	Cuddapah ..	580	8,538	97	† 607	62,215	† 3,18,877
Nos. III and VI Parties ..	Bellary ..	..	1,171	..	23	..	6,644
Nos. IV and VI Parties	Anantapur ..	..	2,750	..	† 223	2,050	† 4,29,961
Nos. III and IV Parties	Coimbatore ..	..	8,429	..	147	..	3,08,318
	Salem ..	..	3,612	2	‡ 900	7,015	‡ 5,00,707
Nos. III and V Parties	North Arcot ..	25	2,942	43	‡ 983	64,250	‡ 10,05,167
	South Arcot ..	80	1,288	28	318	63,870	6,23,256
Nos. IV and V Parties ..	Tanjore ..	..	962	..	241	..	2,83,693
No. VII Party ..	Godavari ..	..	284	..	111	..	62,145
Nos. II and VII Parties	Kistna ..	..	384	..	58	..	50,711
	Guntur ..	..	4,831	..	252	1,080	1,57,099
No. VIII Party ..	Vizagapatam ..	..	610	..	143	..	1,48,623
No. IV Party ..	Trichinopoly ¶	..	..	..	..	..	..
	Total ..	705	54,541	184	7,642	2,41,182	81,42,539

\* Of these, six estimates, amounting to Rs. 1,165, refer to repairs to dasabandam works and were sent to the Collector for execution by inamdars.

† Of these, sixty-seven estimates, amounting to Rs. 9,615, refer to repairs to dasabandam works and were sent to the Collector for execution by inamdars.

‡ Of these, four estimates, amounting to Rs. 1,290, refer to repairs to dasabandam works and were sent to the Collector for execution by inamdars.

§ Of these, thirteen estimates, amounting to Rs. 2,765, refer to repairs to dasabandam works and were sent to the Collector for execution by inamdars.

¶ Of these, twenty-eight estimates, amounting to Rs. 6,440, refer to repairs to dasabandam works and were sent to the Collector for execution by inamdars.

¶ Investigation just started.

The Irrigation Commission having recommended a more vigorous prosecution of Tank Restoration Scheme works, proposals were submitted to the Government of India for the formation, in supersession of the existing Tank Restoration Scheme parties, of Tank divisions under Executive Engineers so as to enable investigation work to proceed side by side with execution, the divisions being subject to the supervision and control of Superintending Engineers. The proposals have since been approved by the Government of India and will, it is hoped, come into force early in the next official year.

CLASS V.—AGRICULTURAL WORKS.

The outlay on agricultural works, river conservancy and river embankments was as shown below:—

	RS.
Original works ... ..	3,18,135
Repairs ... ..	5,72,878
Establishment ... ..	1,84,633
Tools and plant ... ..	11,801
Total ...	<u>10,87,447</u>

INVESTIGATION OF PROJECTS.

The following important projects were under investigation by the ordinary establishment:—

*Nellore division.*—Survapalli reservoir project.

*Bellary division.*—Nellakudiri project.

*Cudalapa division.*—

(1) Ithodu project.

(2) Dorigallu project.

*Salem division.*—

(1) Krishnagiri reservoir project.

(2) Marandahalli and Pulahalli projects.

*South Arcot division.*—

(1) Sevur project.

(2) Thennel project.

(3) Ghidangal project.

*Trichinopoly division.*—

(1) Pimbalur tank project.

(2) Kanakachittar tank project.

*Madura division.*—

(1) Perandalar project.

(2) Periyár extension scheme.

*Tinnevely division.*—

(1) Pápaúsam reservoir project.

A grant having been made by the Government of India for the continuance of the investigation of protective irrigation works, the work was continued during the year under the supervision of Mr. Davidson, the Chief Engineer on Special duty.

The investigation of the two largest schemes was completed during the year and plans and estimates for the Tungabhadra project amounting to 12·18 crores were submitted to the Government of India for sanction as a protective work. The plans and estimates for the Kistna reservoir project were nearing completion in the office of the Chief Engineer on Special duty who has since submitted two alternative estimates for 12·13 crores and 9·02 crores, respectively; these proposals are now under scrutiny. For another large scheme—the proposed Cauvery reservoir at Neringipet—

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an estimate amounting to Rs. 2,77,78,000 was submitted to the Government of India during the year, but it has since been returned for further revenue information, which has now been collected by a special revenue officer appointed for the purpose.

Four parties were at work under the Special Superintending Engineer in the Nellore, Kurnool, South Arcot and Chingleput districts. The Nellore party, on completion of its work, was moved in January 1905 to the Ganjam district, while the South Arcot party was in February transferred to Cuddapah. The Chingleput party having been formed in December 1904 was able, during the remaining portion of the year, to undertake the preliminary investigation of only three works—the Utteremur tank and Madurantakam tank projects and the Arni river project.

The other projects investigated by the parties and for which plans and estimates were completed during the year are shown in the accompanying statement:—

No.	Name of project.	District.	Estimated cost.	Remarks.
			Rs.	
1	Yedlapad .. .. .	Kistna ..	..	The plans and estimates for these have been sent to the Superintending Engineer, II Circle, as they are connected with the Commamur canal, Kistna Western Division.
2	Ganapavaram .. .. .	Do. ..	..	
3	Rajampet .. .. .	Do. ..	..	
4	Polur .. .. .	Do. ..	..	
5	Gandipalem .. .. .	Nellore ..	13,31,272	Ordered to lie over until it is seen how Mopad and Vengalapuram projects designed for the irrigation of dry crops answer expectations.
6	Pulikonda .. .. .	Do. ..	19,05,710	Under consideration.
7	Atteru .. .. .	Do. ..	5,24,110	
8	Rallapad .. .. .	Do. ..	16,03,560	
9	Cheruvukommepalem .. .. .	Do. ..	97,070	
10	Phavanasi .. .. .	Do. ..	1,30,050	Just sanctioned by the Government of India.
11	Buggeru .. .. .	Do. ..	7,12,000	Under consideration.
12	Swarnamukhi .. .. .	Do. ..	....	Plans and estimates are awaited from Special Superintending Engineer.
13	Gundlakamma .. .. .	Do. ..	Wet. 54,92,470 Dry. 63,69,680	Ordered to lie over until orders are passed on the Kistna Reservoir project.
14	Gazuladinne .. .. .	Kurnool ..	13,32,600	Being submitted to the Government of India for sanction as a protective work.
15	Kistnapuram .. .. .	Do. ..	2,18,640	Revenue information just received from the Board of Revenue and the project is under consideration.
16	Gudampad .. .. .	Do. ..	5,73,460	Under consideration.
17	Chinnstakur .. .. .	Do. ..	82,250	
18	Kocheruvu .. .. .	Do. ..	57,080	Under revision.
19	Verkapuram .. .. .	Do. ..	2,39,400	
20	Sidusapuram .. .. .	Do. ..	4,25,000 (alternative design 4,32,000)	Revenue information awaited from Board of Revenue.
21	Improvements to the Kurnool-Cuddapah canal.	Do. ..	25,22,000	Awaiting the submission of plans and estimates for the Owk project which is connected with this scheme.
22	Improvements to the Veeranam tank and Shafiatope anicut.	South Arcot ..	8,42,950	Under consideration.
23	Taladur anicut .. .. .	Do. ..	....	Revenue information awaited from the Board of Revenue.

The outlay incurred on the investigation of these projects was as follows:—

	Works.	Establishment.	Tools and plant.	Total.
	Rs.	Rs.	Rs.	Rs.
Nellore investigation party .. .. .	4,578	24,658	715	29,946
Kurnool do. .. .. .	3,964	33,747	653	38,364
Special Superintending Engineer .. .. .	..	28,057	..	28,057
Kistna reservoir project .. .. .	38,934	1,14,392	11,085	1,42,211
Nandyar do. .. .. .	..	1,150	..	1,150
Ganjam investigation party .. .. .	1,282	4,809	1,216	7,307
Turazobadra and Fenner project .. .. .	77,500	1,79,589	32,579	2,24,610
Special Chief Engineer .. .. .	834	33,492	..	34,326
Velur investigation party .. .. .	2,445	13,175	233	15,843
Chingleput do. .. .. .	274	3,493	5,429	9,194
Total .. .. .	1,29,799	4,36,437	35,418	5,90,818

**LOCAL—MINOR WORKS AND NAVIGATION.**

Under this head, an expenditure of Rs. 6,247 was incurred in the following divisions:—

	RS.
Coimbatore division ... ..	1,008
Salem division ... ..	5,239
Total ...	<u>6,247</u>

The outlay incurred on the estate works executed by the Public Works Department in the estates under the Court of Wards was—

	RS.
Ganjam division—	
Bodogodo ... ..	2,508
Shergada ... ..	745
Total ...	<u>3,253</u>

*General remarks.*—There were no extraordinary floods in any of the rivers during the year and the deficiency of rainfall in the south-west monsoon followed by the total failure of the north-east monsoon contributed largely to the vigorous prosecution of irrigation works generally throughout the Presidency.