

GENERAL DESCRIPTIVE MEMOIRS
OF
IRRIGATION WORKS,
IN THE
SURULIYAR MINOR BASIN
OF THE
UPPER VAIGAI RIVER BASIN.

MADURA DISTRICT.

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GENERAL

DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS

IN THE

SURULIYAR MINOR BASIN

OF THE

UPPER VAIGAI RIVER BASIN.

THE Suruliyar Minor Basin is situated in the Upper Vaigai River Basin and is so called from the stream of that name, which with its affluents forms the principal source of supply to the Irrigation works in the Minor Basin. It contains an area of 512 sq. miles draining into the left bank of the Vaigai River. It is bounded on the north by the Periyakulam Minor Basin, on the east by the Tala Vaigai Minor Basin, and on the south and west by Travancore Territory, as defined on sheet (7) of the detail Irrigation Map of the Madras Presidency.

Position and extent of Minor Basin.

The Suruli Naddi and its tributaries, from which the Irrigation works in the Minor Basin chiefly receive their supply, have their sources to the east of the watershed line of the general range of the

Source of supply.

western ghauts, which here divide the Periyakulam Taluk from the Travancore Territory. The supply from the Suruli Naddi is constant, its source being in the high mountains about 6,000 ft. above the level of the sea, overgrown with impenetrable forests, and the supply from its tributaries is also almost constant.

Rainfall.

The average annual recorded rainfall for 4 years, from 1880 to 1883 at Chinnamanūr, situated in about the centre of the Minor Basin is 26 inches, and the highest rainfall in twenty-four hours is 4.25 inches which fell on the 9th May 1883, and these results are taken for works in the plains below the hills. There is no rainfall register kept anywhere on the hills within the Minor Basin, and so the mean of 95 inches between the average annual rainfall of 65 inches at Kodaikanal as registered by Mr. Levinge, and of the annual rainfall of 125 inches as arrived at for the Periyar project (*vide* Report, Table VII, on the diversion project of the Periyar) has been taken for the hills in the Minor Basin as the Kodaikanal and the site of Periyar diversion be just to the north and south of the Minor Basin.

Maximum flood discharges.

The formula $D. = C. M^{\frac{1}{2}} - c. m^{\frac{1}{2}}$ is adapted for calculating the discharges from the catchment areas in the Suruli Naddi Minor Basin, the value of C, the working co-efficients being taken at 500 to 600 depending on the nature of the ground and small c at 100 for the area of free basin of tanks which operate as moderators of the discharge.

Percentage of rainfall available.

The percentage of rainfall available for Irrigation from the annual rainfall, may be taken at 25 per cent. for the plains and 33 per cent. for the hills.

Grouping of Irrigation works.

There are 127 Irrigation works in the Suruli Naddi Minor Basin, having a total ayacut area of 17,996.46 acres. It may be

observed that out of 127 Irrigation works, only 67 works belong to Government, having an ayacut area of 12,099.99 acres. The remaining 60 works belong to the three Zemindars of Erasakka Náyakanūr Tèvaram and Bódinàyakkanūr, each having respectively 1, 14 and 45 works with corresponding ayacut areas of 85.11, 147.24 and 5,661.12 acres. All these works have been grouped for professional treatment as shown in the detail Irrigation Map, Sheet 7, Scale 1 inch to the mile; and the Financial statements thereof are recorded in the following statement in the order of this grouping.

Financial details
of Irrigation.

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayacut.	Full Assessment on Do. Land and Water.	AVERAGE CUL.						
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.					First crop.						
								Extent.	Assessment.				Land.	Water.
1	2	3	4	5	6	7	8	9	10	11				
SURULI NADDI GROUP.														
Virapandi Anicut Channel.	1	Virapandi Anicut Channel.	32	Government	286 23	1,073 10 2	286 23	258 1 10	457 10 4					
				Dry brought in	0 63	3 2 7	0 63	1 3 10	0 13 11					
				Inam Free	20 20		20 20							
				Do. Charged	2 00	1 4 0	2 00	0 4 5	0 8 10					
				Do. Dry brought in	6 18	36 8 1	6 18	10 2 8	21 4 9					
				Total	315 24	1,114 8 10	315 24	269 12 9	480 5 10					
	2	Vayalpatti Kulam Tank.	Government	63 69	230 5 1	63 69	57 6 7	96 2 1						
			Dry brought in	0 76	2 12 6	0 76	0 15 11	0 13 9						
			Inam dry brought in	6 36	23 5 6	6 36	10 0 10	7 4 4						
						Total	70 81	256 7 1	70 81	68 7 4	104 4 2			
				Total of Sub-Group.	386 05	1,370 15 11	386 05	338 4 1	584 10 0					
Upparpatti Anicut Channel.	3	Upparpatti Anicut Channel.	31	Government	247 00	879 14 10	245 04	226 15 7	357 0 4					
				Dry brought in	0 98	3 10 3	0 98	1 2 2	1 5 4					
				Inam Free	15 30		15 30							
				Do. Charged	7 66	3 10 0	7 66	0 12 11	1 9 9					
				Do. Dry brought in	0 20	0 8 3	0 20	0 2 4	0 3 2					
				Total	271 14	887 11 4	269 18	229 1 0	360 2 7					
	4	Senkulam Tank	Government	79 84	332 5 9	79 65	77 2 8	144 0 2						
			Inam Charged	8 54	37 2 11	8 54	16 5 3	13 14 5						
						Total	88 38	369 8 8	88 19	93 7 11	157 14 7			
					Total of Sub-Group.	359 52	1,257 4 0	357 37	322 8 11	518 1 2				
Kottur Anicut Channel.			5	Kottur Anicut Channel.	29	Government	483 65	1,887 13 6	457 80	532 1 5	730 1 11			
	Inam Free	19 90					19 90							
	Do. Charged	1 37				0 12 0	1 37	0 2 8	0 5 4					
							Total	504 92	1,888 9 6	479 07	532 4 1	730 7 3		
	6	Naranasamudrum Tank				Government	162 34	568 10 5	144 86	162 10 7	210 9 8			
			Inam Free	8 51		8 51								
			Do. Charged	2 93	11 14 1	2 93	2 8 9	5 6 0						
						Total	173 78	580 8 6	156 30	165 3 4	215 15 8			
					Total of Sub-Group.	678 70	2,469 2 0	635 37	697 7 5	946 6 11				
	Seliampatti Anicut Channel.	7	Seliampatti Anicut Channel.	28	Government	305 92	1,441 0 6	226 32	363 9 8	475 0 9				
Dry brought in					37 38	121 7 4	37 38	43 5 0	37 10 7					
Inam Free					28 39		28 39							
Do. Charged					2 83	7 6 7	2 83	2 6 1	2 9 0					
							Total	374 52	1,569 14 5	294 92	409 4 9	515 4 4		
8		Sirukulam Tank	Government	159 61	441 8 9	156 88	213 5 6	79 0 5						
						Total of Sub-Group.	534 13	2,011 7 2	451 80	622 10 3	594 4 9			

Works in the Suruliyar Minor Basin.— (Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
286-23	357 13 11	258 1 10	815 8 3	1,073 10 1	...	...	...	...	...
0-63	1 0 10	1 3 10	1 14 9	3 2 7	...	...	...	...	...
20-20	...	...	...	...	...	...	...	...	...
2-00	0 6 9	0 4 5	0 15 7	1 4 0	...	...	...	...	...
6-18	5 0 8	10 2 8	26 5 5	36 8 1	...	...	...	...	...
315-24	364 6 2	269 12 9	844 12 0	1,114 8 9	...	...	...	...	...
63-69	76 12 5	57 6 7	172 14 6	230 5 1	...	...	...	...	...
0-76	0 14 10	0 15 11	1 12 7	2 12 6	...	...	...	...	...
6-36	6 0 4	10 0 10	13 4 8	23 5 6	...	...	...	...	...
70-81	83 11 7	68 7 4	187 15 9	256 7 1	...	...	...	...	...
386-05	448 1 9	338 4 1	1,032 11 9	1,370 15 10	...	...	...	...	...
245-04	291 15 11	226 15 7	649 0 3	875 15 10	...	...	...	...	...
0-98	1 2 9	1 2 2	2 8 1	3 10 3	...	...	...	...	...
15-30	...	...	...	...	...	...	...	...	...
7-66	1 3 4	0 12 11	2 13 1	3 10 0	...	...	...	...	...
0-20	0 2 9	0 2 4	0 5 11	0 8 3	...	...	...	...	...
269-18	294 8 9	229 1 0	654 11 4	883 12 4	...	...	...	...	...
79-65	110 9 5	77 2 8	254 9 7	331 12 3	...	...	...	...	...
8-54	6 15 3	16 5 3	20 13 8	37 2 11	...	...	...	...	...
88-19	117 8 8	93 7 11	275 7 3	368 15 2	...	...	...	...	...
357-37	412 1 5	322 8 11	930 2 7	1,252 11 6	...	...	...	...	...
457-80	631 1 5	532 1 5	1,361 3 4	1,893 4 9	...	...	...	...	...
19-90	...	...	...	...	...	...	...	...	...
1-37	0 4 0	0 2 8	0 9 4	0 12 0	...	...	...	...	...
479-07	631 5 5	532 4 1	1,361 12 8	1,894 0 9	...	...	...	...	...
144-86	186 10 1	162 10 7	397 3 9	559 14 4	...	...	...	...	...
8-51	...	...	...	...	...	...	...	...	...
2-93	3 15 4	2 8 9	9 5 4	11 14 1	...	...	...	...	...
156-30	190 9 5	165 3 4	406 9 1	571 12 5	...	...	...	...	...
635-37	821 14 10	697 7 5	1,768 5 9	2,465 13 2	...	...	...	...	...
226-32	419 5 2	363 9 8	894 5 11	1,257 15 1	...	...	...	...	...
37-38	40 7 9	43 5 0	78 2 4	121 7 4	...	...	...	...	...
28-39	...	...	...	...	...	...	...	...	...
2-83	2 7 6	2 6 1	5 0 6	7 6 7	...	...	...	...	...
294-92	462 4 5	409 4 9	977 8 9	1,386 13 6	...	...	...	...	...
156-88	146 2 11	213 5 6	225 3 4	438 8 10	...	...	10-78	31 0 1	31 0 1
451-80	608 7 4	622 10 3	1,202 12 1	1,825 6 4	...	...	10-78	31 0 1	31 0 1

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.			No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.		PROPOSED		
Group.	Sub-Group.	No. in Group or Isolated Work.			Net Revenue due to Irrigation including working expenses 15 - 21.	Do. per Acre Irrigated 22 + 9.	Increase over present extent of Irrigation in column 9.	Land unfit for wet cultivation.	Ultimate extent of Irrigation.
					22	23	24	25	26
					Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
SURULI NADDI GROUP.	Virapandi Anicut Channel.	1	Virapandi Anicut Channel.	32	Government	815 8 3	2 13 7	...	286 23
					Dry brought in	1 14 9	3 0 9	...	0 63
					Inam Free	...	...	...	20 20
					Do. Charged	0 15 7	0 7 9	...	2 00
					Do. Dry brought in	26 5 5	4 4 2	...	6 18
					Total	844 12 0	2 10 10	...	315 24
		2	Vayalpatti Kulam Tank.	...	Government	172 14 6	2 11 9	...	63 69
					Dry brought in	1 12 7	2 5 7	...	0 76
					Inam dry brought in	13 4 8	2 1 5	...	6 36
					Total	187 15 9	2 10 6	...	70 81
					Total of Sub-Group.	1,032 11 9	2 10 9	...	386 06
	Upparpatti Anicut Channel.	3	Upparpatti Anicut Channel.	31	Government	649 0 3	2 10 4	...	245 04
					Dry brought in	2 8 1	2 8 11	...	0 98
					Inam Free	...	...	...	15 30
					Do. Charged	2 13 1	0 5 10	...	7 66
					Do. Dry brought in	0 5 11	1 13 7	...	0 20
					Total	654 11 4	2 6 11	...	269 18
		4	Senkulam Tank	...	Government	254 9 7	3 3 2	...	79 65
					Inam Charged	20 13 8	2 6 10	...	8 54
					Total	275 7 3	3 2 0	...	88 19
					Total of Sub-Group.	930 2 7	2 9 8	...	357 37
	Kottur Anicut Channel.	5	Kottur Anicut Channel.	29	Government	1,361 3 4	2 15 7	33 37	491 17
					Inam Free	...	...	...	19 90
					Do. Charged	0 9 4	0 6 10	...	1 37
					Total	1,361 12 8	2 13 6	33 37	512 44
		6	Naranasamudrum Tank.	...	Government	307 3 9	2 11 10	61 47	206 33
					Inam Free	...	...	...	8 51
					Do. Charged	9 5 4	2 10 7	...	2 93
					Total	406 9 1	2 9 7	61 47	217 77
					Total of Sub-Group.	1,768 5 9	2 12 6	94 84	730 21
	Seliampatti Anicut Channel.	7	Seliampatti Anicut Channel.	28	Government	894 5 11	3 15 2	...	226 32
					Dry brought in	78 2 4	2 1 5	...	37 38
					Inam Free	...	...	...	28 39
					Do. Charged	5 0 6	1 12 5	...	2 83
					Total	977 8 9	3 5 0	...	294 92
		8	Sirukulam Tank	...	Government	194 3 3	1 3 10	...	158 88
					Total of Sub-Group.	1,171 12 0	2 9 6	...	451 80

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses	Expected increase of Revenue 27 - 22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 x 100 + 27.	Expected increase of Revenue percentage of outlay 28 x 100 + 31.		
27	28	29	30	31	32	33		34
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.		
815 8 3	...	...	...	...	...	...		
1 14 9	...	...	...	...	...	...		
0 15 7	...	...	...	...	...	...		
26 5 5	...	...	...	...	...	...		
844 12 0	...	8,780 0 0	655 0 0	9,435 0 0	1,116 89	...		
172 14 6	...	...	...	...	...	...		
1 12 7	...	...	...	...	...	...		
13 4 8	...	...	...	...	...	...		
187 15 9	...	193 0 0	1,277 0 0	1,470 0 0	781 97	...		
1,032 11 9	...	8,973 0 0	1,932 0 0	10,905 0 0	1,055 66	...		
649 0 3	...	...	...	...	...	...		
2 8 1	...	...	...	...	...	...		
2 13 1	...	...	...	...	...	...		
0 5 11	...	...	...	...	...	...		
654 11 4	...	1,280 0 0	14,100 0 0	15,380 0 0	2,349 13	...		
254 9 7	...	...	...	...	...	...		
20 13 8	...	...	...	...	...	...		
275 7 3	...	290 0 0	630 0 0	920 0 0	333 99	...		
930 2 7	...	1,570 0 0	14,730 0 0	16,300 0 0	1,752 68	...		
1,460 7 2	99 3 10	...	...	...	...	...		
0 9 4	...	...	...	...	...	...		
1,461 0 6	99 3 10	...	1,110 0 0	1,110 0 0	75 97	8 94		Increase in cultivation is due to the improvements to the Anicut and Channel.
628 1 8	230 13 11	...	...	...	...	...		
9 5 4	...	...	...	...	...	...		
637 7 0	230 13 11	337 0 0	2,207 0 0	2,544 0 0	399 09	9 07		Increase in cultivation is due to the tank having been repaired and its capacity increased.
2,098 7 6	330 1 9	337 0 0	3,317 0 0	3,654 0 0	174 16	9 03		
894 5 11	...	...	...	...	...	...		
78 2 4	...	...	...	...	...	...		
5 0 6	...	...	...	...	...	...		
977 8 9	...	7,140 0 0	...	7,140 0 0	730 39	...		The cause of remission is due to insufficiency of water in the tank ; measures have been adopted to remedy this by improving the tank work.
225 3 4	31 0 1	...	2,125 0 0	2,125 0 0	948 57	1 45		
1,202 12 1	31 0 1	7,140 0 0	2,125 0 0	9,265 0 0	770 15	33		

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayacut.	Full Assessment on Do. Land and Water.	AVERAGE CUL.		
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	No. in District Irrigation Register.				First crop.		
								Extent.	Land.	Water.
1	2	3	4	5	6	7	8	9	10	11
						Acres.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
SURULI NADDI GROUP.	Chinnamanur Anicut Channel.	9	Periya Vaikkal	27	Government Inam Free Do. Charged	779-61 56-02 21-38	3,847 3 8 34 8 0	773-61 56-02 21-38	928 6 2 7 10 8	1,622 5 10 15 5 4
			Total			857-01	3,881 11 8	851-01	936 0 10	1,637 11 2
		10	Sinna Vaikal		Government Inam Free	293-40 4-49	1,315 2 2	291-30 4-49	350 6 4	521 3 2
			Total			297-89	1,315 2 2	295-79	350 6 4	521 3 2
		11	Odaiyakulam Tank		Government Inam Free	420-80 7-49	1,837 11 5	399-91 7-49	456 3 4	737 12 10
			Total			428-29	1,837 11 5	407-40	456 3 4	737 12 10
		12	Senkulam Tank	35	Government Inam Free	96-92 15-27	314 10 2	96-92 15-27	109 0 6	1,00 11 8
			Total			112-19	314 10 2	112-19	109 0 6	100 11 8
			Total of Sub-Group.			1,695-38	7,349 3 5	1,666-39	1,851 11 0	2,997 6 10
	Palaiamparavai Anicut Channel.	13	Palaiamparavai Anicut Channel.	33	Government Dry brought in Inam Free Do. Charged	539-32 1-19 42-42 8-47	1,366 13 6 6 7 2 6 5 0	531-79 1-19 42-42 8-47	483 4 9 1 8 1 1 7 1	422 14 10 2 12 9 2 11 3
			Total			591-40	1,379 9 8	583-87	486 3 11	428 6 10
		14	Kalanirkulam Tank	33	Government Inam Free	118-53 5-28	324 6 10	118-53 5-28	103 11 8	112 8 11
			Total			123-81	324 6 10	123-81	103 11 8	112 8 11
		15	Tamaraikulam Tank	20	Government Dry brought in Inam Free Do. Charged	551-70 0-59 15-32 1-27	2,150 4 11 2 2 11 4 13 0	538-38 0-59 15-32 1-27	558 0 2 0 6 10 3 8 0	861 15 11 1 0 4 0 10 6
			Total			568-88	2,157 4 10	555-56	561 15 0	863 10 9
		16	Karunkattan Kulam Tank	26	Government Inam Free Do. Charged	739-94 16-96 6-60	2,196 8 4 3 10 0	666-13 16-96 6-60	801 7 0 0 12 10	646 10 7 1 9 10
			Total			763-50	2,200 2 4	689-69	802 3 10	648 4 5
		17	Naikerkulam Tank	1	Zemindary	85-11	184 2 9	85-11	122 12 6	61 6 3
			Total of Sub-Group.			2,132-70	6,245 10 5	2,038-04	2,076 14 11	2,114 6 2
	Kuthanachiyar Stream.	18	Kuthanachiyar Stream	24	Government Kudi-varam.	84-60	253 5 5	84-60	91 10 6	77 6 11
			Total			84-60	253 5 5	84-60	91 10 6	77 6 11
		19	Kuthanachiyar Chan-nel.		Government Dry brought in	46-82 0-05	196 8 8 0 5 11	41-74 0-05	56 5 8 0 1 2	60 0 8 0 2 9
			Total			46-87	196 14 7	41-79	56 6 10	60 3 5

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

[illegible]

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.		No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.		PROPOSED		
Group.	Sub-Group.			Net Revenue due to Irrigation including working expenses 15-21.	Do. per Acre Irrigated 22 + 9.	Increase over present extent of Irrigation in column 9.	Land unfit for wet cultivation.	Ultimate extent of Irrigation.
	No. in Group or Isolated Work.		Name and Description of Irrigation work.	22	23	24	25	26
				Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
SURULI NADDI GROUP.	Chinnamanur Anicut Channel.	9	Periya Vaikkal	27 Government	2,897 11 11	3 11 11	0-19	773-80
				Inam Free	56-02			
				Do. Charged	26 13 4	1 4 1		21-38
			Total		2,924 9 3	3 7 0	0-19	851-20
		10	Sinna Vaikal	Government	853 9 9	2 14 10		291-30
				Inam Free	4-49			
			Total		853 9 9	2 14 2		295-79
		11	Odaiyakulam Tank	Government	1,289 9 3	3 3 7	2-69	402-60
				Inam Free	7-49			
			Total		1,289 9 3	3 3 7	2-69	410-09
		12	Senkulam Tank	Government			2-65	99-57
				Inam Free	15-27			
			Total			2-65		114-84
	Total of Sub-Group.				* 5,067 12 3	5-53		1,671-92
	Palaiamparavai Anicut Channel.	13	Palaiamparavai Anicut Channel.	33 Government	876 0 7	1 10 4		531-79
				Dry brought in	4 15 1	4 2 5		1-19
				Inam Free	42-42			
				Do. Charged	4 13 11	0 9 2		8-47
			Total		885 13 7	1 8 3		583-87
		14	Kalanirkulam Tank	33 Government	220 11 2	1 13 3		118-53
				Inam Free	5-28			
			Total		220 11 2	1 12 6		123-81
		15	Tamaraikulam Tank	20 Government	1,572 0 0	2 14 9		538-38
				Dry brought in	1 12 1	2 15 7		0-59
				Inam Free	15-32			
				Do. Charged	1 5 0	1 0 6		1-27
			Total		1,575 1 1	2 13 4		555-56
		16	Karunkattan Kulam Tank.	26 Government	1,370 11 4	2 0 11	10-04	678-17
				Inam Free	16-96			
			Do. Charged		2 13 2	0 6 10		6-60
			Total		1,373 8 6	1 15 10	10-04	699-73
		17	Naikerkulam Tank	1 Zemindary	61 6 3	0 11 6		85-11
			Total of Sub-Group.		4,116 8 7	1 0 7	10-04	2,048-06
	Kuthanachiyar Stream.	18	Kuthanachiyar Stream.	24 Government Kudi-varam.	161 10 11	1 14 7	9-18	93-78
			Total		161 10 11	1 14 7	9-18	93-78
		19	Kuthanachiyar Channel.	Government	118 3 11	2 13 3	2-28	44-02
				Dry brought in	0 4 9	5 15 0		0-05
			Total		118 8 8	2 13 5	2-28	44-07

* The difference, Rs. 5-4-8 is due to the excess of remissions given in Col. 20, of work No. 12.

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.					REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27-22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 x 100 + 27.	Expected increase of Revenue percentage of outlay 28 x 100 + 31.	
27	28	29	30	31	32	33	34
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.	
2,898 7 11	0 12 0	...	...	...	...	...	The cause of remission was due to the want of arrangement for the proper distribution of water which has been now attended to.
26 13 4	...	...	...	...	...	...	
2,925 5 3	0 12 0	5,924 0 0	4,985 0 0	10,909 0 0	372-91	-0006	
956 15 10	103 6 1	...	...	...	...	...	
956 15 10	103 6 1	...	...	...	...	...	
1,343 7 7	53 14 4	...	...	...	...	...	The cause of remission was due to the insufficiency of water in the tank; measures have been adopted to remedy this.
1,343 7 7	53 14 4	525 0 0	1,320 0 0	1,845 0 0	137-33	-47	
211 3 2	211 3 2	...	...	...	...	...	
211 3 2	211 3 2	496 0 0	1,575 0 0	2,071 0 0	980-59	-26	
5,436 15 10	369 3 7	6,945 0 0	7,880 0 0	14,825 0 0	272-66	2-48	
876 0 7	...	...	...	...	...	...	Do. do.
4 15 1	...	...	...	...	...	...	
4 13 11	...	...	...	...	...	...	
885 13 7	...	23,320 0 0	2,070 0 0	25,390 0 0	2,866-17	...	
220 11 2	...	...	...	...	...	...	
220 11 2	...	797 0 0	310 0 0	1,107 0 0	501-59	...	Increase in cultivation is due to the Anicut having been put in order and the supply increased.
1,572 0 0	...	...	...	...	...	...	
1 12 1	...	...	...	...	...	...	
1 5 0	...	...	...	...	...	...	
1,575 1 1	...	...	1,763 0 0	1,763 0 0	111-93	...	
1,391 5 10	20 10 6	...	...	...	...	...	Increase in cultivation is due to the Channel being put in order.
2 13 2	...	...	...	...	...	...	
1,394 3 0	20 10 6	1,148 0 0	2,740 0 0	3,888 0 0	278-87	-53	
61 6 3	...	1,860 0 0	2,365 0 0	4,225 0 0	6,882-15	...	
4,137 3 1	20 10 6	27,125 0 0	9,248 0 0	36,373 0 0	879-21	-05	
179 3 8	17 8 9	...	...	...	...	...	Do. do.
179 3 8	17 8 9	...	...	...	...	...	
124 11 1	6 7 2	...	...	...	...	...	
0 4 9	...	...	...	...	...	...	
124 15 10	6 7 2	...	285 0 0	285 0 0	228-01	2-26	

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayacut.	Do. Full Assessment on Land and Water.	AVERAGE CUL.					
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.					First crop.					
								Extent.	Assessment.			Land.	Water.
1	2	3	4	5	6	7	8		9	10	11		
Kuthanachiyar Stream.	20	Kesavapuram Tank.	Kulam 24	Government Dry brought in	179 20 0 07	556 1 0 0 7 11	179 20 0 07	250 4 3 0 1 7	120 7 1 0 4 3				
				Total	179 27	556 8 11	179 27	250 5 10	120 11 4				
	21	Sevakkulam Tank		Government Kudi-varam.	26 71	110 14 1	26 71	38 8 7	36 0 3				
				Dry brought in	0 51	2 9 2	0 51	0 13 1	0 14 5				
				Inam Charged	4 99	18 0 7	4 99	7 3 4	5 6 8				
				Total	32 21	131 7 10	32 21	46 9 0	42 5 4				
	22	Pallan Kulam Tank		Government	43 61	165 7 10	43 61	62 14 8	47 6 6				
				Total	43 61	165 7 10	43 61	62 14 8	47 6 6				
	23	Tamarai Kulam Tank		Government	6 63	23 15 5	6 63	9 9 0	6 6 7				
				Total of Sub-Group.	393 19	1,327 12 0	388 11	517 7 10	354 8 1				
Seganadikulam Tank.	24	Kadamankulam Tank	25	Government									
				Total									
	25	Seganadikulam Tank		Government	8 95	6 7 6	8 95	2 2 6	2 2 6				
				Total of Sub-Group.	8 95	6 7 6	8 95	2 2 6	2 2 6				
Vyravan Anicut Channel.	26	Ottukkulam Tank	25	Government Dry brought in	30 31 134 77	122 0 1 646 15 3	30 31 134 77	28 6 11 123 5 6	52 14 6 306 10 0				
				Total	165 08	768 15 4	165 08	151 12 5	359 8 6				
	27	Tamaraikulam Tank		Government Dry brought in	281 88	1,313 8 5	281 88	261 14 6	613 12 6				
				Inam Free	2 20	17 7 0	2 20	3 13 3	8 6 0				
				Do. Charged	31 33		31 33						
				Do. Dry brought in	2 40	2 0 0	2 40	0 7 1	0 14 3				
					2 35	15 4 5	2 35		7 10 2				
				Total	320 16	1,348 3 10	320 16	266 2 10	630 10 11				
	28	Mannankulam Tank		Government	4 11	9 6 2	4 11	3 9 6	2 5 2				
				Total	4 11	9 6 2	4 11	3 9 6	2 5 2				
China Vaikkal.	29	Maittalai Mannadi Kulam Tank.		Government Dry brought in	247 48	612 5 10	247 48	260 14 5	147 5 8				
				Inam Charged	11 68	43 14 9	11 68	12 0 8	17 3 9				
					23 36	55 12 3	23 36		11 5 6				
				Total	282 52	712 0 10	282 52	272 15 1	175 14 11				
				Total of Sub-Group.	771 87	2,838 10 2	771 87	694 7 10	1,168 7 6				
China Vaikkal.	30	Ottu Vaikkal		Government Dry brought in	90 74	415 2 0	90 74	105 8 11	171 3 1				
				Inam Free	5 67	24 9 2	5 67	7 2 10	9 14 6				
				Inam Charged	3 20		3 20						
					3 25	2 0 0	3 25	0 7 1	0 14 3				
			Total	102 86	441 11 2	102 86	113 2 10	181 15 10					

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
179 20 0 07	185 5 8 0 2 1	250 4 3 0 1 7	305 12 9 0 6 4	556 1 0 0 7 11	...	...	...	...	...
179 27	185 7 9	250 5 10	306 3 1	556 8 11	...	...	...	...	...
26 71	37 4 5	38 8 7	73 4 8	111 13 3	...	...	...	...	...
0 51 4 99	0 13 8 5 6 7	0 13 1 7 3 4	1 12 1 10 13 3	2 9 2 18 0 7	...	...	...	...	...
32 21	43 8 8	46 9 0	85 14 0	132 7 0	...	...	...	...	...
43 61	55 2 8	62 14 8	102 9 2	165 7 10	...	...	...	...	...
43 61	55 2 8	62 14 8	102 9 2	165 7 10	...	...	...	...	...
6 63	7 15 10	9 9 0	14 6 5	23 15 5	...	...	...	...	...
388 11	434 12 2	517 7 10	789 4 3	1,306 12 1	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
8 95	2 2 6	2 2 6	4 5 0	6 7 6	...	...	...	...	...
8 95	2 2 6	2 2 6	4 5 0	6 7 6	...	...	...	...	...
30 31 134 77	40 10 8 216 15 9	28 6 11 123 5 6	93 9 2 523 9 9	122 0 1 646 15 3	...	...	...	...	...
165 08	257 10 5	151 12 5	617 2 11	768 15 4	...	...	...	...	...
281 88 2 20 31 33	437 13 5 5 3 9	261 14 6 3 13 3	1,051 9 11 13 9 9	1,313 8 5 17 7 0	...	...	...	...	...
2 40 2 35	0 10 8 5 1 6	0 7 1	1 8 11 12 11 8	2 0 0 12 11 8	...	...	...	...	...
320 16	448 13 4	266 2 10	1,079 8 3	1,345 11 1	...	...	...	...	...
4 11	3 7 10	3 9 6	5 13 0	9 6 6	...	...	...	...	...
4 11	3 7 10	3 9 6	5 13 0	9 6 6	...	...	...	...	...
247 48 11 68 23 36	204 1 9 14 10 4 17 14 7	260 14 5 12 0 8	351 7 5 31 14 1 29 4 1	612 5 10 43 14 9 29 4 1	...	...	...	...	...
282 52	236 10 8	272 15 1	412 9 7	685 8 8	...	...	...	...	...
771 87	946 10 3	694 7 10	2,115 1 9	2,809 9 7	...	...	...	...	...
90 74 5 67 3 20 3 25	138 6 0 7 7 10	105 8 11 7 2 10	309 9 1 17 6 4	415 2 0 24 9 2	...	...	...	...	...
102 86	146 8 6	113 2 0	328 8 4	441 11 2	...	...	...	...	...

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.			No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.		Proposed		
Group.	Sub-Group.	Name and Description of Irrigation work.			Net Revenue due to Irrigation including working expenses 15-21.	Do. per Acre Irrigated 22+9.	Increase over present extent of Irrigation in column 9.	Land and/or wet cultivation.	Ultimate extent of Irrigation.
	No. in Group or Isolated Work.				22	23	24	25	26
					Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
SURULI NADDI GROUP.	Kuthannachiyur Stream.	20 Kesarnapuram Kulam Tank.	24	Government Dry brought in	305 12 9 0 6 4	1 11 4 5 10 6	14-80	..	194-00 0-07
				Total	306 3 1	1 11 4	14-80	..	194-07
		21 Sevakkulam Tank		Government Kudi-varam.	73 4 8	2 11 10	..	..	26-71
				Dry brought in	1 12 1	3 7 0	..	..	0-51
				Inam Charged	10 13 3	2 2 9	..	..	4-99
	Seganadikulam Tank.	22 Pallan Kulam Tank		Government	102 9 2	2 5 10	..	..	43-61
				Total	102 9 2	2 5 10	..	..	43-61
		23 Tamarai Kulam Tank		Government	14 6 5	2 2 9	..	..	6-63
				Total of Sub-Group.	789 4 3	2 0 6	26-26	..	414-37
	Seganadikulam Tank.	24 Kadamankulam Tank	25	Government	..	..	13-00	..	13-00
				Total	..	..	13-00	..	13-00
	Vyravan Anicut Channel.	25 Seganadikulam Tank		Government	4 5 0	0 7 8	7-85	..	16-80
				Total of Sub-Group.	4 5 0	0 7 8	20-85	..	29-80
		26 Ottukkulam Tank	25	Government Dry brought in	92 9 2 523 9 9	3 1 5 3 14 11	80-00	..	110-31 134-77
				Total	617 2 11	3 11 10	80-00	..	245-08
		27 Tamaraikulam Tank		Government	1,051 9 11	3 11 8	160-00	..	441-88
				Dry brought in	13 9 9	6 3 0	..	..	2-20
				Inam Free	..	..	..	..	31-33
				Do. Charged	1 8 11	0 10 4	..	..	2-40
				Do. Dry brought in	12 11 8	5 6 8	45-80	..	48-15
				Total	1,079 8 3	3 5 11	205-80	..	525-96
	Chinna Vaikkal.	28 Mannankulam Tank		Government	5 13 0	1 6 7	33-53	..	37-64
				Total	5 13 0	1 6 7	33-53	..	37-64
		29 Maittalai Mannadi Kulam Tank.		Government	351 7 5	1 6 8	31-79	..	279-27
				Dry brought in	31 14 1	2 11 8	..	..	11-68
	Chinna Vaikkal.			Inam Charged	29 4 1	1 4 0	16-25	..	39-61
				Total	412 9 7	1 7 4	48-04	..	330-56
				Total of Sub-Group.	2,115 1 9	2 11 10	367-37	..	1,139-24
		30 Ottu Vaikkal		Government	309 9 1	3 6 7	5-35	..	96-09
				Dry brought in	17 6 4	3 1 1	..	..	5-67
				Inam Free	..	..	..	..	3-20
				Inam Charged	1 8 11	0 7 11	..	..	3-25
				Total	328 8 4	3 3 0	5-35	..	108-21

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATE OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27 — 22.	Original.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 × 100 ÷ 27.	Expected increase of Revenue percentage of outlay 28 × 100 ÷ 31.		
27	28	29	30	31	32	33		
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.		
331 1 3 0 6 4	25 4 6	...	...	...	...	...	Increase in cultivation is due to the improvements of the tank.	
331 7 7	25 4 6	...	930 0 0	930 0 0	280-56	2-71		
73 4 8	...	...	...	...	...	...		
1 12 1 10 13 3	...	...	...	...	...	...		
85 14 0	...	265 0 0	430 0 0	695 0 0	809-31	...		
102 9 2	...	...	...	...	...	...		
102 9 2	...	282 0 0	180 0 0	462 0 0	450-41	...		
14 6 5	...	...	262 0 0	262 0 0	1,819-31	...		
838 8 8	49 4 5	547 0 0	2,087 0 0	2,634 0 0	313-94	1-86		
25 0 0	25 0 0	...	...	...	...	...		
25 0 0	25 0 0	464 0 0	703 0 0	1,167 0 0	4,668	2-14	Do. do.	
26 0 0	21 11 0	494 0 0	173 0 0	667 0 0	2,565-38	3-25	Do. do.	
51 0 0	46 11 0	958 0 0	876 0 0	1,834 0 0	3,596-07	2-56		
340 10 6 523 9 9	247 1 4	...	...	...	...	...	Increase in cultivation is due to the Anicut and Channel being put in order and the supply increased.	
864 4 3	247 1 4	...	3,845 0 0	3,845 0 0	444-88	6-42		
1,648 4 7 13 9 9	596 10 8	...	...	...	...	...		
...	...	...	...	...	...	...		
1 8 11 260 13 0	248 1 4	...	...	...	...	...		
1,924 4 3	844 12 0	440 0 0	505 0 0	945 0 0	49-10	89-36		Do. do.
59 2 3	53 5 3	...	...	...	...	...		
59 2 3	53 5 3	...	148 0 0	148 0 0	250-25	36-03	Do. do.	
396 7 10 31 14 1 49 9 1	45 0 5 ... 20 5 0	...	...	...	...	...		
477 15 0	65 5 5	540 0 0	1,047 0 0	1,587 0 0	332-05	4-11	Do. do.	
3,325 9 9	1,210 8 0	980 0 0	5,545 0 0	6,525 0 0	196-18	...		
327 13 3 17 6 4	18 4 2	...	...	...	...	...	Increase in cultivation is due to the improvements of the work.	
...	...	...	...	...	...	...		
1 8 11	...	...	...	...	...	...		
346 12 6	18 4 2	...	...	...	...	...		

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayacut.	Do. Full Assessment on Land and Water.	AVERAGE CUL.				
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.					First crop.				
								Extent.	Assessment.			
									Land.	Water.		
1	2	3	4	5	6	7	8	9	10	11		
SURULI NADDI GROUP.	Sinna Vaikkal.	31	Sinna Vaikkal	25	Government	600-36	3,081 6 11	568-94	768 7 6	1,279 10 2		
				24	Dry brought in	1-95	10 0 7	1-95	2 8 8	4 2 6		
				24	Inam Free	26-68		26-68				
					Do. Charged	4-38	2 4 0	4-38	0 8 0	1 0 0		
					Total	633-37	3,093 11 6	601-95	771 8 2	1,284 12 8		
		32	Periyakulam Tank		Government	62-20	333 12 2	62-20	89 6 6	133 1 7		
					Dry brought in	0-29	0 15 3	0-29	0 4 1	0 6 1		
					Inam Free	11-78		11-78				
					Do. Charged	5-51	3 6 0	5-51	0 12 0	1 8 0		
					Total	79-58	338 1 5	79-58	90 6 7	134 15 8		
		33	Odappadikulam Tank		Government	71-31	386 2 7	71-31	102 8 0	154 14 11		
					Total	71-31	386 2 7	71-31	102 8 0	154 14 11		
		34	Ottukkulam Tank		Government	40-74	220 10 8	40-74	58 8 3	88 9 6		
					Dry brought in	0-17	1 0 0	0-17	0 3 2	0 7 6		
				Total	40-91	221 10 8	40-91	58 11 5	89 1 0			
	35	Verappanaikkankulam Tank.		Government	172-35	934 9 0	172-25	247 7 0	375 3 11			
				Inam Free	0-26		0-26					
				Total	172-61	934 9 0	172-51	247 7 0	375 3 11			
	36	Kattathi Amman kulam Tank.		Government	9-18	29 13 3	9-18	12 14 3	6 15 11			
				Total	9-18	29 13 3	9-18	12 14 3	6 15 11			
	37	Tena Samudram Tank.		Government	1-56	5 1 2	1-56	2 2 9	1 3 4			
				Total of Sub-Group	1,111-38	5,450 12 9	1,079-86	1,398 13 0	2,229 3 3			
Uttamut Anicut Channel.	28	Uttamut Anicut Channel.	24	Government	1,774-74	10,324 6 9	1,745-20	2,131 13 9	4,694 9 5			
				Dry brought in	1-09	5 3 4	1-09	2 2 4	1 10 3			
				Inam Free	164-73		164-73					
				Do. Charged	12-80	11 14 0	12-80	2 10 3	5 4 5			
				Total	1,953-36	10,341 8 1	1,923-82	2,136 10 4	4,701 8 0			
			39	Kuppu Chetti kulam Tank.	20	Government	427-76	1,844 14 9	426-09	442 3 11	786 0 5	
				Dry brought in	0-11	0 11 0	0-11	0 1 3	0 6 1			
				Inam Free	11-54		11-54					
		Total	439-41	1,845 9 9	438-34	442 5 2	786 6 6					
	40	Pudukkulam Tank		Government	43-01	143 14 4	43-01	44 9 3	51 5 8			
		Dry brought in	0-03	0 2 10	0-03	0 0 8	0 1 3					
		Inam Free	1-12		1-12							
	Total	44-16	144 1 2	44-16	44 9 11	51 6 11						
41	Sattanikulam Tank		Government	62-90	210 14 10	62-18	64 7 2	75 3 9				
	Inam Free	1-08		1-08								
	Total	63-98	210 14 10	63-26	64 7 2	75 3 9						
	Total of Sub-Group	2,500-91	12,542 1 10	2,469-58	2,688 0 7	5,614 9 2						

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
568-94	1,024 0 11	768 7 6	2,308 11 1	3,072 2 7	...	...	...	...	...
1-95	3 5 5	2 8 8	7 7 11	10 0 7	...	...	...	...	...
26-68	...	...	...	...	...	...	...	...	...
4-38	0 12 0	0 8 0	1 12 0	2 4 0	...	...	...	...	...
601-95	1,028 2 4	771 8 2	2,312 15 0	3,084 7 2	...	...	...	...	...
62-20	111 4 1	89 6 6	244 5 8	333 12 2	...	...	...	...	...
0-29	0 5 1	0 4 1	0 11 2	0 15 3	...	...	...	...	...
11-78	...	...	...	...	...	...	...	...	...
5-31	1 2 0	0 12 0	2 10 0	3 6 0	...	...	...	...	...
79-58	112 11 2	90 6 7	247 10 10	338 1 5	...	...	...	...	...
71-31	128 11 8	102 8 0	283 10 7	386 2 7	...	...	...	...	...
71-31	128 11 8	102 8 0	283 10 7	386 2 7	...	...	...	...	...
40-74	73 8 11	58 8 3	162 2 5	220 10 8	...	...	...	...	...
0-17	0 5 4	0 3 2	0 12 10	1 0 0	...	...	...	...	...
40-91	73 14 3	58 11 5	162 15 3	221 10 8	...	...	...	...	...
172-25	311 5 6	247 7 0	686 9 5	934 0 5	...	...	...	...	...
0-26	...	...	...	...	...	...	...	...	...
172-51	311 5 6	247 7 0	686 9 5	934 0 5	...	...	...	...	...
9-18	9 15 1	12 14 3	16 15 0	29 13 3	...	...	...	...	...
9-18	9 15 1	12 14 3	16 15 0	29 13 3	...	20 1 10	...	...	20 1 10
1-56	1 11 1	2 2 9	2 14 5	5 1 2	...	4 0 11	...	...	4 0 11
1,079-86	1,812 15 7	1,398 13 0	4,042 2 10	5,440 15 10	...	24 2 9	...	...	24 2 9
1,745-20	3,413 3 8	2,131 13 9	8,107 13 1	10,239 10 10	...	...	...	...	...
1-09	1 6 10	2 2 4	3 1 0	5 3 4	...	...	...	...	...
164-73	...	...	...	...	...	...	...	...	...
12-80	3 15 4	2 10 3	9 3 9	11 14 0	...	...	...	...	...
1,923-82	3,418 9 10	2,136 10 4	8,120 1 10	10,256 12 2	...	...	...	...	...
426-69	614 2 2	442 3 11	1,400 2 7	1,842 6 6	...	...	...	...	...
0-11	0 3 8	0 1 3	0 9 9	0 11 0	...	...	...	...	...
11-54	...	...	...	...	...	...	...	...	...
438-34	614 5 10	442 5 2	1,400 12 4	1,843 1 6	...	...	...	...	...
43-01	47 15 5	44 9 3	99 5 1	143 14 4	...	...	...	...	...
0-03	0 0 11	0 0 8	0 2 2	0 2 10	...	...	...	...	...
1-12	...	...	...	...	...	...	...	...	...
44-16	48 0 4	44 9 11	99 7 3	144 1 2	...	...	...	...	...
62-18	69 13 5	64 7 2	145 1 2	209 8 4	...	...	...	...	...
1-08	...	...	...	...	...	...	...	...	...
63-26	69 13 5	64 7 2	145 1 2	209 8 4	...	...	...	...	...
2,469-58	4,150 13 5	2,688 0 7	9,765 6 7	12,453 7 2	...	...	...	...	...

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.		PROPOSED				
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	No. in District Irrigation Register.	Items of Irrigation whether Govern- ment, Zemindari, or Inam.	Net Revenue due to Irriga- tion including work- ing expenses 15 21.	Do. per Acre Irrigated 22+9.	Increase over present ex- tent of Irrigation in column 9.	Land unfit for wet culti- vation.	Ultimate extent of Irri- gation.
						22	23	24	25	26
						Ra. A. P.	Ra. A. P.	Acres.	Acres.	Acres.
SURULI NADDI GROUP.	Sinna Vaikkal.	31	Sinna Vaikkal	25	Government	2,303 11 1	4 0 9	35-27		604-21
			24	Dry brought in	7 7 11	3 15 2			1-95	
			24	Inam Free					28-68	
				Do. Charged	1 12 0	0 6 5			4-38	
				Total	2,312 15 0	3 13 6	35-27		637-22	
		32	Periyakulam Tank		Government	244 5 8	3 14 10	0-59		62-79
				Dry brought in	0 11 2	2 6 6			0-29	
			Inam Free					11-78		
			Do. Charged	2 10 0	0 7 11			5-31		
			Total	247 10 10	3 1 10	0-59		80-17		
	33	Odlappadikulam Tank		Government	283 10 7	3 15 8			71-31	
			Total	283 10 7	3 15 8			71-31		
34	Ottukkulam Tank		Government	162 2 5	3 15 7			40-74		
		Dry brought in	0 12 10	7 11 6			0-17			
		Total	162 15 3	3 15 9			40-91			
35	Verappanaikkan Kulam Tank.		Government	686 9 5	3 15 10	0-50		172-75		
		Inam Free						0-26		
		Total	686 9 5	3 15 8	0-50			173-01		
36	Kattathiammen Kulam Tank.		Government					9-18		
		Total						9-18		
37	Yenasamudram Tank		Government					1-56		
		Total of Sub-Group.	4,022 5 5		41-71			1,121-37		
Uttamut Anicut Channel.	38	Uttamut Anicut Chan- nel.	24	Government	8,107 13 1	4 10 4	1-74		1,746-94	
			Dry brought in	3 1 0	2 12 11			1-09		
			Inam Free					164-73		
			Do. Charged	9 3 9	0 11 7			12-80		
			Total	8,120 1 10	4 3 6	1-74		1,925-66		
	39	Kuppu Chetti Kulam Tank.	20	Government	1,400 2 7	3 4 6			426-69	
			Dry brought in	0 9 9	5 8 8			0-11		
		Inam Free					11-54			
		Total	1,400 12 4	3 3 1			438-34			
40	Padakkulam Tank		Government	99 5 1	2 4 11			43-01		
		Dry brought in	0 2 2	4 8 3			0-03			
		Inam Free					1-12			
		Total	99 7 3	2 4 0			44-16			
41	Sattankulam Tank		Government	145 1 2	2 5 4			62-18		
		Inam Free						1-08		
		Total	145 1 2	2 3 1			63-26			
		Total of Sub-Group.	9,765 6 7	3 15 3	1-74			2,471-32		

* The difference, Rs. 4-5-4 is due to the excess of remissions given in Col. 18 of works Nos. 36 & 37.

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27-22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 x 100 + 27.	Expected increase of Revenue percentage of outlay 28 x 100 + 31.		
27	28	29	30	31	32	33	34	
Ra. A. P.	Ra. A. P.	Ra. A. P.	Ra. A. P.	Ra. A. P.	Per cent.	Per cent.		
2,446 6 10 7 7 11 1 12 0	142 11 9	...	...	...	...	...		
2,455 10 9	142 11 9	2,032 0 0	1,095 0 0	3,127 0 0	127-85	4-24	Increase in cultivation is due to the Channel having been repaired.	
246 10 9 0 11 2 2 10 0	2 5 1	...	...	...	...	...		
249 15 11	2 5 1	...	595 0 0	595 0 0	238-00	38		
283 10 7	...	...	...	...	...	...		
283 10 7	...	365 0 0	365 0 0	128-67	...	...		
162 2 5 0 12 10	...	...	...	...	...	...		
162 15 3	...	240 0 0	240 0 0	147-28	...	...		
688 9 4	1 15 11	...	...	...	...	...		
688 9 4	1 15 11	375 0 0	1,150 0 0	1,525 0 0	221-46	13		
16 15 0	16 15 0	...	...	...	...	...		
16 15 0	16 15 0	...	...	...	...	...		
2 14 5	2 14 5	...	...	...	...	...		
4,207 7 9	185 2 4	2,407 0 0	3,445 0 0	5,852 0 0	139-10	3-16		
8,115 14 5 3 1 0 9 3 9	8 1 4	...	...	...	...	...		
8,128 3 2	8 1 4	2,540 0 0	6,041 0 0	8,581 0 0	105-57	09		
1,400 2 7 0 9 9	...	...	...	...	...	...		
1,400 12 4	...	205 0 0	910 0 0	1,115 0 0	79-59	...		
99 5 1 0 2 2	...	...	...	...	...	...		
99 7 3	...	470 0 0	470 0 0	472-58	...	...		
145 1 2	...	...	...	...	...	...		
145 1 2	...	225 0 0	225 0 0	155-09	...	...		
9,773 7 11	8 1 4	2,745 0 0	7,646 0 0	10,391 0 0	106-32	07		

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					No. In District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayacut.	Full Assessment on Do. Land and Water.	AVERAGE CUL.					
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	First crop.										
				Extent.					Assessment.					
									Land.	Water.				
1	2	3	4	5	6	7	8	9	10	11				
SURULI NADDI GROUP.														
Maukani Cottah Anicut Channel.	42		Maukani Cottah Anicut Channel.	21	Government	350-63	1,446 5 2	356-63	339 9 11	624 9 8				
					Dry brought in	10-61	27 1 6	10-61	9 0 2	9 0 10				
					Inam Free	19-72		19-72						
					Do. Charged	3-23	2 12 0	3-23	0 9 9	1 3 7				
					Do. Dry brought in	0-59	2 1 11	0-59	1 4 4	0 2 3				
					Total	390-78	1,478 4 7	390-78	350 8 2	635 0 4				
	43		Sundakha Kulam Tank.		Government	92-42	224 12 2	92-21	76 6 3	54 6 3				
					Inam Free	4-87		4-87						
					Total	97-29	224 12 2	87-04	76 6 3	54 6 3				
	44		Senkulam Tank		Government	74-24	161 0 0	74-24	70 11 5	36 9 11				
45		Kanakkapillai Kulam Tank.		Government	2-35	3 6 5	2-35	1 2 2	1 2 1					
46		Pudukkulam Tank	41	Government	2-47	5 12 6	2-47	2 3 7	1 10 1					
				Total of Sub-Group.	567-13	1,873 3 8	556-92	500 15 7	728 12 8					
Kuchanur Anicut Channel.	47		Kuchanur Anicut Channel.	6	Zemindary	488-46	2,097 7 7	488-46	408 1 1	990 4 0				
					Inam Free	34-09		34-09						
					Do. Charged	9-61	8 8 1	9-61	2 13 4	2 13 4				
				Total of Sub-Group.	532-16	2,105 15 8	532-16	410 14 5	993 1 4					
Kulayanur Anicut Channel.	48		Kulayanur Anicut Channel.	30	Government	91-75	271 9 0	77-82	87 7 4	42 14 1				
					Dry brought in	6-02	18 8 10	6-02	7 13 8	4 8 2				
					Inam Free	10-10		10-10						
					Do. Charged	2-89	2 6 3	2-89	0 13 0	0 12 6				
					Total	110-76	292 8 1	96-83	96 2 0	48 2 9				
	49		Karuvellankulam Tank.		Government	95-46	358 3 4	81-74	90 13 4	105 9 7				
					Inam Free	13-53		13-53						
					Do. Charged	1-56	1 10 0	1-56	0 5 9	0 11 7				
					Total	110-55	359 13 4	96-83	91 5 1	106 5 2				
					Total of Sub-Group.	221-31	652 5 5	193-66	187 7 1	154 7 11				
Uppucottah Anicut Channel.	50		Uppucottah Anicut Channel.		Zemindary	232-70	978 0 8	232-70	173 3 11	471 7 4				
					Inam Free	5-29		5-29						
					Do. Charged	1-18	0 12 8	1-18	0 4 3	0 4 3				
				Total	239-17	978 13 4	239-17	173 8 2	471 11 7					
51		Podendrapuram Kulam Tank.		Zemindary	23-82	42 1 6	23-82	8 6 8	19 3 8					
				Total of Sub-Group.	262-99	1,020 14 10	262-99	181 14 10	480 15 3					
Chattrapatti Anicut Channel.	52		Chattrapatti Anicut Channel.	32	Government	87-37	233 9 1	84-38	85 2 5	65 8 2				
					Dry brought in	0-03	0 2 2	0-03	0 0 8	0 1 0				
					Total	87-40	233 11 3	84-41	85 3 1	65 9 2				
53		Kannimarkulam Tank.		Government	21-70	47 3 4	21-70	19 9 2	11 14 4					
				Total of Sub-Group.	109-10	280 14 7	106-11	104 12 3	77 7 6					
Palaniyappen Anicut Channel.	54		Palaniyappen Setti Anicut Channel.		Government	104-35	301 12 4	104-35	83 2 6	118 0 5				
					Total for the whole Group.	12,360-82	49,104 9 8	12,009-58	12,679 11 0	19,686 14 5				

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
356 63	482 1 7	339 9 11	1,106 11 3	1,446 5 2	...	...	...	...	...
10 61	9 0 6	9 0 2	18 1 4	27 1 6	...	...	...	...	...
19 72	...	...	...	...	...	...	...	...	...
3 23	0 14 8	0 9 9	2 2 3	2 12 0	...	...	...	...	...
0 59	0 11 4	1 4 4	0 13 7	2 1 11	...	...	...	...	...
390 78	492 12 1	350 8 2	1,127 12 5	1,478 4 7	...	...	...	...	...
82 21	65 6 4	76 6 3	119 12 7	196 2 10	...	...	2 96	6 14 6	6 14 6
4 87	...	...	...	...	...	...	...	...	...
87 08	65 6 4	76 6 3	119 12 7	196 2 10	...	...	2 96	6 14 6	6 14 6
74 24	53 10 8	70 11 5	90 4 7	161 0 0	...	...	21 77	47 3 3	47 3 3
2 35	1 2 2	1 2 2	2 4 3	3 6 5	...	...	...	...	...
2 47	1 14 10	2 3 7	3 8 11	5 12 6	...	...	0 38	0 13 1	0 13 1
556 92	614 14 1	500 15 7	1,343 10 9	1,844 10 4	...	...	25 11	54 14 10	54 14 10
488 46	699 2 6	408 1 1	1,689 6 6	2,097 7 7	...	15 1 2	...	...	15 1 2
34 09	...	...	...	...	...	...	...	...	...
9 61	2 13 4	2 13 4	5 10 8	8 8 0	...	...	...	...	...
532 16	701 15 10	410 14 5	1,695 1 2	2,105 15 7	...	15 1 2	...	...	15 1 2
77 82	65 2 8	87 7 4	108 0 9	195 8 1	...	...	...	...	...
6 02	6 3 0	7 13 8	10 11 2	18 8 10	...	...	...	...	...
10 10	...	...	...	...	...	...	...	...	...
2 89	0 12 9	0 13 0	1 9 3	2 6 3	...	...	...	...	...
96 83	72 2 5	96 2 0	120 5 2	216 7 2	...	...	...	...	...
81 74	98 4 5	90 15 4	203 14 0	294 13 4	...	...	...	...	...
13 53	...	...	...	...	...	...	...	...	...
1 56	0 8 8	0 5 9	1 4 3	1 10 0	...	...	...	...	...
96 83	98 13 1	91 5 1	205 2 3	296 7 4	...	...	...	...	...
193 66	170 15 6	187 7 1	325 7 5	512 14 6	...	...	...	...	...
232 70	333 5 5	173 3 11	804 12 9	978 0 8	...	...	...	...	...
5 29	...	...	...	...	...	...	...	...	...
1 18	0 4 2	0 4 3	0 8 5	0 12 8	...	...	...	...	...
239 17	333 9 7	173 8 2	805 5 2	978 13 4	...	...	...	...	...
23 82	14 7 2	8 6 8	33 10 10	42 1 6	...	...	...	...	...
262 99	348 0 9	181 14 10	839 0 0	1,020 14 10	...	...	...	...	...
84 38	75 5 3	85 2 5	140 13 5	225 15 10	...	...	35 73	93 7 7	93 7 7
0 03	0 0 6	0 0 8	0 1 6	0 2 2	...	...	...	...	...
84 41	75 5 9	85 3 1	140 14 11	226 2 0	...	...	35 73	93 7 7	93 7 7
21 70	15 11 9	19 9 2	27 10 1	47 3 3	...	...	8 30	18 0 1	18 0 1
106 11	91 1 6	104 12 3	168 9 0	273 5 3	...	...	44 03	111 7 8	111 7 8
104 35	100 9 5	83 2 6	218 9 10	301 12 4	...	...	...	...	...
11,924 47	16,092 4 6	12,679 11 0	35,779 2 11	48,458 13 11	...	39 3 11	198 81	556 14 5	596 2 4

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.					PROPOSED
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	Items of Irrigation whether Government, Zemindari, or Inam.	Net Revenue due to Irrigation including working expenses 15-21.	Do. per Acre Irrigated 22 + 9.	Increase over present extent of Irrigation in column 9.	Land unfit for wet cultivation.	Ultimate extent of Irrigation.
					Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
SURULI NADDI GROUP.	Maukani Cottah Anicut Channel.	42	Maukani Cottah Anicut Channel.	Government	1,106 11 3	3 1 8			356 63
				Dry brought in Inam Free	18 1 4	1 11 3			10 61
				Do. Charged	2 2 3	0 11 7			19 72
				Do. Dry brought in.	0 13 7	1 6 8			3 23
				Total	1,127 12 5	2 14 2			390 78
		43	Sundakha Kulam Tank.	Government	112 14 1	1 7 4			82 21
				Inam Free					4 87
				Total	112 14 1	1 6 0			87 08
	44	Senkulam Tank	Government		43 1 4	1 3 5			74 24
	45	Kanakkapillai Kulam Tank	Government		2 4 3	0 15 5	4 65		7 00
	46	Pudukkulam Tank	Government		2 11 10	1 1 9	7 53		10 00
			Total of Sub-Group.		1,288 11 11		12 18		569 10
	Kuchanur Anicut Channel.	47	Kuchanur Anicut Channel.	Zemindary	1,674 5 4	3 6 11			488 46
				Inam Free					34 08
				Do. Charged	5 10 8	0 9 5			9 61
				Total of Sub-Group.	1,680 0 0	3 2 6			532 16
	Kulayanur Anicut Channel.	48	Kulayanur Anicut Channel.	Government	108 0 9	1 6 3			77 82
				Dry brought in Inam Free	10 11 2	1 12 5			6 02
				Do. Charged	1 9 3	0 8 4			10 10
				Total	120 5 2	1 3 1			96 83
	Karvelankulam Tank.	49	Karvelankulam Tank.	Government	203 14 0	2 7 10	43 56		125 30
				Inam Free					13 53
				Do. Charged	1 4 3	0 13 0			1 56
			Total		205 2 3	2 1 10	43 56		140 39
			Total of Sub-Group.		325 7 5	1 10 10	43 56		237 22
	Uppucottah Anicut Channel.	50	Uppucottah Anicut Channel.	Zemindary	804 12 9	3 7 4			232 70
				Inam Free					5 29
				Do. Charged	0 8 5	0 7 2			1 18
				Total	805 5 2	3 5 10			239 17
	Podendrapuram Kulam Tank.	51	Podendrapuram Kulam Tank.	Zemindary	33 10 10	1 6 7			23 82
				Total of Sub-Group.	839 0 0	3 3 0			262 19
Chattrapatti Anicut Channel.	52	Chattrapatti Anicut Channel.	Government		47 5 10	0 9 0			84 38
			Dry brought in		0 1 6	3 2 0			0 03
			Total		47 7 4	0 9 0			84 41
		53	Kannimarkulam Tank.	Government	9 10 0	0 7 1			21 70
Palaniyappen Setti Anicut Channel.	54	Palaniyappen Setti Anicut Channel.	Government		57 1 4	0 8 7			106 11
			Total for the whole Group.		35,192 10 5	2 14 10	624 08		12,633 66

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27-22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 x 100 + 27.	Expected increase of Revenue percentage of outlay 28 x 100 + 31.		
27	28	29	30	31	32	33	34	
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.		
1,106 11 3	...	...	...	...	...	...		
18 1 4	...	...	...	...	...	...		
2 2 3	...	...	...	...	...	...		
0 13 7	...	...	...	...	...	...		
1,127 12 5	...	...	1,106 0 0	1,106 0 0	98 06	...		
119 12 7	6 14 6	...	...	...	...	...		The cause of remission was due to the breaches in the tank bund, which have been attended to.
119 12 7	6 14 6	413 0 0	633 0 0	1,046 0 0	873 22	66		Do. do.
90 4 7	47 3 3	543 0 0	1,090 0 0	1,633 0 0	1,808 68	2 87		Increase in cultivation is due to the improvements of the tank.
6 11 11	4 7 8	50 0 0	420 0 0	470 0 0	6,968 34	95		Do. do.
11 14 6	9 2 8	25 0 0	487 0 0	512 0 0	4,300 26	1 63		The cause of remission was due to the Anicut having been out of order; measures have been adopted to remedy this by repairing the Anicut, &c.
1,356 8 0	67 12 1	1,031 0 0	3,736 0 0	4,767 0 0	351 28	1 42		
1,689 6 6	15 1 2	...	...	...	...	...		
5 10 8	...	...	...	...	...	...		
1,695 1 2	15 1 2	...	3,125 0 0	3,125 0 0	184 35	48		
108 0 9	...	...	...	...	...	...		
10 11 2	...	...	...	...	...	...		
1 9 3	...	...	...	...	...	...		
120 5 2	...	...	1,880 0 0	1,880 0 0	1,562 46	...		
312 3 11	108 5 11	...	...	...	...	...		
1 4 3	...	...	...	...	...	...		
313 8 2	108 5 11	252 0 0	735 0 0	987 0 0	314 82	10 97		Increase in cultivation is due to the improvements of the tank.
433 13 4	108 5 11	252 0 0	2,615 0 0	2,867 0 0	660 59	3 76		
804 12 9	...	...	...	...	...	...		
0 8 5	...	...	...	...	...	...		
805 5 2	...	...	...	...	...	...		
33 10 10	...	...	...	...	...	...		
839 0 0	...	...	...	...	...	...		
140 13 5	93 7 7	...	...	...	...	...		
0 1 6	...	...	...	...	...	...		
140 14 11	93 7 7	...	611 0 0	611 0 0	433 54	15 22		The cause of remission was due to insufficiency of water in the channel; measures have been adopted to remedy this by repairing the Anicut and Channel.
27 10 1	18 0 1	280 0 0	434 0 0	714 0 0	2,584 12	2 52		Do. do.
168 9 0	111 7 8	280 0 0	1,045 0 0	1,325 0 0	784 02	8 37		
218 9 10	...	...	...	...	...	...		
37,746 0 3	2,553 5 10	61,290 0 0	69,352 0 0	1,30,642 0 0	346 10	1 95		

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayscut.	Full Assessment on Do. Land and Water.	AVERAGE CUL.		
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	First crop.							
				Extent.					Assessment.		
									Land.	Water.	
1	2	3	4	5	6	7	8	9	10	11	
SUTTA GANGAI GROUP.	Dombachikulam Tank.	1	Dombachikulam Tank...	1	Zemindary	69-93	181 14 1	69-93	70 10 6	50 9 6	
		2	Vannankulam Tank		Zemindary	2-73	4 6 2	2-73	1 3 7	1 11 1	
		3	Nagamalai Kudumbankulam Tank.		Zemindary	3-02	6 8 4	3-02	3 1 0	1 4 7	
		4	Posikadiya Gavundankulam Tank.		Zemindary	11-7	25 9 8	11-07	11 2 10	5 14 3	
		5	Sinna Gavundankulam Tank.		Zemindary	17-85	47 12 4	17-85	18 0 7	13 13 0	
			Total of Sub-Group.			104-00	266 2 7	104-00	104 2 6	73 4 5	
	Gavundankulam.	6	Gavundankulam Tank...	2	Zemindary	9-73	31 9 11	9-73	10 8 5	10 8 10	
		7	Ammakulam Tank		Zemindary	19-07	96 15 8	19-07	20 9 11	44 0 7	
		8	Sokkalingankulam Tank.	5	Zemindary	0-05	0 1 9	0-05	0 0 9	0 0 5	
		9	Kumaravelnadenkulam Tank.		Zemindary	0-86	3 9 9	0-86	0 15 0	1 7 6	
		10	Arasamarattukulam Tank.		Zemindary	18-71	34 11 7	18-71	17 1 8	6 0 9	
		11	Nalluppillaikulam Tank.		Zemindary	15-20	27 7 1	15-20	13 11 6	4 9 2	
		12	Kottaikulam Tank		Zemindary	4-40	10 11 2	4-40	5 5 1	1 13 0	
		13	Karasalkulam Tank		Zemindary	3-82	6 14 4	3-82	3 7 2	1 2 5	
		Total of Sub-Group.			71-90	212 1 3	71-90	71 11 6	69 10 8		
	Sakkaya Gavundan.	14	Sakkaya Gavundankulam Tank.	40	Government	16-3	55 15 5	13-86	15 6 0	15 14 6	
		15	Kullamachankulam Tank.		Government	56-40	157 14 1	18-55	20 9 3	21 7 3	
		16	Pudukkulam Tank		Government	171-87	585 4 3	159-76	185 8 11	181 14 0	
		17	Tadankulam		Government	40-90	142 9 5	39-92	42 1 7	45 7 2	
		Total of Sub-Group.			285-47	941 11 2	232-09	203 9 9	264 10 11		
	Kamachi Kulam.	18	Kamachikulam Tank	40	Government	28-07	73 4 8	15-00	16 10 3	8 10 1	
		19	Settikulam Tank		Government	47-89	121 2 10	43-80	46 6 5	27 6 0	
		20	Taragan Settikulam Tank.		Government	3-64	9 8 9	3-80	4 5 0	2 3 5	
		21	Tirumalai Gavundankulam Tank.		Government	2-16	7 0 8	2-15	2 6 2	2 4 11	
		22	Nottakkaran Kulam Tank.		Government	6-95	17 9 9	4-65	5 2 6	2 10 9	
		23	Sangappa Gavundankulam Tank.		Government	19-37	48 15 7	17-13	19 0 1	9 13 8	
		Total of Sub-Group.			106-98	277 5 3	86-62	93 14 5	53 0 10		

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
69-93	60 10 0	70 10 6	111 3 6	181 14 0	...	...	...	...	...
2-73	1 7 5	1 3 7	3 2 6	4 6 1	...	...	...	...	...
3-02	2 2 9	3 1 0	3 7 4	6 8 4	...	...	...	...	...
11-07	8 8 7	11 2 10	14 6 10	25 9 8	...	...	...	...	...
17-85	15 14 8	18 0 7	29 11 8	47 12 3	...	...	...	...	...
104-60	88 11 5	104 2 6	161 15 10	266 2 4	...	...	...	...	...
9-73	10 8 8	10 8 5	21 1 6	31 9 11	...	...	...	...	...
19-07	32 5 3	20 9 11	76 5 10	96 15 9	...	...	...	...	...
0-05	0 0 7	0 0 9	0 1 0	0 1 9	...	...	...	...	...
0-86	1 3 3	0 15 0	2 10 9	3 9 9	...	...	...	...	...
18-71	11 9 2	17 1 8	17 9 11	34 11 7	...	...	...	...	...
15-20	9 2 4	13 11 6	13 11 6	27 7 0	...	...	...	...	...
4-46	3 9 1	5 5 1	5 6 1	10 11 2	...	...	...	...	...
3-82	2 4 9	3 7 2	3 7 2	6 14 4	...	...	...	...	...
71-90	70 11 1	71 11 6	140 5 9	212 1 3	...	...	...	...	...
13-86	15 10 3	15 6 0	31 8 9	46 14 9	...	...	5-91	19 15 3	19 15 3
18-55	21 0 3	20 9 3	42 7 6	63 0 9	...	...	16-17	53 3 8	53 3 8
159-76	183 11 6	185 8 11	365 9 6	551 2 5	...	...	57-86	208 6 2	208 6 2
39-92	43 12 4	42 1 7	89 3 6	131 5 1	...	...	14-92	57 15 9	57 15 9
232-09	264 2 4	263 9 9	528 13 3	792 7 0	...	...	94-86	339 8 10	339 8 10
15-00	12 10 2	16 10 3	21 4 3	37 14 6	...	...	14-64	37 0 3	37 0 3
43-80	36 14 2	46 6 5	64 4 2	110 10 7	...	...	11-38	28 12 1	28 12 1
3-89	3 4 2	4 5 0	5 7 7	9 12 7	...	...	3-49	8 12 7	8 12 7
2-15	2 5 7	2 6 2	4 10 6	7 0 8	...	...	...	...	...
4-65	3 14 7	5 2 6	6 9 4	11 11 10	...	...	1-88	4 12 2	4 12 2
17-13	14 6 11	19 0 1	24 4 7	43 4 8	...	...	...	...	...
86-62	73 7 7	93 14 5	126 8 5	220 6 10	...	...	31-39	79 5 1	79 5 1

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.					PROPOSED
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	No. in District Irrigation Register.	Items of Irrigation whether Govern- ment, Zemindari, or Inam.	Net Revenue due to Irriga- tion including work- ing expenses 15 + 21.	Do. per Acre Irrigated 22 + 9.	Increase over present ex- tent of Irrigation in column 9.	Land unfit for wet culti- vation.	Ultimate extent of Irri- gation.
						22	23	24	25	26
						Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
SUTTA GANGAI GROUP.	Dombachikulam Tank.	1	Dombachikulam Tank	1	Zemindary	111 3 6	1 9 5			69-93
		2	Vannankulam Tank		Zemindary	3 2 6	1 2 6			2-73
		3	Nagamalai Kudumban- kulam Tank.		Zemindary	3 7 4	1 3 6			3-02
		4	Posikadiriya Gavundan- kulam Tank.		Zemindary	14 6 10	1 4 10			11-07
		5	Sinna Gavundankulam Tank.		Zemindary	29 11 8	1 10 7			17-85
			Total of Sub-Group.			161 15 10	1 8 9			104-60
	Gavundankulam.	6	Gavundankulam Tank	2	Zemindary	21 1 6	2 2 8			9-73
		7	Ammakulam Tank		Zemindary	76 5 10	4 0 1			19-07
		8	Sokkalingankulam Tank.	5	Zemindary	0 1 0	1 4 0			0-05
		9	Kumaravelunadenku- lam Tank.		Zemindary	2 10 9	3 1 0			0-86
		10	Arasamarattukulam Tank.		Zemindary	17 9 11	0 15 1			18-71
		11	Nallupillaikulam Tank.		Zemindary	13 11 0	0 14 5			15-20
		12	Kottaikulam Tank		Zemindary	5 6 1	1 3 4			4-46
		13	Karasalkulam Tank		Zemindary	3 7 2	0 14 6			3-83
			Total of Sub-Group.			140 5 9				71-90
	Sakkaya Gavundan.	14	Sakkaya Gavundanku- lam Tank.	40	Government	11 9 0	0 13 5			13-86
		15	Kullamachankulam Tank.		Government					18-55
		16	Pudukkulam Tank		Government	157 3 4	0 15 9			159-76
		17	Tadankulam		Government	31 3 9	0 12 7			39-92
			Total of Sub-Group.			200 0 7	0 13 9			232-19
	Kamachi Kulam.	18	Kamachikulam Tank	40	Government					15-00
		19	Settikulam Tank		Government	35 8 1	0 12 11			43-80
		20	Taragan Settikulam Tank.		Government					3-89
		21	Tirumalai Gavundan Kulam Tank.		Government	4 10 6	2 2 6			2-15
		22	Nottakkarakulam Tank.		Government	1 13 2	0 6 3			4-65
		23	Sangappa Gavundan Kulam Tank.		Government	24 4 7	1 2 0			17-13
			Total of Sub-Group.			† 66 4 4	0 12 3			86-62

* The difference Rs. 10-12-2 is due to the excess of remissions given in Col. 20, of work No. 15.

† Do. „ 19-1-0 do do do of works Nos. 18 & 20.

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27-22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 × 100 ÷ 27.	Expected increase of Revenue percentage of outlay 28 × 100 ÷ 31.		
27	28	29	30	31	32	33		
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.		34
111 3 6	...	...	...	...	...	...		
3 2 6	...	...	...	...	...	...		
3 7 4	...	...	...	...	...	...		
14 6 10	...	...	...	...	...	...		
29 11 8	...	...	...	...	...	...		
161 15 10	...	...	...	...	...	...		
21 1 6	...	...	...	...	...	...		
76 5 10	...	...	...	...	...	...		
0 1 0	...	...	...	...	...	...		
2 10 9	...	...	...	...	...	...		
17 9 11	...	...	...	...	...	...		
13 11 6	...	...	...	...	...	...		
5 6 1	...	...	...	...	...	...		
3 7 2	...	...	...	...	...	...		
140 5 9	...	...	...	...	...	...		
31 8 9	19 15 3	...	...	...	...	...		
42 7 6	42 7 6	...	...	...	...	...		
365 9 6	208 6 2	...	2,223 0 0	2,223 0 0	608-06	9-35	The cause of remission was due to the bund not having been kept in good repairs, which have been attended to.	
89 3 6	57 15 9	...	392 0 0	392 0 0	439-36	14-79		
528 13 3	328 12 8	...	2,615 0 0	2,615 0 0	494-32	12-58		
21 4 3	21 4 3	...	...	...	...	...		
64 4 2	28 12 1	...	...	...	...	...		
5 7 7	5 7 7	...	...	...	...	...		
4 10 6	...	...	...	...	...	...		
6 9 4	4 12 2	...	...	...	...	...		
24 4 7	...	...	...	...	...	...		
126 8 5	60 4 1	...	...	...	...	...		

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayaat.	Do. Full Assessment on Land and Water.	AVERAGE CUL-						
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	First crop.											
				Extent.					Land.	Water.					
1	2	3	4	5	6	7	8	9	10	11					
SUTTA GANGAI GROUP.	Bomminaikken Kulam.	24	Bomminaikken Kulam Tank.	Zemindary	Acres.	Rs.	A.	P.	Acres.	Rs.	A.	P.			
		25	Alagirinaikken Kulam Tank.	Zemindary	1.88	3	6	5	1.88	1	11	2	0	9	1
		26	Pappankulam Tank	Zemindary	0.29	0	8	6	0.29	0	4	3	0	1	5
		27	Kuppunaikken Kulam Tank.	Zemindary	0.80	2	4	7	0.80	0	11	4	0	13	0
		28	Periyadevikulam Tank.	Zemindary	55.59	160	8	2	55.59	50	2	6	56	13	7
			Total of Sub-Group.		61.61	172	3	11	61.61	55	9	4	59	3	10
	Lachiminaikken Kulam.	29	Lachiminaikkenkulam Tank.	Zemindary	3.52	6	5	8	3.52	3	2	10	1	1	0
		30	Ganapatisettikulam Tank.	Zemindary	7.04	12	11	8	7.04	6	6	0	2	1	9
		31	Anaiyanpalanisetti Urani.	Zemindary	0.23	0	8	0	0.23	0	3	6	0	1	10
		32	Ganapatisettikulam Tank.	Zemindary	7.23	13	1	0	7.23	6	8	6	2	2	10
		33	Palanisettikulam Tank.	Zemindary	0.71	1	4	5	0.71	0	10	0	0	3	7
		34	Sinnadevikulam Tank...	Zemindary	50.75	146	8	3	50.75	45	12	5	51	14	5
		35	Perinaikkenkulam Tank	Zemindary	0.91	1	10	7	0.91	0	13	3	0	4	6
		36	Elanderikulam Tank	Zemindary	7.83	14	1	11	7.83	7	1	0	2	5	7
		37	Talaiyuthukulam Tank.	Zemindary	3.82	6	14	4	3.82	3	7	2	1	2	5
		Total of Sub-Group.		82.04	203	1	10	82.04	74	0	8	61	5	11	
	Tambiran Kulam.	38	Tambirankulam Tank	Zemindary	9.82	25	0	7	9.82	9	6	8	7	4	5
		39	Marudakudambam Urani.	Zemindary	1.18	2	8	8	1.18	1	1	11	0	9	2
		40	Eranansettikulam Tank.	Zemindary	23.51	54	1	3	23.51	22	9	1	13	7	10
		41	Temminaikkenkulam Tank.	Zemindary	11.24	24	6	8	11.24	10	12	8	5	7	9
		42	Solamanaikkenkulam Tank.	Zemindary	1.87	3	6	3	1.87	1	12	11	0	7	1
			Total of Sub-Group.		47.62	109	7	5	47.62	45	11	3	27	4	3
	Gavundan Kulam.	43	Gavundankulam Tank...	Zemindary	7.14	18	3	4	7.14	7	1	2	6	1	1
		44	Kakalusikkaya Gavundankulam Tank.	Zemindary	4.08	11	1	0	4.08	4	1	2	3	4	10
			Total of Sub-Group.		11.22	29	4	4	11.22	11	2	4	8	5	11
			Total for the whole group.		773.44	2,211	5	9	697.70	719	13	9	616	14	9

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
3.05	1 13 5	2 12 1	2 12 2	5 8 3	...	...	...	...	...
1.88	1 2 2	1 11 2	1 11 3	3 6 5	...	...	...	...	...
0.29	0 2 10	0 4 3	0 4 3	0 8 6	...	...	...	...	...
0.80	0 12 2	0 11 4	1 9 2	2 4 6	...	...	...	...	...
55.59	53 8 1	50 2 6	110 5 8	160 8 2	...	...	...	...	...
61.61	57 6 8	55 9 4	116 10 6	172 3 10	...	...	...	...	...
3.52	2 1 10	3 2 10	3 2 10	6 5 8	...	...	...	...	...
7.04	4 3 11	6 6 0	6 5 8	12 11 8	...	...	...	...	...
0.23	0 2 8	0 3 6	0 4 6	0 8 0	...	...	...	...	...
7.23	4 5 8	6 8 6	6 8 6	13 1 0	...	...	...	...	...
0.71	0 7 0	0 10 0	0 10 7	1 4 7	...	...	...	...	...
50.75	48 13 5	45 12 5	100 11 10	146 8 3	...	...	...	...	...
0.91	0 8 10	0 13 3	0 13 4	1 10 7	...	...	...	...	...
7.83	4 11 4	7 1 0	7 0 11	14 1 11	...	...	...	...	...
3.82	2 4 9	3 7 2	3 7 2	6 14 4	...	...	...	...	...
82.04	67 11 5	74 0 8	129 1 4	203 2 0	...	...	...	...	...
9.82	8 5 6	9 6 8	15 9 11	25 0 7	...	...	...	...	...
1.18	0 13 7	1 1 11	1 6 9	2 8 8	...	...	...	...	...
23.51	18 0 3	22 9 1	31 8 1	54 1 2	...	...	...	...	...
11.24	8 2 3	10 12 8	13 10 0	24 6 8	...	...	...	...	...
1.87	1 2 3	1 12 11	1 9 4	3 6 3	...	...	...	...	...
47.62	36 7 10	45 11 3	63 12 1	109 7 4	...	...	...	...	...
7.14	6 1 1	7 1 2	11 2 2	18 3 4	...	...	...	...	...
4.08	3 11 0	4 1 2	6 15 10	11 1 0	...	...	...	...	...
11.22	9 12 1	11 2 4	18 2 0	29 4 4	...	...	...	...	...
697.70	668 6 5	719 13 9	1,285 5 2	2,005 2 11	...	...	126.25	418 13 11	418 13 11

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.		No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.		Proposed		
Group	Sub-Group.			Net Revenue due to Irrigation including working expenses 15 — 21.	Do. per Acre Irrigated 22 + 9.	Increase over present extent of Irrigation in column 9.	Land unfit for wet cultivation.	Ultimate extent of Irrigation.
	No. in Group or Isolated Work.		Name and Description of Irrigation work.	22	23	24	25	26
				Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
SUTTA GANGAI GROUP.	Bomminaikken Kulam.	24	Bomminaikken Kulam Tank.	2 12 2	0 14 6	...	...	3 05
		25	Alagirinaikken Kulam Tank.	1 11 3	0 14 5	...	...	1 88
		26	Pappankulam Tank	0 4 3	0 14 7	...	...	0 29
		27	Kuppunaikken Kulam Tank.	1 9 2	1 15 5	...	...	0 80
		28	Periyadevikulam Tank.	110 5 8	1 15 9	...	...	55 59
			Total of Sub-Group.	116 10 6	1 14 3	...	...	61 61
	Lachiminaikken Kulam.	29	Lachiminaikkenkulam Tank.	3 2 10	0 14 2	...	...	3 52
		30	Ganapatisettikulam Tank.	6 5 8	0 14 5	...	...	7 04
		31	Anaiyanpalanisetti Urani.	0 4 6	1 3 7	...	...	0 23
		32	Ganapatisettikulam Tank.	6 8 6	0 14 9	...	...	7 23
		33	Palanisettikulam Tank	0 10 7	0 14 11	...	...	0 71
		34	Sinnadevikulam Tank...	100 11 10	1 15 9	...	...	50 75
		35	Perinaikkankulam Tank	0 13 4	0 14 8	...	...	0 91
		36	Elandevikulam Tank	7 0 11	0 14 5	...	...	7 83
		37	Talaiyathukulam Tank	3 7 2	0 14 5	...	...	3 82
			Total of Sub-Group.	129 1 4	1 9 2	...	...	82 04
	Tambiran Kulam.	38	Tambirankulam Tank...	15 9 11	1 9 6	...	...	9 82
		39	Marudakudumbam Urani.	1 6 9	1 3 3	...	...	1 18
		40	Eranansettikulam Tank.	31 8 1	1 5 5	...	...	23 51
		41	Temminaikkenkulam Tank.	13 10 0	1 3 5	...	...	11 24
		42	Solamanaikkenkulam Tank.	1 9 4	0 13 6	...	...	1 87
			Total of Sub-Group.	63 12 1	1 5 5	...	...	47 62
	Gavundan Kulam.	43	Gavundankulam Tank...	11 2 2	1 8 8	...	...	7 14
		44	Kakalusikkaya Gavundankulam Tank.	6 15 10	1 11 5	...	...	4 08
			Total of Sub-Group.	18 2 0	1 9 10	...	...	11 22
			Total for the whole Group.	896 4 5	1 4 7	...	...	697 70

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.					REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27 — 28.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 x 100 + 27.	Expected increase of Revenue percentage of outlay 28 x 100 + 31.	
27	28	29	30	31	32	33	34
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.	
2 12 2	...	...	...	...	...	...	
1 11 3	...	...	...	...	...	...	
0 4 3	...	...	...	...	...	...	
1 9 2	...	...	...	...	...	...	
110 5 8	...	...	...	...	...	...	
116 10 6	...	...	...	...	...	...	
3 2 10	...	...	...	...	...	...	
6 5 8	...	...	...	...	...	...	
0 4 6	...	...	...	...	...	...	
6 8 6	...	...	...	...	...	...	
0 10 7	...	...	...	...	...	...	
100 11 10	...	...	...	...	...	...	
0 13 4	...	...	...	...	...	...	
7 0 11	...	...	...	...	...	...	
3 7 2	...	...	...	...	...	...	
129 1 4	...	...	...	...	...	...	
15 9 11	...	...	...	...	...	...	
1 6 9	...	...	...	...	...	...	
31 8 1	...	...	...	...	...	...	
13 10 0	...	...	...	...	...	...	
1 9 4	...	...	...	...	...	...	
63 12 1	...	...	...	...	...	...	
11 2 2	...	...	...	...	...	...	
6 15 10	...	...	...	...	...	...	
18 2 0	...	...	...	...	...	...	
1,285 5 2	389 0 9	...	2,615 0 0	2,615 0 0	203.50	14.87	

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindari, or Inam.	Total Irrigable Ayscut.	Do. Full Assessment on Land and Water.	AVERAGE CUL-		
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	First crop.							
				Extent.					Assessment.		
									Land.	Water.	
1	2	3	4	5	6	7	8	9	10	11	
TENI AUR GROUP.	Ichimarattikulam.	1	Ichimarattikulam Tank.	Government	Acres.	Ra. A. P.	Acres.	Ra. A. P.	Ra. A. P.		
		2	Kannimarkulam Tank.	Government	45-78	132 5 10	45-78	41 4 8	46 15 1		
				Dry brought in	0-47	1 8 11	0-47	0 10 0	0 4 6		
				Total	46-25	134 14 9	46-25	41 14 8	47 3 7		
		3	Kanakankulam Tank	Zemindary	65-82	212 12 8	65-82	79 8 6	62 5 3		
			Total of Sub-Group.	114-24	356 5 0	114-24	123 2 10	113 8 11			
	Kottakudi Anicut Channel.	4	Kuruvankulam Tank	Zemindary	26-66	88 11 1	26-66	31 12 11	27 5 2		
		5	Kottakudi Aur Anicut Channel.	Zemindary	1,171-04	4,005 5 0	1,171-04	1,273 8 4	1,856 11 0		
				Inam Free	50-58		50-58				
				Total	1,221-62	4,095 5 0	1,221-62	1,273 8 4	1,856 11 0		
		6	Periyakulam Tank	Zemindary	232-71	752 15 4	232-71	281 6 10	220 8 8		
	Bungaruswamy Anicut Channel.	7	Sirukulam Tank	Zemindary	103-29	302 5 9	103-29	124 14 8	76 10 5		
				Total of Sub-Group.	1,584-28	5,839 5 2	1,584-28	1,711 10 9	2,181 3 3		
		8	Bungarusawmi Anicut Channel.	Zemindary	397-89	1,780 6 6	397-89	559 5 8	627 9 3		
		9	Settikulam Tank	Zemindary	69-23	249 10 10	69-23	96 10 1	69 13 2		
		10	Menachiammankulam Tank.	Zemindary	334-96	1,170 12 2	334-96	378 10 2	401 14 10		
	Kottakudi Aur Right Bank Channel.	11	Perumalgavundan Tank	Zemindary	9-97	64 0 5	9-97	13 14 10	28 12 2		
		12	Nagappagavundan Tank	Zemindary	11-00	71 8 4	11-00	15 6 8	32 4 3		
		13	Sankarappanaikk Tank.	Zemindary	493-08	2,614 1 10	493-08	680 9 11	1,063 2 1		
		14	Thasarsettikulam Tank.	Zemindary	74-59	264 13 1	74-59	104 2 5	72 6 4		
		15	Bungaruswami Tank	Zemindary	406-05	2,124 10 0	406-05	569 0 3	847 6 5		
			Total of Sub-Group.	1,706-77	8,339 15 2	1,706-77	2,426 12 0	3,133 4 6			
Kottakudi Aur Right Bank Channel.	16	Kottakudi Aur Right Bank Channel.	Zemindary	369-56	1,706 0 3	369-56	517 8 0	619 13 6			
			Inam Free	17-64		17-64					
			Do. Charged by Government.	3-53	19 1 5	3-53	4 15 0	7 12 7			
			Inam Charged	4-70	25 7 8	4-70	6 9 4	10 6 2			
			Total of Sub-Group.	395-43	1,750 8 11	395-43	529 0 4	638 0 3			

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Second crop.		Gross Assessment.			Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water, 11 + 13.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Ra. A. P.	Ra. A. P.	Ra. A. P.	Ra. A. P.	Ra. A. P.	Ra. A. P.	Acres.	Ra. A. P.	Ra. A. P.
2-17	2 13 10	1 11 8	6 13 11	8 9 7	...	...	...	...	...
45-78	44 2 0	41 4 8	91 1 1	132 5 9	...	...	4-30	10 3 1	10 3 1
0-47	0 10 5	0 10 0	0 14 11	1 8 11	...	...	...	...	...
46-25	44 12 5	41 14 8	92 0 0	133 14 8	...	...	4-30	10 3 1	10 3 1
65-82	70 14 11	79 8 6	133 4 2	212 12 8	...	...	...	...	...
114-24	118 9 2	123 2 10	232 2 1	355 4 11	...	...	4-30	10 3 1	10 3 1
26-66	29 9 0	31 12 11	56 14 2	88 11 1	...	...	...	...	...
1,171-04	1,565 1 8	1,273 8 4	3,421 12 8	4,695 5 0	...	...	...	...	...
50-58	...	...	...	...	...	...	...	...	...
1,221-62	1,565 1 8	1,273 8 4	3,421 12 8	4,695 5 0	...	...	...	...	...
232-71	250 15 10	281 6 10	471 8 6	752 15 4	...	...	...	...	...
103-29	100 12 8	124 14 8	177 7 1	302 5 9	...	...	...	...	...
1,584-28	1,946 7 2	1,711 10 9	4,127 10 5	5,839 5 2	...	...	...	...	...
397-89	593 7 6	559 5 8	1,221 0 9	1,780 6 5	...	...	...	...	...
69-23	83 3 7	96 10 1	153 0 9	249 10 10	...	...	...	...	...
334-96	390 4 0	378 10 2	792 2 10	1,170 12 2	...	...	...	...	...
9-97	21 5 5	13 14 10	50 1 7	64 0 5	...	...	...	...	...
11-00	23 13 5	15 6 8	56 1 8	71 8 4	...	...	...	...	...
493-08	871 5 10	689 9 11	1,924 7 11	2,614 1 10	...	...	...	...	...
74-59	88 4 4	104 2 5	160 10 8	264 13 1	...	...	...	...	...
406-05	708 3 4	569 0 3	1,555 9 9	2,124 10 0	...	...	...	...	...
1,796-77	2,779 15 5	2,426 12 0	5,913 3 11	8,339 15 11	...	...	...	...	...
369-56	568 10 9	517 8 0	1,188 8 3	1,706 0 3	...	...	...	...	...
17-64	...	...	...	...	...	...	...	...	...
3-53	6 15 0	4 15 0	14 11 7	19 10 7	...	...	...	...	...
4-70	8 7 9	6 9 4	18 13 11	25 7 3	...	...	...	...	...
395-43	584 1 6	529 0 4	1,222 1 9	1,751 2 1	...	...	...	...	...

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.					AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.					PROPOSED
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.	No. in District Irrigation Register.	Items of Irrigation whether Govern- ment, Zemindari, or Inam.	Net Revenue due to Irriga- tion including work- ing expenses 15- 21.	Do. per Acre Irrigated 22 + 9.	Increase over present ex- tent of Irrigation in column 9.	Land unfit for wet culti- vation.	Ultimate extent of Irri- gation.
						22	23	24	25	26
						Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
TANI AUR GROUP.	Ichimarattikulam.	1	Ichimarattikulam Tank.	Government	...	6 13 11	3 2 8	...	...	2-17
		2	Kannimarkulam Tank...	Government	...	80 14 0	1 12 3	...	...	45-78
				Dry brought in	...	0 14 11	1 15 9	...	...	0-47
				Total	...	81 12 11	1 12 4	...	...	46-25
		3	Kanakankulam Tank	Zemindary	...	133 4 2	2 0 5	...	...	65-82
			Total of Sub-Group.	...	221 15 0	...	...	...	114-24	
	Kottakudy Anicut Channel.	4	Kuruvamkulam Tank	Zemindary	...	56 14 2	...	...	...	26-66
		5	Kottakudir Aur Anicut Channel.	Zemindary	...	3,421 12 8	2 14 9	...	...	1,171-04
				Inam Free	...	...	...	...	...	50-58
				Total	...	3,421 12 8	2 12 9	...	...	1,221-62
		6	Periyakulam Tank	Zemindary	...	471 8 6	2 0 5	...	...	232-71
	7	Sirukulam Tank	Zemindary	...	177 7 1	1 11 6	...	...	108-29	
			Total of Sub-Group.	...	4,127 10 5	...	...	...	1,584-28	
	Bungarusawmy Anicut Channel.	8	Bungarusawmi Anicut Channel.	Zemindary	...	1,221 0 9	3 1 1	...	...	397-89
		9	Settikulam Tank	Zemindary	...	153 0 9	2 3 4	...	...	69-23
		10	Menachiammankulam Tank.	Zemindary	...	792 2 10	2 5 10	...	...	334-96
		11	Perumalgavundan Tank	Zemindary	...	50 1 7	5 0 5	...	...	9-97
		12	Nagappagavundan Tank	Zemindary	...	56 1 8	5 1 11	...	...	11-00
		13	Sankarappanaikk Tank.	Zemindary	...	1,924 7 11	3 14 5	...	...	493-04
		14	Thasarsettikulam Tank.	Zemindary	...	160 10 8	2 2 6	...	...	74-59
		15	Bungarusawmi Tank	Zemindary	...	1,555 9 9	3 13 3	...	...	406-06
			Total of Sub-Group.	...	5,913 3 11	...	...	...	1,796-77	
Kottakudi Aur Right Tank Channel.	16	Kottakudi Aur Right Channel.	Zemindary	...	1,188 8 3	3 3 5	...	...	369-56	
			Inam Free	...	...	...	...	...	17-64	
			Do. Charged by Government.	...	14 11 7	4 2 9	...	...	3-53	
			Inam Charged	...	18 13 11	4 3 9	...	...	4-70	
			Total of Sub-Group.	...	1,222 1 9	...	...	...	395-43	

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27-22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue $31 \times 100 \div 27$.	Expected increase of Revenue percentage of outlay $28 \times 100 \div 31$.		
27	28	29	30	31	32	33		
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.	The cause of remission was due to the insufficiency of supply.	
6 13 11	...	...	...	...	...	...		
91 1 1 0 14 11	10 3 1 ...	...	...	...	...	...		
92 0 0	10 3 1	488 0 0	510 0 0	998 0 0	1,084-78	1-00		
133 4 2	..	...	...	...	...	...		
232 2 1	10 3 1	488 0 0	510 0 0	998 0 0	430-17	1-00		
56 14 2	...	...	...	...	...	...		
3,421 12 8	...	...	...	...	...	...		
3,421 12 8	...	...	...	...	...	...		
471 8 6	...	...	6,660 0 0	6,660 0 0	1,412-41	...		
177 7 1	...	...	1,132 0 0	1,132 0 0	637-95	...		
4,127 10 5	...	...	7,792 0 0	7,792 0 0	188-75	...		
1,221 0 9	...	...	...	...	...	...		
153 0 9	...	...	...	...	...	...		
992 2 10	...	...	...	...	...	...		
50 1 7	...	...	...	...	...	...		
56 1 8	...	...	...	...	...	...		
1,924 7 11	...	...	...	...	...	...		
160 10 8	...	...	...	...	...	...		
1,555 9 9	...	...	...	...	...	...		
5,913 3 11	...	...	...	...	...	...		
1,188 8 3	...	...	...	...	...	...		
14 11 7	...	...	...	...	...	...		
18 13 11	...	...	...	...	...	...		
1,222 1 9	...	...	...	...	...	...		

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				No. in District Irrigation Register.	Items of Irrigation whether Govern- ment, Zemindari, or Inam.	Total Irrigable Ayacut.	Full Assessment on Do. Land and Water.	AVERAGE CUL.		
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.					First crop.		
								Extent.	Assessment.	
									Land.	Water.
1	2	3	4	5	6	7	8	9	10	11
TANI AUR GROUP.	Marimur Channel.	17	Kottakudi Aur Left Bank Channel.	Zemindary	Acres.	319 56	Rs. A. P. 1,688 0 6	319 56	Rs. A. P. 447 8 5	Rs. A. P. 677 13 3
		19	Ammakulam Tank	Zemindary	13 82	45 0 9	13 82	19 13 9	10 2 9	
		19	Pudukkulam Tank	Zemindary	72 30	287 1 11	72 30	101 3 9	90 2 11	
		20	Marimur Channel	Zemindary Inam Free	36 65 1 18	100 10 7	36 65 1 18	51 3 11	15 13 10	
		21	Marimurkulam Tank	Total	37 83	100 10 7	37 83	51 3 11	15 13 10	
				Zemindary Inam Free	153 88 1 98	710 10 5	153 88 1 98	205 3 1	268 9 0	
				Total	155 86	710 10 5	155 86	205 3 1	268 9 0	
		Total of Sub-Group.			193 69	811 5 0	193 69	256 7 0	284 6 10	
		22	Kadambacharayuthan Kulam Tank.	Zemindary	24 32	61 7 4	24 32	34 1 0	6 14 7	
	23	Valai Aur Anicut Chan- nel.	Zemindary	20 83	52 0 8	20 83	20 11 4	13 15 9		
			24	Rajapupala Samuthiram Tank.	Zemindary	148 58	376 9 4	148 58	147 10 1	103 6 9
			Total of Sub-Group.			169 41	428 10 0	169 41	168 5 5	117 6 6
	Pannasal Aur Anicut Channel.	25	Pannasal Aur Anicut Channel.	Government	14 93	57 4 8	14 93	25 0 1	13 3 1	
		26	Merusamuttiram Tank.	Government Inam Free	250 00 5 73	1,081 3 1	249 30 5 73	441 5 0	276 9 6	
				Total	255 73	1,081 3 1	255 03	441 5 0	276 9 6	
				27	Coppayankulam Tank.	Government	2 65	10 9 6	2 65	3 8 11
		28	Sinnakulam Tank	Government	32 41	156 15 6	32 41	57 5 1	47 5 3	
	Total of Sub-Group.			305 72	1,306 0 9	304 95	527 3 1	340 9 11		
	Tani Aur Anicut Channel.	29	Tani Aur Anicut Chan- nel.	Government Inam Free	140 25 14 21	700 8 8	137 90 14 21	229 1 6	230 8 7	
				Do. Charged	4 34	11 4 10	4 34	0 11 3	6 13 4	
				Total	158 80	711 13 6	156 45	229 12 9	237 5 11	
		30	Tamaraikulam Tank	Government	171 38	596 3 2	150 22	252 5 4	94 0 10	
				Total of Sub-Group.			330 18	1,308 0 8	306 67	482 2 1
Total for the whole Group.				5,319 72	22,221 13 2	5,295 44	6,827 6 5	7,925 0 5		
GRAND TOTAL					18,462 98	73,537 12	7 18,002 72	20,226 15	2 28,228 13 7	

Works in the Suruliyar Minor Basin.—(Continued on the next page from column 22.)

TIVATION DURING THE 5 YEARS 1881 TO 1885.

Extent.	Water Rate.	Gross Assessment.			Deductions and Remissions.				
		Land.	Water, 11 + 12.	Total, 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
							Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21
Acres.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
319 56	562 10 10	447 8 5	12,40 8 1	1,688 0 6	31 3 9	...	...	...	31 3 9
13 82	15 0 3	19 13 9	25 3 0	45 0 9	...	...	...	...	...
72 30	95 11 3	101 3 9	185 14 2	287 1 11	...	...	...	...	...
36 65 1 18	33 8 10	51 3 11	49 6 8	100 10 7	...	...	...	...	...
27 83	33 8 10	51 3 11	49 6 8	100 10 7	...	...	...	...	...
153 88 1 98	236 14 4	205 3 1	505 7 4	710 10 5	...	...	...	...	...
155 86	236 14 4	205 3 1	505 7 4	710 10 5	...	...	...	...	...
193 69	270 7 2	256 7 0	554 14 0	811 5 0	...	...	...	...	...
24 32	20 7 9	34 1 0	27 6 4	61 7 4	...	...	...	...	...
20 83	17 5 7	20 11 4	31 5 4	52 0 8	...	...	...	...	...
148 58	125 8 6	147 10 1	228 15 3	376 9 4	...	...	...	...	...
169 41	142 14 1	168 5 5	260 4 7	428 10 0	...	...	...	...	...
14 86	19 1 7	25 0 1	32 4 8	57 4 9	...	...	...	...	...
240 30 5 73	358 15 3	441 5 0	635 8 9	1,076 13 9	...	...	...	...	...
255 03	358 15 3	441 5 0	635 8 9	1,076 13 9	...	...	...	...	...
2 65	3 8 6	3 8 11	7 0 7	10 9 6	...	...	...	...	...
32 41	52 5 2	57 5 1	99 10 5	156 15 6	...	...	...	...	...
304 95	433 14 6	527 3 1	774 8 5	1,301 11 6	...	...	...	...	...
187 90 14 21 4 34	229 13 0 3 12 3	229 1 6 0 11 3	460 5 7 10 9 7	689 7 1 11 4 10	...	...	...	...	...
156 45	233 9 3	229 12 9	470 15 2	700 11 11	...	...	...	...	...
150 22	173 3 0	252 5 4	267 3 10	519 9 2	...	...	...	...	...
306 67	406 12 3	482 2 1	738 3 0	1,220 5 1	...	...	...	...	...
5,295 44	7,376 15 4	6,827 6 5	15,301 15 9	22,129 6 2	31 3 9	...	4 30	10 3 1	41 6 10
17,917 61	24,137 10 3	20,226 15 2	52,366 7 10	72,593 7 0	31 3 9	89 3 11	329 36	985 15 5	1,056 7 1

Statement of Financial Details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				No. in District Irrigation Register	Items of Irrigation whether Government, Zemindari or, Inam.	AVERAGE CULTIVATION DURING THE 5 YEARS 1881 TO 1885.		PROPOSED		
Group.	Sub-Group.	No. in Group or Isolated Work.	Name and Description of Irrigation work.			Net Revenue due to Irrigation including working expenses 15 — 21.	Do. per Acre Irrigated 22 + 9.	Increase over present extent of Irrigation in column 9.	Land unfit for wet cultivation.	Ultimate extent of Irrigation.
						22	23	24	25	26
						Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
TENI AUR GROUP.	Marimur Channel.	17	Kottakndi Ar Left Bank Channel.	Zemindary		1,209 4 4	3 12 7			319 56
		18	Ammakulam Tank	Zemindary		25 3 0	1 13 1			13 83
		19	Puddukkulam Tank	Zemindary		185 14 2	2 9 3			72 30
		20	Marimur Channel	Zemindary Inam Free		49 6 8	1 5 7			36 65 1 18
			Total		49 6 8				37 83	
	Marimur Channel.	21	Marimurkulam Tank	Zemindary Inam Free		505 7 4	3 4 7			153 88 1 98
			Total		505 7 4				155 86	
			Total of Sub-Group.		554 14 0				193 69	
	Valai Aur Anicut Channel.	22	Kadarbacharavuthan Kulam Tank.	Zemindary		27 6 4	1 2 0			24 32
		23	Valai Aur Anicut Channel.	Zemindary		31 5 4	1 8 1			20 83
		24	Rajapupala Samuthiram Tank.	Zemindary		228 15 3	1 8 8			148 58
			Total of Sub-Group.		260 4 7				169 41	
	Panasal Aur Anicut Channel.	25	Panasal Aur Anicut Channel.	Government		32 4 8	2 2 9			14 86
		26	Merusamattiram Tank.	Government Inam Free		635 8 9	2 8 9			249 30 5 73
			Total		635 8 9	2 8 9			255 03	
		27	Coppayankulam Tank	Government		7 0 7	2 10 1			2 65
		28	Sinnakulam Tank	Government		99 10 5	3 1 2			32 41
			Total of Sub-Group.		774 8 5				304 95	
	Teni Aur Anicut Channel.	29	Teni Aur Anicut Channel.	Government Inam Free Do. Charged		400 5 7 10 9 7	3 5 5 2 6 11			137 00 14 21 4 34
			Total		470 15 2				156 45	
		30	Tamaraikulam Tank	Government		267 3 10	1 12 5			150 22
			Total of Sub-Group.		738 3 0				306 67	
			Total for the whole Group.		15,280 8 11	2 12 6			5,295 44	
GRAND TOTAL						51,349 7 9	6 15 11	624 08		18,626 80

Works in the Suruliyar Minor Basin.

CULTIVATION.		ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.						REMARKS.
Expected net Revenue from do. including working expenses.	Expected increase of Revenue 27 - 22.	Original works.	Repairs.	Total.	Outlay percentage on ultimate net Revenue 31 x 100 + 27.	Expected increase of Revenue percentage of outlay 28 x 100 + 31.		
27	28	29	30	31	32	33		34
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Per cent.	Per cent.		
1,209 4 4	...	...	...	...	...	...		
25 3 0	...	...	...	...	...	...		
185 14 2	...	...	...	...	...	...		
49 6 8	...	...	...	...	...	...		
49 6 8	...	...	...	...	...	...		
505 7 4	...	...	...	...	...	...		
505 7 4	...	...	...	...	...	...		
554 14 0	...	...	...	...	...	...		
27 6 4	...	...	...	...	...	...		
31 5 4	...	...	...	...	...	...		
228 15 3	...	...	...	...	...	...		
260 4 7	...	...	...	...	...	...		
32 4 8	...	...	81 0 0	81 0 0	250 83	...		
635 8 9	...	...	...	...	...	...		
635 8 9	...	610 0 0	2,095 0 0	2,705 0 0	425 81	...		
7 0 7	...	...	75 0 0	75 0 0	1,065 87	...		
99 10 5	...	448 0 0	650 0 0	1,098 0 0	1,101 84	...		
774 8 5	...	1,058 0 0	2,901 0 0	3,959 0 0	510 83	...		
460 5 7	...	...	...	...	...	...		
10 9 7	...	...	...	...	...	...		
470 15 2	...	4,170 0 0	2,790 0 0	6,960 0 0	1,477 87	...		
267 3 10	...	194 0 0	250 0 0	444 0 0	166 14	...		
738 3 0	...	4,364 0 0	3,040 0 0	7,404 0 0	1,003 25	...		
15,270 12 0	10 3 1	5,910 0 0	14,243 0 0	...	...	...		
54,302 1 5	2,952 9 8	67,200 0 0	86,210 0 0	1,53,410 0 0	282 49	1 92		

Hydraulic details and the standard of efficiency.

THE Hydraulic details of the Irrigation Works, as well as the requirements necessary to secure the standard of efficiency, are recorded separately for each individual works as follows:—

SURULI NADDI GROUP.

Virapandi Anicut Channel Sub-Group.

No. 1, IRRIGATION WORK,

VIRAPANDI ANICUT CHANNEL.

General description.

THIS is the last anicut across the Suruli Naddi, and has a catchment area of 250.5 sq. miles which with the formula $D = C M^1$.— c. m¹, in which C. and c. are = 543 and 100 respectively, would give a discharge of 19,800 cub. ft. per second.

Bench marks.

I.—B. M. on demarcation stone next to the left wing of the anicut, above Mean Sea Level. ...1,007.95

Head works.

The existing anicut is 373 ft. but the plan, as well as scorings on the crest, shows that it is not at right angles to the axis of the flood, so the length for the calculation has been assumed 300 ft., the head being about 6 ft., on the average, giving a discharge of 13,618 cub. ft. per second, to which may be added 963 cub. ft. for the discharge of the channel, making a total of 14,581 cub. ft. per second in addition to this a certain amount of water found its way over the fields.

The anicut is very leaky and does not provide sufficient discharge at right angles to the axis of the flood, so it has been proposed to rebuild it lower down, where there is a good foundation for it. The style adopted is the sheer overfall, on a dry packed apron 2 ft. thick, laid on Kankur.

Where the fall is more than 11 ft., a water-cushion has been provided with an apron 20 ft. in width, the edge of the apron being secured by a retaining wall.

The anicut is to be constructed of rubble in lime and it is estimated that the remains of the old anicut will furnish sufficient stone for the purpose.

There are 315 acres of direct cultivation under this channel, for which as the strip of cultivation is very narrow, and the soil light, only 20 acres has been allowed to a cub. ft. of water, or 16 cub. ft. per second and 71 acres under a tank for which 7 cub. ft. per second has been allowed, making an aggregate allowance of 23 cub. ft. per second. The reduced level of the floor of the bridge is 1,005.23. The arch is segmental, the chord of which is 24 feet and the versed sine 1 ft. so that the water in the channel cannot run more than 1 ft. deep after allowance is made for silt on the floor of the bridge.

The fall of the channel is .5 per 1,000, so that a bottom width of 20 ft. is required to the channel to obtain the discharge when the water is flush with the crest of anicut; the head sluice is designed with 4 vents 6 ft. span. (*vide* Sketch, Plate III, Fig. 2.)

A scouring sluice is provided as near as possible to the head sluice; the anicut is raised 1 ft. at this place to enable the sluice to be worked during low freshes.

Were the anicut raised so that the channel might run deeper and be of a better section, the waste of water would not be less than with the present arrangement, as the water would stand back up the river for a much greater distance, and to save evaporation in the channel a large sum would have to be laid out in narrowing it.

There are no masonry works any where along the channel requiring mention. There are numerous field channels branching from the main channel. They have no regulating sluices nor are any required, as they act as so many natural escapes during heavy rains and prevent the channel being damaged.

Masonry works along the channel.

The main channel intercepts a drainage area of 3 sq. miles with a calculated maximum flood discharge of 1,040 cub. ft. per second. There are two principal drainages, one joining the main channel west of the Virapandi village, and the other to the east of the village. They cross the main channel by means of mamul breaches and field irrigation channels without injuring the former.

Disposal of cross drainages

The Virapandi anicut channel is 2 miles long from its head to Vayalpatti tank into which it tails off. The bottom width of the channel varies from 22 ft. at head to 7 ft. lower down, and it has a fall of 4.4 ft. per mile. The periodical clearance of the silt, &c., is attended to by the 2 villagers.

Main channel.

A sketch of the anicut as well as longitudinal and cross sections are given on Plate III, Fig. 1.

SURULI NADDI GROUP.
Virapandi Anicut Channel Sub-Group.
No. 2, IRRIGATION WORK,
VAYALPATTIKULAM TANK.

General description. This is a third-class tank situated to the west of Vayalpatti village. No information is available of its previous history. Its weir at the right flank requires to be extended 21 ft. more.

Source of supply. The principal source of supply to this tank is from Virapandi anicut channel which tails into it.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	42.19
	Maximum water level above do.	...	43.80
	Level of top of bund above do.	...	46.80

Bench marks I.—B. M. on crest of weir adjacent to east wing, right flank ... 42.25

II.— Do. do. west wing do. ... 42.11

III.—B. M. on demarcation stone | G | at about 3,500 ft. on longitudinal section, left flank ... 47.14

Height of datum above Mean Sea Level ... 950.75

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	$\frac{1}{2}$ sq. mile.	Maximum flood discharge.
Do. of tanks above	...	...	Nil.	
Number of tanks above	...	...	Nil.	
Calculated maximum discharge by formula C. M ³ ...	...	...	455 cub. ft. per sec.	
Maximum flood discharge through supply channel...	...	...	25 cub. ft.	
Total discharge to be provided for	...	...	480 cub. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	
	Feet.	Feet.	Cub. ft. per sec.	
Existing masonry weir situated at right flank (<i>vide</i> Sketch, Plate II, fig. 1.)	42.19	42	262	Surplus arrangements.
Do. Tamboghy in do	40.69	5 $\frac{1}{2}$	87	
Proposed extension	42.19	21	131	
Total Maximum discharge provided for	...	...	480	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,140,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	660 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	3,420,000 cub. ft.	
Approximate annual storage at do.	...	14,162,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	70.81 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	70.81 acres.	
Water stored per acre of do	...	200,000 cub. ft.	
Ultimate irrigation per square mile of catchment	...	80.92 acres.	
Cill of existing sluice above datum	...	34.62	

A longitudinal section of the bund showing details is given on Plate II. **Plans and sections.**

The Financial details of this work are shown in the statement at page 4. **Financial details.**

SURULI NADDI GROUP.
Upparapatti Anicut Channel Sub-Group.
No. 3, IRRIGATION WORK,
UPPARAPATTI ANICUT CHANNEL.

This anicut the 10th on the Suruliyar, situated at 3 miles south of Uppukottai, has a total catchment area of 239 square miles, which according to the formula employed gives a calculated discharge of 18,150 cub. ft. per second. The anicut during floods is completely submerged, and as the section of the river below is somewhat narrower, causing the water to head back, it would be difficult to be, at all, certain of the **General description.**

discharge by calculations from the height of water on the crest of the anicut: surface velocities would have been useless as the anicut is at such an acute angle to the flow of the stream that no suitable cross section would have been taken for calculations; besides the section of the river is so variable in short distances that accurate results would not have been attained anywhere near the site of the anicut.

The area commanded by this channel is 269 acres, together with a tank under which 88 acres are irrigated as the strip of irrigation is narrow and the soil light, 20 acres to a cub. ft. are allowed and 10 acres under the tank.

The present section of channel which during the dry weather has a depth of about one foot of water in it, is 16 ft. bottom width, and answers its purpose—this gives a discharge of 27 cub. ft. per second, so to be sure that the villagers should have no cause of complaint of a stoppage of water in the channel; 3 vents 6 ft. wide have been provided for the head sluice (*vide* Sketch, Plate II, Fig. 2.)

The fall of the channel is 1 ft. per 1,000. The flood last year rose to a height of 9 ft. above the crest of the anicut, washing away the left end for a length of 104 ft. in this place—breaches have occurred before, so provision has been made to go down to a firm foundation.

No. 1 Escape on the channel, it will be seen, is below maximum flood level in the river, but as the cost of an aqueduct to carry the cross drainage would be about Rs. 1,200, this work is not entered in this estimate.

Provision is also made for a scouring sluice near the Head sluice with a vent 3' x 3' the sill being 9 ft. below crest of anicut so that the scour may be effectual, it is to be closed with needle shutters. (*vide* Sketch, Plate II, Fig. 3).

Advantage has been taken of one wing wall of the anicut which is one in good order, to answer as the wing of the head sluice; the other end of the wing is extended 20 ft. to protect the bank from damage.

At 2,725 ft. from head sluice the channel is very crooked and advantage has been taken of no compensation being required for the land to straighten it.

In addition to the surplus weir above referred to there are two masonry outlets, one at south where direct irrigation commences and the other at north, where it ends, which answer the purposes they are intended for. There are several field channels for direct irrigation all along from the second outlet to the third one near the tank. They are not provided with distribution sluices and consequently serve beneficially as so many natural outlets during rains. No sluices are therefore to be constructed.

The main channel intercepts a drainage area of $3\frac{3}{4}$ square miles including that of Naranasamudram tank No. 6 and the maximum flood

Masonry works
along the chan-
nel

Disposal of cross
drainage

discharge of 1,205 cub. ft. per second is effected by means of the two outlets and the several open field channels as stated above.

The Upparputti channel has a total length of 3 miles 1,300 ft. with Main channel bottom width varying from 18 to 6 ft. It has a fall of about 4 ft. per mile. The interested villagers attend to the clearing of silt whenever found necessary.

A sketch of the anicut as well as longitudinal and cross sections are given on Plate III, Fig. 3.

SURULI NADDI GROUP.

Upparapatti Anicut Channel Sub-Group, **No. 4, IRRIGATION WORK,** **SENKULAM TANK.**

This is a third-class tank, situated on the north side of the Upparapatti village. The left portion of the weir at the right flank, has been washed away and requires reconstruction. There are 88.19 acres of land dependent on this work. General descrip-
tion.

The principal source of supply to this tank is from the Upparapatti anicut channel which falls into it. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic de-
tails.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	40.00	Standard levels.
Maximum water level above do.	...	...	41.00	
Level of top of bund above do.	...	...	44.00	

I.—B. M. on dam stone of calingulah ... 40.00 Bench marks.

II.—B. M. on top of wing right flank... 42.44

III.—B. M. on north parapet adjacent to body of
outlet ... 42.39

IV.—B. M. on demarcation stone close by outlet,
left flank ... 41.92

Height of datum above Mean Sea Level ... 997.40

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	1½ sq. mile.
	Do. of tanks above	Nil.
	Calculated maximum flood discharge by formula	
	C. M ³ .	620 cub. ft. per sec.
	Do. from supply channel	80 "
	Total Maximum discharge provided for	700 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.		Height above datum.	Length.	Maximum discharge.
		Feet.	Feet.	Cub. ft. per sec.
Existing Calingulah situated at right flank	...	38.50	59	700
	Total Maximum discharge provided for	...	...	700

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	1,700,000 sq. ft.
	Greatest width of do. from bund	1,200 feet.
	Class of bund corresponding to do.	3rd class.
	Approximate capacity of tank at F. S. L.	5,666,000 cub. ft.
	Do. annual storage at do.	17,638,000 "

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	88.19 acres.
	Proposed ultimate area of irrigation	88.19 "
	Water stored per acre of do.	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	64.13 acre.
	Cill of existing irrigation sluice above datum	30.77

Plans and sections A longitudinal section of the bund showing details is given on Plate II.

Details of irrigation. The Financial details of this work are given in the statement at page 4.

SURULI NADDI GROUP.

Kottur Anicut Channel Sub-Group,

No. 5, IRRIGATION WORK,

KOTTUR ANICUT CHANNEL.

The Kottur Anicut Channel is the seventh main irrigation channel, from the Suruli Naddi, and has its head on the south side of it. It has direct irrigation besides supplying the Naranasamudram Tank. The total extent of irrigation dependent on this channel is 730.21 acres. General description.

The Suruli Naddi has a drainage area of 230 sq. miles composed of 100 sq. miles of Hills and 130 of Plains above the points of the head of this irrigation channel; and the maximum flood discharge is calculated to be 17,837 cub. ft. per second. The channel head is open, with a bottom width of 18 ft. just below the surplus weir, and the constant supply of water entering the channel may vary from 15 to 200 cub. ft. per second. Source of supply.

An anicut 342 ft. long, has been constructed across the Suruli Naddi, for giving command of water to the channel. It consists of a face wall of brick work in front, supported with a flush rough stone apron, covered with concrete at top and the overfall is almost vertical. A surplus weir has been constructed on the left bank of the channel immediately below the anicut. The channel has an open head. These have been shown in Sketches, Plate V, Figs. 1 & 2. They should be kept in thorough repairs. Head works.

Besides the surplus weir, there is a regulating sluice across the channel at the place where it enters the tank. The sketch of this work is given on Plate V, Fig. 3. There are also not less than 23 minor irrigation channels branching from the main channel, of which, 19 have been provided with regulating sluices at their heads. Of the 19 sluices, 16 are in fair order requiring slight repairs and they may be maintained. The other three are in a ruined state. These and other open channels act as natural outlets during heavy rains. Construction of sluices to them will be injurious to the channel as no suitable place is available for constructing an outlet which would necessarily be required. In fact the channel, it is said, had not so many sluices built by Government and most of the sluices are said to have been constructed by the ryots themselves, against orders, at their expense. This practice should be put a stop to at once. Masonry works along the channel.

The area of drainage intercepted by the channel is 4 sq. miles, which includes the catchment basin of Sirukulam tank No. 8. The calculated maximum discharge by formula C. M³. — c. m³. from this area is 1,178 cub. ft. per second. This quantity is disposed of by open channels and mamul breaches in the left bank of the channel without much injury, and Disposal of cross drainages.

any small damages caused by the latter at times are easily and quickly set right by villagers themselves at their own cost.

Main channel.

The Kottúr Anicut Channel is 2 miles 3,630 ft. long from its head to Naranasamudram Tank. Its bottom width varies from 18 to 6 ft. and the fall of bed is about 4 ft. per mile. The channel is kept in good order by the villagers.

SURULI NADDI GROUP.

Kottur Anicut Channel Sub-Group,

No. 6, IRRIGATION WORK,

NARANASAMUDRAM TANK.

General description.

This is a third-class tank situated $1\frac{1}{2}$ miles to the north of the Kottúr village. The existing weir being insufficient has to be extended to a length of $110\frac{1}{2}$ ft. to effect the maximum flood discharge. The ayacut area under the tank is 156.30 acres and may be ultimately extended to 217.77 acres.

Source of supply.

The principal source of supply to this tank is from the Kottúr anicut channel which tails into it.

Hydraulic details.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	41.00
	Maximum water level above do.	...	...	43.00
	Level of top of bund above do.	...	...	46.00

Bench marks.

I.—B. M. on demarcation stone, 50 ft. north east of weir, right flank ... 44.84

II.—B. M. on parapet wall of sluice No. 1, left flank 36.54

III.—B. M. on centre of cross stone of regulating

dam... 42.48

Height of datum above Mean Sea Level ... 1,050.10

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of catchment basin	...	...	2 $\frac{3}{4}$ sq. miles.	Maximum flood discharges.
Do. of Tanks above	...	...	Nil.	
Maximum flood discharge by formula C. M $\frac{3}{4}$.	...	...	980 cub. ft.	
Do. from supply channel	...	...	20 "	
Total maximum discharge to be provided for	...	...	1,000 cub. ft. per sec.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Existing masonry weir situated at right flank (<i>vide</i> Sketch, Plate VI, Fig. 1)	41.00	30 $\frac{1}{2}$	258	
Proposed extension	41.00	70	594	
Tamboghy in do.	40.00	10	155	
Total maximum discharge provided for	...	...	1,007	

There is no mamul breach for this tank, but one may be opened in case of emergency at 200 ft. from the right flank.

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	3,040,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	600 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	11,400,000 cub. ft.	
Do. annual storage at do.	...	40,000,000 " "	

DETAILS OF IRRIGATION.

Ayacut area	...	156.30 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	217.77 "	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	79.20 acres.	
Cill of existing irrigation sluice No. 1 above datum	...	29.53	
Do. do. No. 2, do.	...	31.78	

A longitudinal section of the bund showing details is given on Plate VI. Plans and sections.

VI.

The Financial details of this work are given in the statement at page 4. Financial details

SURULI NADDI GROUP.

Seliampatti Anicut Channel Sub-Group,

No. 7, IRRIGATION WORK,

SELIAMPATTI ANICUT CHANNEL.

General description. This is the 6th anicut across the Suruliyar, situated two miles N. E. of Chinnamanūr, said to have been constructed under the Pandiyan dynasty and has 451 acres of cultivation dependent on it.

Source of supply. The catchment area above is 220 sq. miles which with the formula $D = C. M^{\frac{1}{2}} - c. m^{\frac{1}{2}}$ in which $C = 543$ and $c. = 100$ would give a calculated discharge of 17,498 cub. ft. per second. Last November the flood rose to $4\frac{3}{4}$ ft. above the crest of the anicut, damaging that structure so much that it has been considered advisable to rebuild it on a good foundation lower down.

Head works. The present anicut is so placed across the bed of the river that any assumption of what would be a fair length to take for calculation would be guess work, so as a new work below would give a freer discharge to the flood, no calculations have been entered into as to the required length. A shorter length would cost more owing to deeper foundation being required, and it may be seen by looking at the plan that this length is more effective than the old anicut with the approach encumbered by the cocoanut tope.

Anicut channel. The foundations of the present anicut are on hard rock, Kunkar, and except for a length of 106 ft. in the centre and end, the fall is nowhere more than 10 ft.

For the central and end portions of 106 ft. the section adopted has been the sheer overfall with a water-cushion, the bottom of which is stone on edge set in soorkee mortar.

The masonry to be throughout of rubble stone in mortar; it is estimated the old work will furnish sufficient material.

Where the fall is less than 10 ft. a sheer overfall has been allowed on a rubble stone apron laying on the soft rock. The sections have been varied to suit the bed of the river, dividing walls being provided to retain the levels of the apron.

Head sluices. There are 294 acres of direct cultivation under this channel, and allowing 30 acres of cultivation to each cub. ft. per second of water, would require ten cub. ft. per second; besides this there is a tank of a capacity of 8,905,000 cub. ft. with 157 acres dependent on it; this would

require to be filled more than 4 times during each season; therefore every small fresh should be utilized and $2\frac{1}{2}$ acres only per. cub. ft. allowed; this would require 63 cub. ft. per second; total 73 cub. ft. per second; a section of 15 ft. bottom width side slopes 1 to 1 depth $2\frac{1}{2}$ ft. fall 3 per 1,000 would give a discharge of 78 cub. ft. per second; so the head sluice has been designed, with 3 vents, 6 ft. wide to allow a full discharge when the water in the river is flush with the crest of the anicut.

The top of the sluice has been taken to reduced level 1,123.50 the sill of the sluice being 1,114 above M. S. L.

A scouring sluice has been provided close to the right wing wall, 2' x 3', with the sill at 1,100 above M. S. L. closed with needle shutters, the crest of weir being raised 1 ft. for a length of 6 ft. to be able to work them.

The floor and sides of the scouring sluice to be of cut stone.

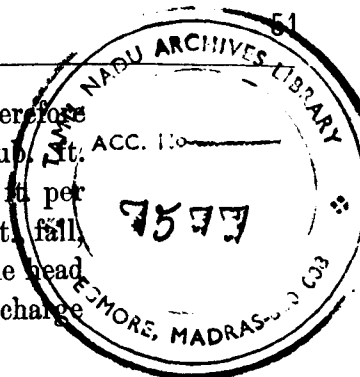
There are to be training banks as far as high ground, as shown on plan, to prevent the work being turned by the flood, a small diversion channel is necessary on the left bank; there is no provision made for it in the estimate as the earth is required for the training bank.

There are 2 masonry outlets besides the surplus weir stated above and distribution sluices.

There are twenty-one branch channels for direct irrigation from the main channel. Sixteen of them have been provided with regulating sluices. Of the remaining five, four channels are not to be provided for with sluices. The fifth one lying to the north of No. 3 outlet should have a sluice as otherwise the water is drawn off, leaving the tank below to suffer. Of the sixteen sluices existing, 14 are in fair order requiring only slight repairs and the remaining 2 have to be entirely reconstructed. The general plans of the existing and proposed anicut are given on Plate V, Figs. 4 and 5.

The total drainage area intercepted by the channel is $4\frac{3}{4}$ sq. miles. The maximum flood discharge from the first $1\frac{1}{4}$ sq. mile including the basin of Senkulam tank No. 12 is disposed of by outlet No. 2, and the open branch irrigation channels near it, without affecting the efficiency of the channel. The nullah that carries the discharge of the next $2\frac{1}{4}$ sq. miles crosses the main channel at one mile from the head near the 10th distribution sluice effecting its escape by breaches and overflows. The channel gets filled in at times with an enormous quantity of silt entailing a great amount of labour on the part of villagers to make the channel efficient again.

The main channel is $1\frac{3}{4}$ miles long with a bottom width varying from 18 to 6 ft. and a fall of about 4 ft. per mile.



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SURULI NADDI GROUP.

*Seliampatti Anicut Channel Sub-Group.***No. 8, IRRIGATION WORK,
SIRUKULAM TANK.****General descrip-
tion.**

THIS is a third-class tank situated close to Kottūr Village, near the road from Periyakulam to Cumbum. The bund is in a very bad condition, and the tank does not hold sufficient water for irrigation. Instead of taking measures to get the bund repaired, &c., some villagers got another tank formed just below, called Ottukkulam which for want of a suitable site for surplus works has not answered the purpose. It is now proposed to improve this tank bund raising the F. S. L. one foot which does not interfere with the cultivation and raising and extending the weir, abandoning the Ottukkulam tank altogether, so that sufficient water may be stored for the whole ayacut area under the tank.

Source of supply.

This tank receives its principal supply from the Seliampatti anicut channel which tails into it.

**Hydraulic de-
tails.**

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.**Standard levels.**

Full supply level above datum	...	40.06
Maximum water level above do.	...	42.06
Level of top of bund above do.	...	44.56

Bench marks

I.—B. M. on top of existing crest of weir	...	40.06
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II.—Do. Tamboghy floor, right flank	...	37.03
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III.—B. M. on centre of rear parapet of cistern of sluice, No. 2	...	34.76
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Height of datum above Mean Sea Level	...	1,074.77
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MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	...	$\frac{3}{4}$ sq. mile.	Maxim ¹ discha
Do. of tanks above	...	Nil.	
Maximum flood discharge by formula C. M ¹ .	...	410 cub. ft. per. sec.	
Do. from supply channel	...	25 „ „	
Total discharge to be provided for	...	435 „ „	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maxi- mum dis- charge.	
	Feet.	Feet.	Cub. ft. per. sec.	
Existing masonry weir situated at right flank (<i>vide</i> Sketch, Plate VI. Fig. 2)	40.06	30½	321	Surplus arrange- ments.
Do. Tamboghy in do.	37.03	3	116	
Total maximum discharge provided for	...	...	437	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	2,740,000 sq. ft.	Details of stor- age.
Greatest width of do. from bund	...	990 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	8,905,000 cub. ft.	
Approximate storage at do.	...	31,376,000 „	

DETAILS OF IRRIGATION.

Ayacut area	...	156.88 acres.	Details of irriga- tion.
Proposed ultimate area of irrigation	...	156.88 „	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	209.16 acres.	
Cill of existing irrigation sluice No. 1, above datum.	...	30.86	
Do. do. No. 2, do.	...	31.80	

A longitudinal section of the bund showing details is given on Plate VI. Financial details.

The Financial details of this work are given in the statement at page 4. Details of irriga-
tion.

SURULI NADDI GROUP.

*Chinnamanur Anicut Channel Sub-Group.***No. 9, IRRIGATION WORK,**

PERIYA VOIKAL CHANNEL.

General descrip-
tion.

This channel is taken off on the right bank of the Suruli Naddi, above the 4th anicut across the Suruliyar, situated at the village of Uttamapalaiyam, and is used both for direct irrigation, and to supply No 11 Odaikulam and 12 Senkulam tanks.

The total area dependent on this work is 1,666.39 acres.

Source of supply.

The Suruli Naddi has above the head of this channel, a catchment area of 173 square miles giving a flood discharge of 15,708 cub. ft. per second with the formula $D. = C. M^{\frac{1}{2}}$. — c. m³. in which C. & c. are 538 and 100 respectively.

In November 1884, the flood was observed to rise 5 ft. above crest of the anicut which is 256 ft. long; this would indicate a discharge of 7,752 cub. ft. per second to which may be added 783 cub. ft. per second which passed down the channel making a total of 8,535.

This would agree with the discharge at Paliamparavai anicut above, but in both cases breaches occurred; there is no record as to when the breach took place.

The difference between the calculated discharge and the discharge observed may be accounted for both by the breaches and by the large areas on each side of the Suruli Naddi which are inundated and act as moderators to the flood.

Head works.

The dam is of rough stone 256 ft. long of irregular section protected in front with a brickwork skin wall resting on the rocky bed of the river (*vide* Sketch, Plate VII, Fig. 1.)

There is a sand sluice in the centre, which does not keep the channel at all free from silt.

The anicut was somewhat shaken by the flood of November, 1884, and the apron much damaged, so it is proposed to repack the apron according to the original section and to build a short wall between two rocks in the centre to form a water-cushion close the sand sluice, and rebuild the right wing wall putting a scouring sluice close to it.

A Head sluice consisting of 4 vents is provided instead of the open head to give a discharge of 90 cub. ft. per second when the water is flush with crest of the anicut (*vide* Sketch, Plate VII, Fig. 2.)

SURULI NADDI GROUP.

*Chinnamanur Anicut Channel Sub-Group,***No. 10, IRRIGATION WORK,**

CHINNA VOIKAL CHANNEL.

This channel branches from the right bank of the Periya Voikal No. 9 at 4,900 ft. from its head. It is a high level channel having an open head through which it receives its supply; only when the regulating sluice constructed for the purpose across the Periya Voikal is closed. The irrigation under this channel is carried on mainly in summer. General descrip-
tion.

The channel banks are low and distribution channels have only open cuts which answer the purpose well and act also as so many natural escapes for the discharge of cross drainages entering the channel.

The extent of irrigation under the channel is 295.79 acres and it lies wholly between this and the main channels.

SURULI NADDI GROUP.

*Chinnamanur Anicut Channel Sub-Group,***No. 11, IRRIGATION WORK,**

ODAIKULAM TANK.

This third class Government tank is situated about one mile N. W. of Chinnamanur and receives its principal supply from No. 9, Periya Voikal channel. There has been a dispute of long standing between the villagers of Chinnamanur and Pulanandapuram as to whether this and No. 12 tank below were separate works or not. General descrip-
tion.

The principal source of supply to this work is from the Periya Voikal, No. 9. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic de-
tails.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	47.25.	Standard levels.
Maximum water level above do.	...	49.00.	
Top of bund above do.	...	52.00.	

I.—B. M. on northern most upright stone of existing weir, right flank ... 48.58.

Bench marks.

II.—B. M. at centre on top of front parapet wall of
irrigation sluice No. 3 ... 42.58.

III.—B. M. on demarcation stone opposite to 5,740 ft.
left flank. ... 50.00.

Height of datum above Mean Sea Level ... 1,116.64.

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	... 66 sq. miles.
	Do. of tanks above	... Nil.
	Calculated maximum discharge by formula C. M ³ .	... 380 cub. ft. per sec.
	Do. from supply channel	... 52 "
	Total maximum flood discharge to be provided for	... 432

SURPLUS ARRANGEMENTS.

Surplus arrange-ments.		Height above datum.	Length.	Maxi-mum dis-charge.
		Feet.	Feet.	Cub. ft. per sec.
	Existing calingulah to be converted into a flush escape	47.25	14.5	78
	Proposed surplus work in the bund between Odaikulam and Senkulam tanks	45.00	15	360
	(Vide Sketches, plate IX, Figs. 1 & 2.)			
	Total maximum discharge provided for	...	...	438

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	... 2,770,000 sq. ft.
	Greatest width of do. from bund	... 700 ft.
	Class of bund corresponding to do	... 3rd class.
	Approximate capacity of tank at F. S. L.	... 10,332,000 cub. ft.
	Do. annual storage at do	... 82,018,000 "

DETAILS OF IRRIGATION.

Ayacut area	... 407.40 acres.	Details of irri-gation.
Proposed ultimate extent of irrigation	... 410.09 "	
Water stored per acre of do.	... 200.000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	... 621.35 acres.	
Cill of existing irrigation sluice No. 1, above datum	40.46	
Do. No. 2, do.	37.62	
Do. No. 3, do	39.68	

A longitudinal section of the bund showing details is given on Plate IX. Plans and sec-tions.

The Financial details of this work are given in the statement at Financial details. page 8.

SURULI NADDI GROUP.
Chinnamanur Anicut Channel Sub-Group,
No. 12, IRRIGATION WORK,
SENKULAM TANK.

THIS third-class Government tank is situated 1 1/4 miles N. W. of Chin-namanur, and receives its principal supply from No. 11 tank by means of a weir with dam stones and shutters to stop the supply when the tank is full. General descrip-tion.

The principal source of supply to this work is from the Periya Source of supply. Voikal, No. 9.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	... 44.50	Standard levels.
Maximum water level above do.	... 46.50	
Top of bund above do.	... 49.50	

I.—B. M. on west wing adjacent to body, right flank... 46.92 Bench marks

II.—B. M. on top of rear parapet of sluice at centre ... 37.50

III.—B. M. on northernmost upright stone of existing weir of Odaikulam, left flank ... 48.58

Height of datum above M. S. L. ... 1,116.64

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	44 sq. miles.
	Do of tanks above	1 "
	Calculated maximum discharge by formula C. M. ¹	285 cub. ft.
	Expected discharge from Odaikulam tank	360 "
	Do from Chinnavoikal	15 "
	Total maximum flood discharge to be provided for..	660 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.	Height above datum.	Length.	Maximum discharge.
Existing calingulah to be converted into a flush escape & extended (vide Sketch, Plate IX, Fig. 3.)	Feet. 44.50	Feet. 100	Cub. ft. per sec. 660
Total Maximum discharge provided for.			660

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	1,990,000 sq. ft.
	Greatest width of do. from bund	700 ft.
	Class of bund corresponding to do.	3rd class
	Approximate capacity of tank at F. S. L.	9,253,000 cub. ft.
	Do. annual storage at do.	22,968,000 " "

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	112.19 acres.
	Proposed ultimate extent of irrigation	114.84 acres.
	Water stored per acre of do.	200,000 cub. ft.
	Ultimate irrigation per square mile of catchment	261 acres
	Cill of existing irrigation sluice No. 1 above datum	34.46
	Do. do. No. 2, do.	35.10

Plans and sections.

A longitudinal section of the bund showing details is given on Plate IX.

Financial details.

The Financial details of this work are given in the statement at page 8.

SURULI NADDI GROUP.

Palaiyamparavai Anicut Channel Sub-Group,

No. 13, IRRIGATION WORK,

PALAIYAMPARAVAI ANICUT CHANNEL.

This irrigation channel is taken off from the right bank of the Suruli Naddi above the third anicut across that stream, situated opposite to Puduputti village, and supplies Nos. 14, 15 & 16 tanks in the same sub-group; besides direct irrigation, the total area of wet cultivation dependent on this work being 1,952.23 acres. General description.

The drainage area of the Suruli Naddi above the anicut is 143 sq. miles about half of which is hilly and the maximum discharge by formula C. M.₁ — c. m.¹. where C. and c. have been taken as 549 and 100 respectively, is 14,095 cub. ft. per second. Source of supply.

In November, 1884, the highest point to which the flood rose was 6 ft. above the crest of the anicut; allowing this depth with a length of anicut equivalent to the cross section of the river at a short distance above, we have a discharge of 8,216 cub. ft. per second, including the discharge through the channel 896 cub. ft. per second which nearly agrees with the discharge over Chinnamanur anicut below, viz., 8,535 cub. ft. per second.

The difference between the observed flood discharge and the calculations, may be accounted for by the moderating influence exercised on the flood by the water spreading on the low land on each side of the river, and also to the floods being of such short duration that this moderating influence is not overcome during heavy floods as is the case in some rivers.

The supply which enters the channel is constant and may vary from 17 to 155 cub. ft. per sec. during the cultivation season.

The head works consisted originally of an anicut about 250 ft. long at an acute angle (vide Sketch, Plate X, Fig. 1) with the stream and a tamboghy on the channel, a short distance below, this latter work having failed some 15 years ago as well as the right flank of the anicut having been washed away, this tamboghy was closed and the anicut extended to a length of 306 ft., a new head for the channel being cut for a length of 300 ft. from the anicut, to a point where it rejoined the old channel. This new work was since damaged, the repairs were estimated for, but before they could be executed, nearly the entire work was carried away in November, 1884; so it is now thought better to rebuild the anicut a short distance above the old site. The site has been chosen so that the anicut may be as nearly as possible at right angles to the direction of the stream, and at the same time to avoid the Zamindari land close by on the right bank which has caused the awkward curves Head works.

to the wing walls of the head sluice. The section adopted is that generally believed to be the most lasting in this Presidency, viz., a sheer overfall, with a water cushion to limit the fall to 10 ft., and a flat apron of rubble stone to take the fall beyond the water-cushion.

The material proposed is brick in chunam, the upstream edge of the crest being protected with cut stone, on a foundation of concrete. From borings taken it is believed a sufficient depth has been allowed for the concrete to rest on firm soil.

The bottom of the water-cushion is of stone on edge, set in soorkee mortar. The apron, beyond the toe, to be built of the debris of the old anicut which is estimated to yield sufficient stone. The head sluice is founded on stiff clay and the foundations have been stepped up on the up stream side whilst on the down stream side 4 ft. has been considered sufficient. The channel supplies 499 acres of direct cultivation at 30 acres per cub. ft. per sec., this would require 17 cub. ft. per sec.

The tanks have a capacity of 82,000,000 cub. ft. so as they would have to fill 5 times to irrigate the 1,454 acres below them; we may allow 10 cub. ft. per sec., per acre for filling them during the freshes so that freshes of short duration may fill the tanks; allowing the tanks to fill once from an aggregate run off of 6 inches from their free catchments; we may deduct 342 acres at 30 acres per cub. ft., for this, leaving 155 cub. ft. per sec. for the channel to discharge during fresh which with 2 feet—6 inches depth and a fall of .55 per 1,000 would require a bottom width of 22 ft., this agrees with the sections of the channel now in existence. So 4 vents 6 ft. wide have been provided for the head sluice with needle shutters (*vide* Sketch, Plate XI, Fig. 3.)

A new cut has to be made from the head sluice to join the old channel (*vide* Sketch, Plate XI, Fig. 1.)

The left flood bank above the proposed anicut is to be strengthened and raised with 6 ft. top width slopes $1\frac{1}{2}$ —1, the earth being taken from the portion of the flood bank that is removed for the anicut, all the widening to be in rear to avoid moving any existing revetment.

Scouring sluice.

A scouring sluice has been provided with the sill at the same level as the top of the toe wall of the water-cushion. This is closed by needle shutters worked from a platform 1 ft. above the level of the crest of the anicut.

Masonry works along the channel.

There are two regulating dams and one outlet with a small vent for irrigation along the channel (*vide* Sketches, Plate X, Figs. 2, 3 & 4.) The first is situated on the left bank at 2 miles 990 ft. from the head for regulating the supply of a branch channel which has direct irrigation and is used as a means of supply to Tamaraikulam tank, No. 15. The second work is also constructed on the left bank of the channel for the

branch is taken off for supplying Kalanirkulam tank, No. 14. The third work is an outlet on the left bank of the channel, with a small vent for irrigating about 100 acres of land and is used also as an outlet for the channel. This work is to be provided with wings on both sides to prevent both the flanks from breaching.

The channel intercepts a drainage area of $13\frac{1}{2}$ sq. miles, giving a calculated maximum discharge of 2,825 cub. ft. per second. This quantity escapes through the above works and other mamul breaches.

The length of the main channel is 5 miles 600 ft. It has an average bottom width of 12 ft. and is kept in good condition by the villagers clearing the silt periodically.

SURULI NADDI GROUP.

Palaiyamparavai Anicut Channel Sub-Group,

No. 14, IRRIGATION WORK,

KALANIRKULAM TANK.

This is a third-class tank situated half a mile to the south of the village of Gokulapuram. It has no masonry weir, and its bye-wash at the left bank is efficient. It has two irrigation sluices, both in a dilapidated condition requiring to be reconstructed. The extent of irrigation under the tank is 123.81 acres.

The principal source of supply to this tank is from the Palaiyam-paravai Anicut Channel No. 13, by means of a branch channel.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	40.50	Standard levels.
Maximum water level above do.	...	...	42.50	
Top of bund above do.	...	...	45.50	

I.—B. M. on demarcation stone at 200 feet from right flank	...	...	42.39	Bench marks.
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II.—B. M. on demarcation stone on the bund, left flank. 43.80

Height of datum above Mean Sea Level 1,196.99

MAXIMUM FLOOD DISCHARGES PROVIDED FOR

Maximum flood discharges.	Gross area of catchment basin	... square mile.
	Do. do. tanks above	Nil.
	Calculated maximum discharge by formula C. M ¹ ...	410 cub. ft. per sec.
	Do. from supply channel	50 cub. ft. „ „
	Total maximum flood discharge to be provided for...	460 cub. ft. „ „

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Surplus arrangements.	Existing Bye-wash effective at	40.50	85
	Total maximum discharge provided for		472

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	... 2,020,000 sq. ft.
	Greatest width of do. from bund	... 950 ft.
	Class of bund corresponding to do.	... 3rd class.
	Approximate capacity of tank at F. S. L.	... 8,080,000 cub. ft.
	Do. annual storage at do.	... 24,762,000 „

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	... 123.81 acres.
	Proposed ultimate area of irrigation	... 123.81 „
	Water stored per acre of do.	... 200,000 cub. ft.
	Ultimate irrigation per square mile of catchment	... 165.08 acres.
	Cill of existing irrigation sluice No. 1, above datum	... 31.50
	Do. do. No. 2, above do.	... 33.50
	(vide Sketches, Plate XII, Figs. 1 & 2.)	

Plans and sections. A longitudinal section of the bund showing details is given on Plate XII.

Financial details. The Financial details of this work are given in the statement at page 8.

SURULI NADDI GROUP.

Palaiyamparavai Anicut Channel Sub-Group,

No. 15, IRRIGATION WORK,

TAMARAIKULAM TANK.

This work is a second-class tank about $\frac{3}{4}$ th of a mile to the east of Othamapalaiyam village. It has a masonry weir of recent construction at the right flank, and also a well situated bye-wash close by which requires to be extended to discharge the calculated maximum flood water coming into the tanks. Its sluices require repairs and the extent of irrigation dependent on the tank is 555.56 acres. General description.

The main source of supply to this tank is the first branch from Palaiyamparavai Anicut Channel, No. 13. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	... 36.76	Standard levels.
Maximum water level above do.	... 38.76	
Top of bund above do.	... 43.26	

I.—B. M. No. 1 on east wing adjacent to body 39.16 Bench marks.

II.—B. M. No. 2 on west wing adjacent to body, right flank 39.49

III.—B. M. at centre of bund on front parapet of sluice No. 2 34.45

IV.—B. M. on front parapet of sluice in the channel
bank, left flank ... 37.51

Height of datum above Mean Sea Level ... 1,173.35

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin ...	2 sq. miles
	Do. do of tanks above ...	Nil.
	Calculated maximum discharge by formula C. M ¹ .	795 cub. ft. per sec.
	Do. do from supply channel ...	45 cub. „ „
	Total maximum flood discharge to be provided for...	840

SURPLUS ARRANGEMENTS.

Surplus arrangements.	Weir effective at Tamboghy effective at Bye-wash effective at	Height above datum.	Length.	Maximum discharge.
		Feet.	Feet.	Cub. feet per sec.
	...	36.76	27.25	231
	...	33.76	4	134
	...	26.76	85	480
	Total maximum flood discharge provided for...	...	...	845

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L. ...	7,550,000 sq. ft.
	Greatest width of do. from bund. ...	2,250 ft.
	Class of bund corresponding to do. ...	2nd class.
	Approximate capacity of tank at F. S. L. ...	24,537,000 cub. ft.
	Do. annual storage at F. S. L. ...	111,112,000 cub ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area ...	555.56 acres.
	Proposed ultimate area of Irrigation ...	555.56 „
	Water stored per acre of do. ...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment ...	277.78 acres.
	Cill of existing sluice No. 1, above datum ...	26.06
	Do. do. No. 2, above do. ...	26.14
	Do. do. No. 3, above do. ...	29.85
	Do. do. No. 4, above do. ...	32.26

Plans and sections A longitudinal section of the bund showing details is given on Plate XII.

Financial details. The Financial details of this work are given in the statement at page 8.

SURULI NADDI GROUP.

Palaiyamparavai Anicut Channel Sub-Group,

No. 16, IRRIGATION WORK,

KARUNKATTANKULAM TANK.

THIS is a second class tank situated 2 miles to the south east of Chinnamanūr village. Its bund is protected on the inner slope from 400 ft. to 3,700 ft. from the right flank with rough stone revetment, and this requires to be repaired and kept up. Its weir on the right flank is in fair condition, requiring its crest to be lowered 1 ft. and slight repairs and the closing of a small breach on the right side. The weir at the left flank of the tank which was about 42 ft. long was washed away with the exception of about 15 ft. and right wing in. This was principally owing to a breach in the Zemindary tank, No. 17, situated above, and which had not been provided with suitable surplus works. The work is now proposed to be restored, giving it an additional length of 112 ft. for effecting the entire quantity of maximum flood discharge calculated by formula C. M¹. — c. m¹. (where C. and c. have been taken at 500 and 100 respectively.

The irrigation sluices in the bund only require repairs. The extent of irrigation dependent upon this tank is 689.69 acres.

The principal source of supply to this second class tank is from the Palaiyamparavai anicut channel which tails into it.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum ...	32.80	Standard levels.
Maximum water level above do. ...	35.25	
Top of bund above do. ...	39.75	

I.—B. M. on top of east wing in front 37.07 Bench marks.

II.—B. M. on front parapet of sluice No. 2, right flank... 28.84

III.—B. M. on top of centre of north wing of weir adjacent to body ... 37.29

IV.—B. M. on crest of weir adjacent to north wing, left flank ... 32.60

Height of datum above Mean Sea Level ... 1,292.71

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin ...	15½ square miles.
	Do. do. of tanks above ...	12½ square miles.
	Calculated maximum discharge by formula	
	C. M ³ . — c. m ³ .	2,571 cubic ft.
	Do. from supply channel ...	100
	Total maximum discharge to be provided for ...	2,671 cubic ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.		Height above datum.	Length.	Maximum discharge.
		Feet.	Feet.	Cub. ft. per sec.
	Weir in the right flank effective at (vide sketch, Plate XII, Fig. 4)			
	Tamboghy do. do. do. ...	33.25	49.0	415
	Weir (reconstructing) in the left flank do. (vide sketch, Plate XII, Fig 3)	32.50	13	178
	Tamboghy do. do. do. ...	32.80	145	1,719
		29.60	9	360
	Total maximum discharge provided for ...			2,673

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L. ...	7,490,000 square ft.
	Greatest width of do. from bund ...	1,060 ft.
	Class of bund corresponding to do. ...	2nd class.
	Approximate capacity of tank at F. S. L. ...	33,705,000 cub. ft.
	Approximate annual storage at do. ...	137,938,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area ...	689.69 acres.
	Proposed ultimate area of irrigation ...	699.73 acres.
	Water stored per acre of do. ...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment ...	233.24 acres.
	Cill of existing Irrigation sluice No. 1, above datum.	21.58
	Do. do. No. 2, above do. ...	22.79
	Do. do. No. 3, above do. ...	27.07

Plans and sections. A longitudinal section of the bund showing details is given on Plate XII.

Financial details. The Financial details of this work are given in the statement at page 8.

SURULI NADDI GROUP.

Palaiyamparavai Anicut Channel Sub-Group,

No. 17, IRRIGATION WORK,

NAIKKAR KULAM TANK.

THIS is a second class tank belonging to the Erasakkanaikkanur Zemindar, and is situated close to the village of the same name. The ridge line dividing the Suruli Naddi and Tala Vaigai minor basins, runs almost through the centre of the tank and consequently there are two bunds for the tank, one in the valley of the Suruli Naddi and one in Tala Vaigai rivers.

The Zemindar having improved the bunds, without arranging for the surplus discharge, the tank gave way at the right flank of the western or the Suruli Naddi side bund, and caused a serious breach in the Government tank, No. 16, of Karunkattan Kulam village, washing away greater portion of its weir in the left flank.

The Zemindar has since closed the breach, and has not arranged yet for any surplus work. It is now proposed to construct a weir just to the north of this breach and repair the bunds, that the Government work may not be again endangered. It is now given to be understood that the Zemindar intends opening a surplus weir in the Tala Vaigai side bund in order that the surplus water may be utilized for filling his tank in Tala Vaigai basin. As this arrangement will seriously affect the safety of all the tanks in the Zemindary Estate of Gandamanaikkanur now under the Court of Wards, he cannot be permitted to pass any surplus water into that basin. And if he is earnest in getting his other tank supplied from this, he may be permitted to construct a sluice on a plan prepared and given by this department. The extent of irrigation dependent on this tank is 85.11 acres.

This is a second class rainfed tank of good capacity and has a catchment area of 12½, sq. miles.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum ...	36.50	Standard levels..
Maximum water level do. ...	38.50	
Top of bund do. ...	43.00	

I.—B. M. on top of granite stone fixed at 200 feet from the right flank ... 38.17

Bench marks.

II.—B. M. on granite stone fixed at 1,525 feet south
of sluice, left flank ... 31.86

Height of datum above Mean Sea Level... 1,300.54

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	... 12½ sq. miles.
	Do. of tanks above	... Nil.
	Calculated maximum discharge by formula C. M ³ .	2,695 cub. ft.
	Do. from supply channel	... Nil.
	Total maximum flood discharge to be provided for...	2,695 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.	Weir (constructing in the west bund, left flank) effective at, (vide sketch Plate XII, Fig. 5) ...	Height above datum.	Length.	Maximum discharge.
		Feet.	Feet.	Cub. feet per sec.
		36.50	320	2,715
	Total maximum discharge provided for...	...	...	2,715

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	... 4,965,840 sq. ft.
	Greatest width of ditto from bund	... Nil.
	Class of bund corresponding to do.	... 2nd class.
	Approximate capacity of tank at F. S. L.	... 16,250,000 cub. ft.
	Do. annual storage at do.	... 17,022,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	... 85.11 acres.
	Proposed ultimate area of irrigation.	... 85.11 acres.
	Water stored per acre of do.	... 200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	... 6.81
	Cill of existing sluice, No. 1 above datum	... 26.50
Plans and sections.	Do. No. 2 above datum	... 23.58

A longitudinal section of the bund showing details is given on Plate XII.

The Financial details of this work are given in the statement at page 8.

SURULI NADDI GROUP.

Kuthanachiyar Channel Sub-Group,

No. 18, IRRIGATION WORK,

KUTHANACHIYAR STREAM.

THIS is a small perennial stream having its source on the high hills north of the source of the Suruli Naddi main stream. It has a small extent of direct irrigation, and is used as a means of supply to the Kuthanachiyar channel, and the tanks in the same sub-group lying below the head of the Kuthanachiyar channel, viz., Nos. 19, 20, 21, 22 & 23. The direct irrigation under this stream is 84.60 acres which may ultimately go up to 93.78 acres.

The stream has a catchment basin of 11½ sq. miles above the head of Kuthanachiyar channel where irrigation commences; of this area 8 sq. miles are hilly and the rest consists of plain and jungle. The calculated maximum flood discharge by formula C. M³. (where C. is taken as 570) is 2,901 cub. ft. per sec.

During low water, the stream carries only about 10 cub. ft. of water. The right for this water is enjoyed in turns for 2½ days in a week by the people who own the direct irrigation, and for 4½ days by the people who have cultivation under Kuthanachiyar stream and Késavapuram tank. This distribution is effected by means of a sand dam about 60 ft. long erected temporarily across the stream at the head of the channel.

There are no masonry works and the irrigation being carried on by means of open field channels which are given command of water by means of sand korambus or dams erected across the bed during low freshes.

The stream follows the natural slope of the country and falls into the Suruli Naddi and so does not intercept any cross drainage.

SURULI NADDI GROUP.

Kuthanachiyar Channel Sub-Group,

No. 19, IRRIGATION WORK,

KUTHANACHIYAR CHANNEL.

THIS irrigation channel is taken off from the right bank of the stream of the same name, about a mile to the south of Naranadévamputti village. It is used both for direct irrigation, and as a means of supply to Késavapuram tank No. 20, the surplus of which is taken to fill three other tanks in the same sub-group, viz., No. 21, 22 and 23. The total extent of irrigation dependent on this channel and Késava-

puram tank is 221.06 acres to which 82.45 acres may be added, being the lands under the other tanks.

Source of supply. The Kuthanachiyar stream has a catchment area of $11\frac{1}{2}$ sq. miles, above the head of this channel, giving a calculated maximum discharge of 2,901 cub. ft. per second. The stream is perennial and the supply entering the channel may vary from 10 to 70 cub. ft. during cultivation season.

Head works. The channel has as usual an open head. There is no permanent dam constructed across the stream to turn the water into the channel and none is required. When the water is low, and the supply entering the channel is insufficient, the people interested in the channel and tank have an established right for closing the stream completely by means of sand and brushwood and taking all the available water for $4\frac{1}{2}$ days in a week. This arrangement answers well. The right of water for the remaining $2\frac{1}{2}$ days is owned by the people having the direct irrigation under the stream.

Masonry works along the channel. There is an outlet in the left bank of the channel at 3,100 ft. from its head for the discharge of drainage water from the channel. Its left wing has been washed away and the work is in a neglected condition. It is now proposed to restore the work as the channel is getting silted up without it. A sketch of this work is given on Plate XIII, Fig. 1.

Disposal of cross drainage. The channel intercepts a drainage area of $1\frac{1}{2}$ sq. miles giving a calculated maximum flood discharge of 725 cub. ft. per second. This is discharged by the outlet above-mentioned and other open branch channels.

Main channel. The channel is 1 mile 3,000 ft. long and has an average bottom width of about 10 ft., and is kept in good order by the villagers throughout.

SURULI NADDI GROUP.

Kuthanachiyar Channel Sub-Group.

No. 20, IRRIGATION WORK,

KESAVAPURAM TANK.

General description. This is a third class tank situated close to Naranadévanpatti village. Its weir at the right flank is damaged and requires to be repaired. The irrigation sluices also require to be repaired. The extent of irrigation dependent on this work is 179.27 acres which may ultimately go up to 194.07 acres.

Source of supply The tank receives its principal supply from the Kuthanachiyar channel, No. 19.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	34.07	Standard levels.
Maximum water level above do.	...	35.07	
Top of bund above M.S.L. do.	...	38.07	

I.—B. M. on east wing of surplus weir adjacent to body, right flank ... 36.09 **Bench marks.**

II.—B. M. on demarcation stone south of the Tamarind tope in low ground, left flank ... 29.43

Height of datum above Mean Sea Level ... 1,250.88

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	$\frac{1}{2}$ sq. mile.	Maximum flood discharges.
Do. do. of tanks above...	...	Nil.	
Calculated maximum discharge by formula C. M. ¹ ...	...	315 cub. ft. per sec.	
Do. do. from supply channel	...	120 cub. ft. " "	
Total maximum discharge to be provided for	...	435 cub. ft. " "	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	
	Feet.	Feet.	Cub. ft. per sec.	
Calingulah effective at (vide Sketch, Plate XIII, Fig. 2)	32.32	20	273	Surplus arrangements.
Tamboghy effective at	31.06	7.5	180	
Total maximum discharge provided for	...	...	453	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,465,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	935 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	7,764,000 cub. feet.	
Do. annual storage at do.	...	35,854,000 "	

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area ...	179.27 acres.
	Proposed ultimate area of irrigation ...	194.07 acres.
	Water stored per acre of do. ...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment ...	388.14 acres.
	Cill of existing irrigation sluice No. 1, above datum ...	21.71.
Plans and sections.	Do. do. No. 2, above do. ...	23.08.
	A longitudinal section of the bund showing details is given on Plate, XIII.	
Financial details	The Financial details of this work are given in the statement at page 12.	

SURULI NADDI GROUP.**Kuthanachiyar Channel Sub-Group,****No. 21, IRRIGATION WORK,****SEVAKKULAM TANK.**

General description.	THIS is a third class tank situated close to the south of the village of Kamayagavandanpatti. It has no masonry weir, but a well situated bye-wash at the right flank; this requires to be extended to allow for the maximum flood discharge from the tank. It has one irrigation sluice which requires to be reconstructed. The extent of irrigation dependent on this tank is 32.21 acres.	
Source of supply.	It is a rainfed tank, but very frequently receives a good supply from Kēsavapuram tank, No. 20, through an artificial channel.	
Hydraulic details.	The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—	

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum ...	31.00
	Maximum water level above do. ...	33.00
	Top of bund above do. ...	36.00

Bench marks.	I.—B. M. on top of demarcation stone 10 ft. away in rear of bund, right flank ...	32.27
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II.—B. M. on demarcation stone, right flank ... 31.47

III.—B. M. on top of east wing of dam ... 34.05

IV.—B. M. on top of west wing of dam, left flank ... 34.31

Height of datum above Mean Sea Level. ... 1,248.08

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	1½ sq. miles.	Maximum flood discharges.
Do. do of tanks above	...	...	Nil.	
Calculated maximum discharge by formula				
C. M ³ . — c. m ³ .	...	...	655 cub. ft.	
Do. from supply channel	...	...	20 „	
Total maximum flood discharge to be provided for	...	...	675 „	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Bye-wash effective at ...	31.00	120	678	
Total discharge provided for ...			678	

DETAILS OF STORAGE.

Area of waterspread at F. S. L. ...	600,000 sq. ft.	Details of storage
Greatest width of do. from bund ...	468 ft.	
Class of bund corresponding to do. ...	3rd class	
Approximate capacity of tank at F. S. L. ...	2,100,000 sq. ft.	
Do annual storage at do. ...	6,442,000 sq. ft.	

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	...	32.21 acres
	Proposed ultimate area of irrigation	...	32.21 do.
	Water stored per acre of do.	...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	...	21.47 acres.
	Cill of existing Irrigation sluice above datum (<i>vide</i> Sketch, Plate XIII, Fig. 3)	...	26.00
Plans and sections.	A longitudinal section of the bund showing details is given on Plate XIII.		
Financial details.	The Financial details of this work are given in the statement at page 12.		

SURULI NADDI GROUP.**Kuthanachiyar Channel Sub-Group,****No. 22, IRRIGATION WORK,****PULLANKULAM TANK.**

General description. This is a third class tank situated to the north west of Kamaya-gavandanputty village. It has no masonry weir, but a bye-wash at the right flank, which may be extended to any length required. It has one sluice which requires to be reconstructed. The extent of irrigation dependent on this tank is 43.61 acres.

Source of supply. This is a rainfed tank, but it receives also a great portion of its supply from Késavapuram Tank, through Sevakkulam and Tamarai-kulam tanks, Nos. 21 and 23.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	31.00
	Maximum water level above do.	...	33.00
	Top of bund above do.	...	36.00

Bench marks. I.—B. M. on demarcation stone, right flank ... 35.65

II.—B. M. on demarcation stone at the curvature of bund of Tamarakulam, left flank ... 35.45

Height of datum above Mean Sea Level. ... 1,230.01

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	1½ sq. miles.	Maximum flood discharges.
Do. do. of tanks above	...	1½ „	
Calculated maximum discharge by formula	...	...	
C. M ³ . — c. m ³ .	...	569 cub. ft.	
Do. from supply channel	...	45 „	
Total maximum flood discharge to be provided for...	...	614	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Bye-wash effective at	31.00	110	622	
Total discharge provided for	...	...	622	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,210,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	1,050 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	2,359,000 cub. ft.	
Do. annual storage at do.	...	8,722,000 „	

DETAILS OF IRRIGATION.

Ayacut area	...	43.61 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	43.61 „	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per. sq. mile of catchment	...	348.88 acres.	
Cill of existing irrigation sluice above datum (<i>vide</i> Sketch, Plate XIII, Fig. 4.)	...	26.00	

A longitudinal section of the bund showing details is given on Plate XIII. **Plans and sections.**

The Financial details of this work are given in the statement at page 12. **Financial details.**

SURULI NADDI GROUP.
Kuthanachiyar Channel Sub-Group,
No. 23, IRRIGATION WORK,
TAMARAIKULAM TANK.

General description. This is a third class tank situated to the west of Kamayagavandanputty Village. It has a weir at the right flank, which requires to be repaired. Its two Irrigation sluices are in fair order but irrigate only 6.63 acres.

Source of supply. It receives its principal supply from the surplus of Késavapuram tank, No. 20.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	31.00
	Maximum water level above do.	...	...	33.00
	Top of bund above do.	...	...	36.00

Bench marks. I.—B. M. on demarcation stone by the side of foot path, right flank ... 32.68

II.—B. M. on demarcation stone at end of bund, left flank ... 32.13

Height of datum above Mean Sea Level ... 1,231.86

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	½ sq. miles.	Maximum flood discharges.
Do. of tanks above	...	...	Nil.	
Calculated maximum discharge by formula C. M. ¹ ...	125	cub. ft.		
Do. from supply channel	...	25	cub. ft.	
Total maximum flood discharge to be provided for...	150	cub. ft.		

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum flood discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Weir effective at (vide sketch, Plate VIII. Fig. 5)	31.00	10	94	
Proposed bye-wash grass planted	31.00	10	56	
Total maximum discharge provided for...	...	...	150	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	935,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	835 sq. ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	1,047,000 cub. ft.	
Do. annual storage do.	...	1,326,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	6.63 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	6.63 do.	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	53.04 acres.	
Cill of existing irrigation sluice No. 1, above datum..	26.63		
Do. do. No. 2 do.	...	26.46	

A longitudinal section of bund showing details is given on Plate XIII. **Plans and sections.**

The Financial details of this work are given in the statement at page 12. **Financial details.**

SURULI NADDI GROUP.
Sega Naddikulam Sub-Group.
No. 24, IRRIGATION WORK,
KADAMANKULAM TANK.

General description. THIS is a third class tank situated 3 miles south of Kilagudalur, having at present no irrigation under it, and it is in a ruined condition. The restoration of the tank is being considered in the Revenue Department on the petition of the ryots for the restoration of the same. The extent of land available for cultivation is about 60 acres. But the capacity of the tank is such (*vide* below) as will irrigate about only 13 acres.

Source of supply. It is a rainfed tank, and rains are plentiful in this part.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	31.00
	Maximum water level above datum	...	...	33.00
	Top of bund above do.	...	...	36.00

Bench marks I.—B. M. on demarcation stone, right flank ... 36.74

II.—B. M. on demarcation stone at cart track to the hills ... 30.20

III.—B. M. on demarcation stone 400 feet south side on field at the end of left flank ... 44.50

Height of datum above Mean Sea Level ... 1,426.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment Basin	...	1½ sq. miles.	Maximum flood discharges.
Do. of tanks above	...	Nil.	
Calculated maximum discharge by formula C. M. ³ ...	655 cub. ft.		
Do. from supply channel	...	Nil.	
Total maximum flood discharges to be provided for	655 cub. ft.		

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements
	Feet.	Feet.	Cub. ft. per. sec.	
Bye-wash effective at	31.00	120	678	
Total maximum discharge provided for	...	...	678	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	250,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	350 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	833,000 cub. ft.	
Do. annual storage at do.	...	2,600,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	Nil.	Details of irrigation.
Proposed ultimate extent of irrigation	...	13.00 acres.	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate extent of irrigation per sq. mile of catchment	...	8.66 acres.	
Cill of proposed irrigation sluice (<i>vide</i> sketch plate XIV, Fig. 1.)	...	21.00	

A longitudinal section of the bund showing details is given on Plate XIV. **Plans and sections.**

The Financial details of this work are given in the statement at page 12. **Financial details.**

SURULI NADDI GROUP.

Sega Naddikulam Sub-Group.

No. 25, IRRIGATION WORK,

SEGA NADDIKULAM.

General description.

THIS is a third class tank having at present only 8.95 acres of irrigation under it. It formerly had a supply channel from the Sega Naddi stream, which had its head $1\frac{1}{2}$ miles above the tank where an anicut had been constructed across the stream. The exact date when the anicut failed is not known: but the remains of its wings, and the course of the channel are visible. The cost of the restoration of the anicut and the supply channel will not be adequately compensated by the increased revenue from the tank. It is only proposed to repair the tank bund which is now breached and is in a neglected condition. The expected ultimate extent of irrigation under the tank is 16.80 acres, giving an increase of about Rs. 26 to the Revenue.

Source of supply.

It is a rainfed tank and the storage is good, as it frequently rains in this part of the minor basin.

Hydraulic details.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	22.25
	Maximum water level above do.	...	24.00
	Top of bund above do.	...	27.00

Bench marks.

I.—B. M. on demarcation stone at the commencement of bund, right flank	...	...	29.54
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II.—B. M. on demarcation stone under Tamarind tree at

the end of left flank ... 25.37

Height of datum above Mean Sea Level ... 1,385.63

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	3 $\frac{1}{2}$ square miles.	Maximum flood discharges.
Do. of tanks above	...	1 $\frac{1}{2}$ square miles.	
Calculated maximum discharge by formula			
C. M ¹ .—c. m ¹ .	...	966 cub. ft.	
Do. from supply channel	...	Nil.	
Total maximum flood discharge to be provided for	...	966 cub. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Bye-wash effective at	22.25	210	972	
Total maximum discharge provided for	...	...	972	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	320,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	600 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	1,120,000 cub. ft. *	
Approximate annual storage at do.	...	3,360,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	8.95 acres.	Details of irrigation.
Proposed ultimate extent of irrigation	...	16.80 acres.	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	5.17 cub. ft.	
Cill of existing irrigation sluice to be reconstructed (ride Sketch, Plate XIV, Fig. 2)	...	11.25	

A longitudinal section of the bund showing details is given on Plate XIV. Plans and sections.

The Financial details of this work are given in the statement at page 12. Financial details.

SURULI NADDI GROUP.

Vyravan Anicut Channel Sub-Group.

No. 26, IRRIGATION WORK,

VYRAVAN ANICUT CHANNEL.

General description.	THE Anicut which gave command of water to the channel failed, it is said, about 20 years ago, and it was not restored though the villagers had been frequently soliciting for its restoration and the proposal engaged the attention of the officers of both the Revenue and P. W. Departments.
Nature of supply.	The Vyravanar is a perennial stream and the channel is a permanent source of supply to two important tanks Nos. 26-A and 27 which appear to have been one tank at the time of their formation, but subsequently made into two by the addition of a cross bund between them probably to give better command of water supply to the high fields under the Ottukulam. The present extent of cultivation under the tanks, which are solely dependent on this channel for their supply, is 485.24 acres; the ultimate extent of land available for cultivation being 771.04 acres which extent would have been brought under cultivation, ere long, had the anicut been in good condition. Although the anicut failed, and the supply became precarious, yet the constant attention and exertion on the part of the interested villagers for erecting frequently a temporary Corumboo bank and keeping it up during low freshes at a great cost, result in ensuring sufficient supply for the existing cultivation and there has been no occasion for granting remissions.
Extent of Irrigation existing & proposed.	
Necessity for restoring the Anicut.	
Expected net increase of Revenue.	This fact only shows that the supply expected through the channel is good, and will be sufficient when the anicut is restored for the cultivation of all the available lands under the two tanks which is estimated to give ultimately a net increase of over Rupees 1,000 to the Revenue.
Anicut.	The old anicut that failed was about 62 ft. long. It is now proposed to construct a new one 125 ft. long in its stead at a site about 350 ft. above, found to be suitable for the purpose, (vide Sketch, Plate XV, Fig. 1.)
Hydraulic calculation.	The length of the anicut has been arrived at from the following Hydraulic calculations.
Drainage area.	The drainage area of the river, at this anicut, of which about two-thirds are hilly and the rest plain is 10½ sq. miles.
Maximum flood discharges.	The maximum discharge calculated by formula $D = C. M^{\frac{1}{2}}$ taking C. as 566 — will therefore be 2,756 cub. ft. per second over the proposed anicut.

The fall of the bed of the river being about 30 ft., per mile the channel has just below its head, a bottom width of about 10 ft. and side slopes 1½ to 1, and fall of bed 4½ ft. per mile. The Vyravanar stream is perennial and during cultivation season the depth of water will never be less than 9". Therefore, the maximum quantity of water constantly supplied by the channel during cultivation season is 8.6 cub. ft. per second.

Maximum quantity of water available.

The greatest depth of water entering the channel being about 4 ft, the maximum quantity entering the channel will be 204 cub. ft. Of this about 134 cub. ft. escape by the outlet in the channel which is 26½ ft. long with about 1½ ft. depth of water over crest; so the maximum quantity of water available for irrigation by the channel is 70 cub. ft. per second.

Maximum quantity of water available.

Now the ultimate extent of irrigation under the two tanks is 771 acres and the actual quantity of water required even supposing this extent to be directly under the channel itself is only about 19 ft. per second at the rate of one cub. ft. for every 41 acres as laid down in the Chief Engineer's Professional Circular No. 7, of the 6th October, 1880. The minimum constant supply available has been shown above to be 8.6 cub. ft. and there are two well situated tanks for storing sufficient water during high freshes and so the irrigation of all the 771 acres may be considered as certain, yielding an additional revenue of over Rupees 1,000 when the anicut is restored.

SURULI NADDI GROUP.

Vyravan Anicut Channel Sub-Group.

No. 26-a, IRRIGATION WORK,

OTTUKULAM TANK.

THIS is a small second class tank adjacent to Tamaraikulam tank No. 27. The extent of irrigation under this tank is now 165.08 acres; but the ultimate extent when the Vyravan anicut is restored will be 245.08 acres.

General description.

The tank receives its principal supply from the constant flow in the Vyravan Anicut Channel which is described in full in connection with Tamaraikulam tank No. 27.

Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	28.50
Maximum water level above do.	...	...	31.50
Top of bund above do.	...	...	36.00

Standard levels.

Bench marks. I.—B. M. on demarcation stone 600 ft. from right flank. 36.90

II.—B. M. on demarcation at 1,574 feet ... 34.54

Height of datum above Mean Sea Level ... 1,376.12

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	1 $\frac{1}{4}$ sq. mile.
	Do. of tanks above	...	Nil.
	Calculated maximum discharge by formula C. M ¹	...	78 cub. ft.
	Do. from supply channel	...	22 "
	Total maximum discharge to be provided for	...	100 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above Datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at ...	28.50	12	120
Total maximum discharge provided for ...	...	...	120

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	...	330,000 sq. ft.
	Greatest width of do. from bund	...	650 ft.
	Class of bund corresponding to do.	...	2nd class.
	Approximate capacity of tank at F. S. L.	...	792,000 cub. ft.
	Approximate annual storage at do.	...	49,016,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	...	165.08 acres
	Proposed ultimate area of irrigation	...	245.08 acres.
	Water stored per acre of do.	...	200,000 cub ft.
	Extent irrigation per sq. mile of catchment	...	3,921.28 acres.
	Cill of existing irrigation sluice above datum	...	23.13

Plans and sections. A longitudinal section of the bund showing details is given on Plate XV.

Financial details. The Financial details of this work are given in the statement at page 12.

SURULI NADDI GROUP.

Vyравan Anicut Channel Sub-Group,

No. 27, IRRIGATION WORK,

TAMARAİKULAM TANK.

This is a second-class tank situated half a mile to the South-east of Gudalur Village. It has no masonry weir, but a suitable bye-wash exists at the left flank, one of its irrigation sluices has been washed away, and requires to be reconstructed. The extent of irrigation dependent on this work is 320.16 acres. Ultimate extent when the Vyравan Anicut is restored will be 525.96 acres. The principal source of supply to this tank is the Vyравan Anicut channel.

This channel receives its supply through an open head from the Vyравan Ar, a perennial stream which has its source on the hills forming the western boundary of the Cumbum Valley, below the head of this channel, it is known by the name of Sega Naddi, and joins the Chinna Voikkal stream and finally falls into the Suruli Naddi.

An anicut about 62 ft. long had been constructed across the river to give a command of water to the channel; this work was washed away about 30 years ago, it was not restored, but an earthen bund was thrown across the stream, just above the damaged anicut and continued westwards for about 350 ft., a new head was opened for the channel and the river was allowed to make its own course in the padigay on the right side. This arrangement was answering well, till the river gradually cut a deep breach, about 70 ft. long above the extended bank, and thus the supply into the channel became precarious. The people have now to construct a mud dam during low freshes, (after each big flood) round the breach for raising the water to ensure the supply to the channel, and they are thus put to a great deal of expense and trouble. It is therefore proposed to construct a new dam at this place. Before this is recommended, it has also to be mentioned, that, if the Periyaur Project be sanctioned for execution, the Periyaur water is proposed to be let into this stream, the conditions will be materially altered, and this proposal will have to be carefully considered.

Turning to the efficiency of the channel in other respect, it is observed, that it intercepts a cross drainage of $\frac{3}{4}$ square mile and the maximum flood discharge of 410 cub. ft. escapes by an outlet (*vide* Sketch, Plate XV., Fig. 2) and other natural outlets. The channel is 1 mile 4,520 ft. long, and has an average bottom width of about 10 ft. It has no direct irrigation, but is used both as a means of supply to Ottukulam and Tamaraikulam Tanks, into the latter of which it tails.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	28.00
	Maximum water level above do.	...	...	31.00
	Top of bund above do.	...	...	35.50

Bench marks. I.—B. M. on demarcation stone at 224 feet on cross bund of Ottukulam from the junction, right flank ... 34.54

II.—B. M. on top of demarcation stone 52 feet away from the bund, left flank ... 34.09

Height of datum above Mean Sea Level ... 1,375.06

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	...	4½ sq. mile.
	Do. of tanks above	...	...	3½ do.
	Calculated max. discharge by formula $C. M^{\frac{1}{2}} - c. m^{\frac{1}{2}}$	...	...	1,064 cub. ft.
	Do. from supply channel	...	...	48 cub. ft.
	Total maximum flood discharge to be provided for	...	...	1,112 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

Height above datum.	Length.	Maximum discharge.
Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at ...	28.00	108
Total maximum discharge provided for	...	1,119

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	...	2,480,000 sq. ft.
	Greatest width of do. from bund	...	1,500 ft.
	Class of bund corresponding to do.	...	2nd class.
	Approximate capacity of tank at F. S. L.	...	9,920,000 cub. ft.
	Do. annual storage at do.	...	105,192,000 cub. ft.

DETAILS OF IRRIGATION.

Ayacut area	...	320.16 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	525.96 acres.	
Water stored per acre of do.	...	200,000 cub. ft.	
Extent of irrigation per square mile of catchment	...	701.28 acres.	
Cill of existing irrigation sluice, No. 1, above datum.	...	17.66	
Do. do. No. 2, do.	...	20.50	
(to be re-constructed) (vide Sketch, Plate XV, Fig. 3)			

A longitudinal section of the bund showing details is given on Plans and sections. Plate XV.

The Financial details of this work are given in the statement at Financial details. page 12.

SURULI NADDI GROUP.

Vyravan Anicut Channel Sub-Group,

No. 28, IRRIGATION WORK,

MANNANKULAM TANK.

THIS is a small third class tank, situated close to Gudalur village. It has a bye-wash and a temporary sluice, which answer the purpose well. The extent of Irrigation under this is 4.11 acres, a portion of which is nominally included in the accounts of Maittalaimannadikulam Tank No. 29, the ultimate extent being 37.64 acres.

The principal supply is from the surplus of Maittalaimannadikulam Tank and the wet lands under it.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	30.50	Standard levels.
Maximum water level above do.	...	...	31.50	
Top of bund above do.	...	...	34.50	

I.—B. M. on top of demarcation stone at the end of bund, right flank ... 31.71

Bench marks

II.—B. M. on top of demarcation stone 28 ft. away in rear, left flank ... 28.55

Height of datum above Mean Sea Level ... 1,422.61

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin ...	4 $\frac{1}{4}$ square mile.
	Do. of tanks above ...	Nil.
	Calculated maximum discharge by formula C. M ¹	38 cub. ft.
	Do. from supply channel (from surplus of No. 29) ...	12 cub. ft.
	Total maximum flood discharge to be provided for ...	50 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at ...	30.50	28	56
Total maximum discharge provided for ...			56

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L. ...	163,000 square ft.
	Greatest width of do. from bund ...	250 ft.
	Class of bund corresponding to do. ...	3rd class.
	Approximate capacity of tank at F. S. L. ...	244,000 cub. ft.
	Approximate annual storage at do. ...	7,538,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area ...	4.11 acres.
	Proposed ultimate area of irrigation ...	37.64 acres.
	Water stored per acre of do. ...	200,000 cub. ft.
	Extent of irrigation per square mile of catchment ...	1,806.72 acres.
	Temporary sluice to be kept by villagers ...	

Plans and sections. A longitudinal section of the bund showing details is given on Plate XV.

Financial details. The Financial details of this work are shown in the statement at page 12.

SURULI NADDI GROUP.

Vyравan Anicut Channel Sub-Group,

No. 29, IRRIGATION WORK,

MAITTALAIMANNADIKULAM TANK.

THIS is a third class tank situated close by Gudalur village on the west. It has a bye-wash at the right flank which requires to be extended. It has one irrigation sluice which requires reconstruction. The extent of irrigation dependent on this tank is 282.52 acres, the ultimate extent being 330.56 acres. General description.

It is a rainfed tank, and one of the drainages falling into it, called Soranganar, and has its source on the high hills west of the valley, and the supply is constant during cultivation season, the least quantity reaching the tank being about 3 cub. ft. per sec. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :— Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum ...	46.00	Standard levels.
Maximum water above do. ...	48.00	
Top of bund above do. ...	51.00	

I.—B. M. on demarcation stone. 500 ft. from the standing demarcation stone up the supply channel, right flank ... 57.63 Bench marks.

II.—B. M. at centre of rear parapet of sluice. ... 34.73

III.—B. M. on south end of parapet of culvert of 2 vents, left flank ... 59.59

Height of datum above Mean Sea Level ... 1,451.62

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	3½ sq. miles
	Do. of tanks above	Nil.
	Calculated maximum discharge by formula C. M ³	1,125 cub. ft.
	Do. from supply chanel	Nil.
	Total maximum flood discharge to be provided for...	1,125 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at	48.00	205	1,131
Total maximum discharge provided for...			1,131

DETAILS OF STORAGE.

Details of storage	Area of waterspread at F. S. L.	1,640,000 sq. ft.
	Greatest width of do. from bund	600 ft.
	Class of bund corresponding to do.	3rd class
	Approximate capacity of tank at F. S. L.	8,200,000 cub. ft.
	Do. annual storage at do.	66,112,000 „

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	282.52 acres.
	Proposed ultimate area of irrigation	330.56 „
	Water stored per acre of do.	200,000 cub. ft.
	Ultimate irrigation per sqr. mile of catchment	98.09 acres.
	Cill of existing irrigation sluice to be reconstructed above datum (<i>vide</i> Sketch, Plate XV, Fig. 4.)	37.00

Plans and sections.

A longitudinal section of the bund showing details is given on Plate XV.

Financial details

The Financial details of this work are shown in the statement at page 12.

SURULI NADDI GROUP.*Chinna Voikkal Channel Sub-Group,***No. 30, IRRIGATION WORK,****OOTTU VOIKKAL.**

General description.

At two miles below Tamaraikulam Tank No. 27, the Chinna Voikkal stream divides itself into two branches, the right stream being called the Oottu Voikkal. It is a natural stream having direct irrigation under it, which is carried on by means of branch channels having open heads, the water being diverted into them, during low freshes by means of temporary sand koramboos, formed in the bed of the stream. It follows the natural slope of the country and has a constant flow of water, and so does not require any more detailed description. The extent of irrigation directly under the stream is 102.86 acres, which is to be increased to 108.21 acres.

SURULI NADDI GROUP.*Chinna Voikkal Channel Sub-Group,***No. 31, IRRIGATION WORK,****CHINNA VOIKKAL CHANNEL.**

THE first part of this channel is a branch of the Chinna Voikkal stream, the artificial channel beginning at the outlet south of the point where the irrigation commences. It is used both for direct irrigation, and as a means of supply to other four works in the same sub-group, viz., tanks Nos. 32, 33, 34 and 35. The total extent of irrigation dependent on the channel and the four tanks is 966.26 acres.

General description.

The drainage area of the Chinna Voikkal channel above the point where it branches from the Chinna Voikkal stream is 51½ sq. miles of which two-thirds are hilly; the maximum flood discharge at this point is calculated by formula C. M³. — c. m³. to be 7,375 cub. ft. per second where C. and c. have been taken at 566 and 100 respectively. The quantity of water available for irrigation from this may vary from 15 cub. ft. to 124 during cultivation season.

Source of supply.

A masonry dam has been constructed across the stream to the channel which receives its supply through an open head. The masonry dam is 43½ ft. long. There are 2 outlets one at the head of the artificial channel as stated above and the other at 2 miles 4,400 ft. They serve also as distribution works for irrigation (*vide* Sketches, Plate XVI, Figs. 2 and 3.)

Head works.

There are besides, 15 masonry distribution sluices and 16 temporary pot sluices along the channel. Of the 15 sluices 6 are in fair order requiring slight repairs, the others being in a ruined state. The temporary sluices are too numerous, and give room for the waste of a large quantity of water, whereby the tanks below do not receive their full share. It is therefore proposed to construct, as shown in the section and estimate, 14 masonry sluices in place of the 9 ruined and 16 temporary sluices. The sluices will all be of one muster some having rear cistern instead of wings for distribution of water to two or three channels. The dimensions of the vents suitable for the acreage under the sluices have been calculated agreeably to the instructions contained in Professional Circular No. 7, of the 7th October, 1880. The front side and top stones of the vent will be so constructed as to give these calculated dimensions.

Masonry works along the channel.

The cross drainage intercepted by the channel is about 11½ sq. miles giving a calculated maximum flood discharge of 2,545 cub. ft. per second, the whole of this with the exception of about 155 cub. ft. which passes into the tanks escapes by means of the two outlets and

Disposal of cross drainage.

other masonry sluices and mamul breaches in the right bank of the channel.

Main channel.

The main channel is 3 miles 4,360 ft. long from the first outlet to Virappanaikkan Tank into which it falls. It has an average fall of 4.50 ft. per mile and the bottom width of the channel is 12 ft. throughout.

SURULI NADDI GROUP.

Chinna Voikkal Channel Sub-Group.

No. 32, IRRIGATION WORK,

PERIYAKULAM TANK.

General description.

THIS is a third class tank situated about a mile to the south east of Cumbam Village. It has a bye-wash and one irrigation sluice requiring repairs. The extent of irrigation under the tank is 79.58 acres.

Source of supply.

This tank receives its supply principally from the Chinna Voikkal Channel.

Hydraulic details.

The following are the Hydraulic details of this work indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.

Full supply level above datum	...	...	41.50
Maximum water level above do.	...	...	43.50
Top of bund above do.	...	...	46.50

Bench marks.

I.—B. M. on centre of demarcation stone on bund, right flank	...	...	...	45.85
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II.—B. M. on centre of demarcation stone east of natural escape, left flank	...	...	44.56
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Height of datum above Mean Sea Level	...	1,270.77
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MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	1/2 sq. mile.	Maximum flood discharges.
Do. of tanks above	...	...	Nil.	
Calculated maximum discharge by formula C. M. ^{1/2}	...	...	125 cub. ft.	
Do. from supply channel	...	...	25 cub. ft.	
Total maximum flood discharge to be provided for	...	...	150 cub. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Bye-wash effective at	41.50	30	169	
Total maximum discharge provided for	...	...	169	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,605,000 cub. ft.	Details of storage.
Greatest width of ditto from bund	...	800 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	5,746,000 cub. ft.	
Do. annual do.	...	15,916,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	79.58 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	79.58 acres.	
Water stored per acre of do.	...	200,000 cub. ft.	
Extent of irrigation per sq. mile of catchment	...	636.64 acres.	
Cill of existing irrigation sluice above datum	...	33.12	

A longitudinal section of the bund showing details is on Plate XVII. Plans and sections.

The Financial details of this work are given in the statement at page 16. Financial details.

SURULI NADDI GROUP.
Chinna Voikkal Channel Sub-Group,
No. 33, IRRIGATION WORK,
ODAPPADIKULAM TANK.

General description. This is a third-class tank situated about $\frac{3}{4}$ mile to the south of Cumbum village. It has a bye-wash and one irrigation sluice requiring repairs. The extent of irrigation under the tank is 7 acres.

Source of supply. The tank receives its supply principally from the Chinna Voikkal Channel.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	31.25.
	Maximum water level above do.	...	...	32.75.
	Top of bund above do.	...	...	35.75.

Bench marks. I.—B. M. on demarcation stone at the outside near the bye-wash, right flank ... 32.26.

II.—B. M. on top of demarcation stone, left flank ... 36.50

Height of datum above Mean Sea Level ... 1,270.75

MAXIMUM FLOOD DISCHARGES PROVIDED FOR

Maximum flood discharges.	Gross area of catchment basin	...	...	$\frac{1}{8}$ sq. mi
	Do. of tanks above...	...	...	Nil.
	Calculated maximum discharge by formula C. M ³	...	...	165 cub. f
	Do. from supply channel	...	...	15 "
	Total maximum flood discharge to be provided for	...	...	180 "

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Bye-wash effective at...	31.25	45	254	
Total maximum discharge provided for	...	...	254	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	1,445,000 cub. ft.	Details of storage.
Greatest width of do. from bund	...	...	790 ft.	
Class of bund corresponding to do	...	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	...	5,980,000 cub. ft.	
Do. annual storage at do.	...	...	14,262,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	...	71.31 acres.	Details of irrigation.
Proposed ultimate area of irrigation.	...	...	71.31 acres.	
Water stored per acre of do.	...	...	200,000 cub. ft.	
Extent of irrigation per sq. mile of catchment	...	...	380.32 acres.	
Cill of existing irrigation sluice above datum	...	...	22.64.	

A longitudinal section of the bund showing details is given on Plate XVII. Plans and sections.

The Financial details of this work are given in the statement at page 16. Financial details.

SURULI NADDI GROUP.

Chinna Voikkal Channel Sub-Group,
No. 34, IRRIGATION WORK,
OTTUKKULAM TANK.

This is a third-class tank situated about $\frac{3}{4}$ mile to the east of Cumbum village. It has a bye-wash and 1 irrigation sluice requiring repairs. The extent of irrigation under the tank is 40.91 acres. General description.

The tank receives its supply principally from the Chinna Voikkal Channel. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	40.00	Standard levels.
Maximum water level above do.	...	...	41.00	
Level of top of bund do.	...	...	44.00	

Bench marks. I—B. M. on top of demarcation stone, right flank ... 45.81

II—B. M. on top of demarcation stone at outside toe
near two upright stones at the junction of
Ottukkulam with Virappanaikkankulam tank,
left flank 35.46

Height of datum above Mean Sea Level 1,270.68

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	1 $\frac{1}{8}$ sq. mile.
	Do. of tanks above	...	Nil.
	Calculated maximum discharge by formula C. M ¹ .	...	78 cub. ft.
	Do. from supply channel	...	20 "
	Total maximum discharge to be provided for	...	98 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at ...	40.00	50	100
Total maximum discharge provided for ...	...	...	100

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	...	725,000 sq. ft.
	Greatest width of do. from bund	...	750 ft.
	Class of bund corresponding to do.	...	3rd class.
	Approximate capacity of tank at F. S. L.	...	2,542,000 cub. ft.
	Do. annual storage at do....	...	8,182,000 "

DETAILS OF IRRIGATION.

Ayacut area	...	40.91 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	40.91 "	
Water stored per acre of do.	...	200,000 cub. ft.	
Extent of irrigation per sq. mile of catchment	...	654.56 acres.	
Cill of existing irrigation sluice above datum	...	30.24	

A longitudinal section of the bund showing details is given on Plate XVII. Plans and sections.

The Financial details of this work are given in the statement at Financial details page 16.

SURULI NADDI GROUP.

Chinna Voikkal Channel Sub-Group,

No. 35, IRRIGATION WORK,

VIRAPPANAIAKKANKULAM TANK.

This is a third-class tank situated half a mile east of Cumbum village and adjacent to Ottukulam No. 34. It has a natural escape at the left flank and two irrigation sluices. No. 1 sluice requires slight repairs; and the other has to be entirely reconstructed. The total extent of irrigation under this tank is 172.51 acres. General description.

The principal source of supply to this tank is the Chinna Voikkal Channel, which tails into it. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	41.00	Standard levels.
Maximum water level above do.	...	44.00	
Level of top of bund above do.	...	47.00	

I.—B. M. on demarcation stone at outside toe near two upright stones at the junction of Ottukulam tank bund, right flank ... 35.46

Bench marks.

II—B. M. on demarcation stone 50 ft. due west of
natural escape and fourth demarcation stone
from Arasa tree, left flank ... 46.87

Height of datum above Mean Sea Level ... 1,269.57

MAXIMUM FLOOD DISCHARGES PROVIDED FOR

Maximum flood discharges.	Gross area of catchment basin	...	1 sq. mile.
	Do. of tanks above	...	Nil.
	Calculated maximum discharge by formula $C. M^{\frac{1}{2}}$	...	500 cub. ft.
	Do. from supply channel	...	100 cub. ft.
	Total maximum flood discharge to be provided for	...	600 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrange-
ments.

	Height above datum.	Length.	Maxi- mum dis- charge.
	Feet.	Feet.	Cub. ft. per. sec.
Bye-wash effective at ...	41.00	60	623
Total maximum discharge provided for	...	...	623

DETAILS OF STORAGE.

Details of stor- age.	Area of waterspread at F. S. L.	...	2,460,000 sq. ft.
	Greatest width of do. from bund	...	1,075 ft.
	Class of bund corresponding to do.	...	3rd class.
	Approximate capacity of tank at F. S. L.	...	11,070,000 cub. ft.
	Do. annual storage at do.	...	34,502,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irri- gation.	Ayacut area	...	172.51 acres.
	Proposed ultimate area of irrigation	...	173.01 acres.
	Water stored per acre of do.	...	200,000 cub. ft.
	Extent of irrigation per sq. mile of catchment	...	173.01 acres.
	Cill of existing irrigation sluice, No. 1, above datum.	...	30.62.
	Do. do. No. 2, do.	...	...
	to be reconstructed (<i>vide</i> Sketch, Plate XVII, Fig. 6.)	...	33.00

Plans and sec-
tions. A longitudinal section of the bund showing details is given on
Plate XVII

Financial details. The Financial details of this work are given in the statement at
page 16.

SURULI NADDI GROUP.

Chinna Voikkal Channel Sub-Group,

No. 36, IRRIGATION WORK,

KATTATHIAMMANKULAM TANK.

THIS small third-class tank is a private work not affecting any Government work. It is situated to the north-east of Cumbum village. The extent of irrigation dependent on the tank is 9.18 acres. It has a bye-wash and a temporary sluice kept up in condition by villagers: the bund is in good condition. General descrip-
tion.

It is a rainfed tank occasionally supplied also from the surplus of Virappanaikkan Tank No. 35. Source of supply.

SURULI NADDI GROUP.

Chinna Voikkal Channel Sub-Group,

No. 37, IRRIGATION WORK,

TENASAMUDRAM TANK.

THIS is a private work which is scarcely larger than a pond, does not affect any Government work, and requires no repair. The extent of irrigation under it is only 1.56 acres. General descrip-
tion.

SURULI NADDI GROUP.

Uttamut Anicut Channel Sub-Group,

No. 38, IRRIGATION WORK,

UTTAMUT ANICUT CHANNEL.

THIS is the 2nd anicut across the Suruliyar and supplies a channel with 2,469 acres of cultivation dependent on it. (*vide* Sketch, Plate XX, Fig. 1.) General descrip-
tion.

The catchment area above the anicut is 95 sq. miles which with the formula $D. = C. M^{\frac{1}{2}}$ — $c. m^{\frac{1}{2}}$ with C. and c. = 563 and 100 respectively, would give a discharge of 11,225 cub. ft. per second. Source of supply.

Last year the flood rose to R. L. 1,283 above M. S. L. or $4\frac{1}{2}$ ft. over the crest of the anicut, which is 202 ft. long, giving a discharge of 5,785 cub. ft. per second; to this must be added the discharge through the breached channel, *viz.*, about 4,000 cub. ft. per second; no extra discharge has been allowed for the increase of the breach in the channel as it is not known whether the level of the water fell or not, when the breach occurred. Head works.

The floods of the last year enlarged the breach in the channel at 1,350 ft. from the head sluice, and instead of making an extra waste weir to provide for the flood water, it is considered advisable to make a head sluice to regulate the amount of water entering the channel.

There are 1,924 acres of direct cultivation under this channel which allowing 1 cub. ft. to 30 acres would require 64 cub. ft. per second; besides this, there are 545 acres of tank cultivation requiring 54 cub. ft. per second; total 118 cub. ft. per second; the fall of the channel being 3 ft. per 1,000, a bottom width of 20 ft. side slopes 1 to 1 and 3 ft. depth are required; the head sluice has therefore been provided with 4 vents of 6' X 3' each. (*vide* Sketch, Plate XX, Fig. 2.)

A scouring sluice is provided at 2'—9" from the wing wall of the anicut; this distance has been chosen to avoid damaging the existing portion of the wing well.

Masonry works
along the chan-
nel.

There are five outlets existing along the channel, three in the first mile and two in the last mile, at 7 miles 2,630 ft. and 7,765 ft. The first (as already been stated) requires to be restored. The others require only repairs (*vide* Sketches, Plate XVIII, Figs. 1, 2, 3, and Plate XIX, Fig. 1 and 2.)

As the channel has no outlet for a length of $6\frac{1}{2}$ miles in the centre, the drainage water entering the channel near the third mile breaches the bund constantly at 3 miles 760 ft., where a distribution sluice has been washed away, the construction of an outlet as proposed is necessary, and this will form the fourth from the head. (*vide* Sketch, Plate XVIII, Fig. 4.)

There are also 62 distribution masonry sluices along the channel, of which 21 are in a fair condition requiring only repairs. The other 40 sluices have been more or less completely washed away, and require to be reconstructed entirely. As the number of sluices is unnecessarily large, it is now proposed, as indicated in the section, to construct only 31 sluices newly, and provide rear cisterns to those of the existing ones, that are capable of supplying water to more lands. There will thus be only 52 sluices. (*vide* Sketches, Plate XIX, Figs. 3, 4 and 5.)

Disposal of cross
drainages.

The cross drainage intercepted by the channel is 41 sq. miles, giving a calculated maximum discharge of 5,738 cub. ft. per second by formula $C. M^{\frac{1}{2}} - c. m^{\frac{1}{2}}$. This quantity is discharged from the channel by the 6 (existing 5 and new 1) outlets, and the several distribution sluices mentioned in the preceding para, leaving about 50 cub. ft. to enter into the tank No. 39.

Main channel.

The main channel is 7 miles 4,690 ft. long with a bottom width varying from 30 ft. at the head to 10 ft.

The bed of the channel has an average fall of 6.37 ft. per mile, and the channel is in good condition.

SURULI NADDI GROUP.

Uttamut Anicut Channel Sub-Group.

No. 39, IRRIGATION WORK,

KUPPUCHETTIKULAM TANK.

THIS is a third-class tank situated $1\frac{1}{2}$ miles to the north of Uthamapalaiyam village. It has a masonry surplus escape at the left flank; but this escape being insufficient, a bye-wash to the south of it is proposed to effect the maximum flood discharge from the tank. It has two irrigation sluices requiring slight repairs. The extent of irrigation dependent on this tank is 438.34 acres.

The tank receives its principal supply from the Uttamut Anicut Channel No. 38, which when repaired as estimated for will prove a fairly constant source of supply during cultivation season to this and the other two tanks in the same sub-group.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

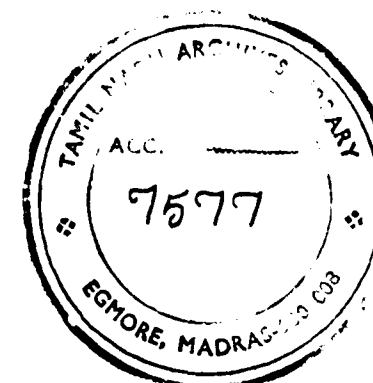
STANDARD LEVELS TO BE MAINTAINED.

			Standard levels.
Full supply level above datum	...	...	41.00
Maximum water level above do.	...	...	43.00
Top of bund above do.	...	...	46.00

I.—B. M. on south end of front parapet of distribution sluice of channel, right flank ... 42.26 Bench marks.

II.—B. M. on north end of rear parapet of right sluice. 33.22

III.—B. M. on south end of rear parapet of left sluice ... 37.82



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IV.—B. M. on top cross stone, centre of south vent of
surplus sluice, left flank ... 44.02

Height of datum above Mean Sea Level ... 1,179.64

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.
Gross area of catchment basin ... 3½ sq. miles.
Do. of tanks above ... Nil.
Calculated maximum discharge by formula C. M¹. ... 1,150 cub. ft.
Do. do. from supply channel ... 50 cub. ft.
Total maximum discharge to be provided for ... 1,200 cub. ft.

SURPLUS ARRANGEMENTS.

**Surplus arrange-
ments.**

	Height above datum.	Length.	Maxi- mum dis- charge.
	Feet.	Feet.	Cub. ft. per. sec.
Tamboghy effective at ...	40.00	6	93
Bye-wash effective at ...	41.00	200	1,131
Total maximum discharge provided for ...	...	...	1,224

DETAILS OF STORAGE.

**Details of stor-
age.**
Area of waterspread at F. S. L. ... 3,390,000 sq. ft.
Greatest width of do. from bund ... 850 ft.
Class of bund corresponding to do. ... 3rd class.
Approximate capacity of tank at F. S. L. ... 16,950,000 cub. ft.
Approximate annual storage at do. ... 87,668,000 cub. ft.

DETAILS OF IRRIGATION.

**Details of irriga-
tion.**
Ayacut area ... 438.34 acres.
Proposed ultimate area of irrigation ... 438.34 acres.
Water stored per acre of do. ... 200,000 cub. ft.
Ultimate irrigation per sq. mile of catchment ... 125.24 acres.
Cill of existing irrigation sluice No. 1, above datum. ... 29.68
Do. do. No. 2, do. ... 31.62

**Plans and sec-
tions.** A longitudinal section of the bund showing details is given on
Plate XIX.

**Financial de-
tails.** The Financial details of this work are given in the statement at
page 16.

SURULI NADDI GROUP.

Uttamut Anicut Channel Sub-Group,

No. 40, IRRIGATION WORK,

PUDUKKULAM TANK.

THIS is a third-class tank close to Kuppu Chetti Kulam Tank No. 39, on the north. It has a well situated bye-wash at the left flank, and one irrigation sluice in good condition. The villagers having by mistake extended the bund at the right flank to receive the full discharge from No. 39 work, the bund is breached. It is therefore proposed to abandon the portion thus extended and form the bund along the old line up to the north wing of the surplus weir of No. 39, allowing the discharge to escape as usual without affecting this work. The extent of irrigation under this tank is 44.16 acres.

This tank receives its supply mainly from the Uttamut Anicut Channel No. 38, through Kuppu Chetti Kulam Tank No. 39.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	30.00	Standard levels.
Maximum water level above do.	...	31.50	
Top of bund above do.	...	34.50	

I.—B. M. on cross stone, centre of south vent of
Kuppu Chetty Kúlam surplus sluice, right
flank ... 34.02 **Bench marks.**

II.—B. M. on south end of rear parapet of sluice ... 25.46

III.—B. M. on centre of demarcation stone at the rear
foot of bund, left flank ... 30.91

Height of datum above Mean Sea Level ... 1,264.64

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	...	7½ sq. miles
	Do. of tanks above	...	...	Nil.
	Calculated maximum discharge by formula C. M ¹ ...	...	...	290. cub. ft.
	Do. from tanks above	...	...	30 "
	Total maximum flood discharge to be provided for...	...	...	320 "

SURPLUS ARRANGEMENTS.

Surplus arrangements

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at	30.00	90	330
Total maximum discharge provided for	...	...	330

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	...	820,000 sq. ft.
	Greatest width of do. from bund	...	550 ft.
	Class of bund corresponding to do.	...	3rd class
	Approximate capacity of tank at F. S. L.	...	2,870,000 cub. ft.
	Do. annual storage at do	...	8,832,000 "

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	...	44.16 acres.
	Proposed ultimate area of irrigation	...	44.16 acres.
	Water stored per acre of do	...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	...	100.92 acres.
	Cill of existing sluice above datum.	...	21.59 ft.

Plans and sections. A longitudinal section of the bund showing details is given on Plate XIX.

Financial details. The Financial details of this work are given in the statement at page 16.

SURULI NADDI GROUP.
Uttamut Anicut Channel Sub-Group,
No. 41, IRRIGATION WORK,
SATHANKULAM TANK.

This third class tank is situated about 1¾ miles to the north of Uthamapalaiyam Village and just below the two tanks, Nos. 39 and 40. It has a bye-wash at the left flank and one irrigation sluice requiring slight repairs. The extent of irrigation under the tank is 63.26 acres.

This tank receives its supply chiefly from the Uttamut Anicut Channel, through the surplus of Kuppu Chetti Kulam Tank, No. 39, and the run off from the cultivation under them.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	32.00	Standard levels.
Maximum water level above do.	...	34.00	
Top of bund above do.	...	37.00	

I.—B. M. on centre of demarcation stone at rear foot of bund, right flank ... 32.52

II.—B. M. on south end of rear parapet of sluice at centre of the bund ... 30.07

on top of demarcation stone at end of bund
in rear, left flank ... 34.21

Height of datum above Mean Sea Level ... 1,234.64

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	1/2 sq. mile.
Do. of tanks above	...	...	Nil.
Calculated maximum discharge by formula C. M ¹	...	...	125 cub. ft.
Do. from supply channel	...	...	75 "
Total maximum discharge to be provided for	...	...	200 "

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at	32.00	40	226
Total maximum discharge provided for	...	...	226

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	330,000 sq. ft.
Greatest width of do. from bund.	...	200 ft.
Class of bund corresponding to do.	...	3rd class.
Approximate capacity of tank at F. S. L.	...	990,000 cub. ft.
Do. annual storage at do.	...	1,265,200 cub. ft.

DETAILS OF IRRIGATION.

Ayacut area	...	63.98 acres.
Proposed ultimate area of irrigation	...	63.26 acres.
Water stored per acre of do.	...	200,000 cub. ft.
Ultimate irrigation per sq. mile of catchment	...	511.84 acres.
Cill of existing irrigation sluice above datum	...	25.98.

A longitudinal section of the bund showing details is given on Plate XIX.

The Financial details of this work are given in the statement at page 16.

SURULI NADDI GROUP.
Maukainkottai Anicut Channel Sub-Group,
No. 42, IRRIGATION WORK,
MAUKAINKOTTAI ANICUT CHANNEL.

THE Maukainkottai Anicut Channel branches from the left bank of the Suruli Naddi, and is the fourth channel receiving a constant supply from the same. It is used both for direct irrigation, and as a means of supply to Sundakkakulam tank No. 43. The total extent of irrigation dependent on the channel and the tank is 477.86 acres.

The drainage area of the Suruli Naddi at the head of this irrigation channel is 210 sq. miles, of which 90 are hilly. It gives a calculated maximum discharge of 17,057 cub. ft. per second, by formula C. M¹—c. m¹ (C and c being taken at 542 and 100 respectively.)

The head work of this channel consists of an anicut 325 ft. long, faced with a wall of brick-work in chunam. This commands a good supply of water to the channel. There is also a surplus weir, a little below on the channel bank for the discharge of extra water entering the channel, also constructed with a front wall of brick-work in chunam, supported by rough stone work in rear. The head of the channel has been cut, with almost vertical sides through rocky soil up to the surplus weir, with an average bottom width of 10 ft. The depth of water at the head is never less than 2 ft., and the supply of water by the channel for irrigation purposes may be calculated to vary from 36 cub. ft. to 150 cub. ft. per second. The sketches of the anicut and the surplus weir are given in Plate XXI, Figs. 1 and 2.

There are no masonry works along the channel excepting the surplus weir already mentioned. Of the several field channels that branch from the main channel, three are important for which, the construction of head sluices are particularly asked for by the villagers. The regulation of water to these channels becomes troublesome and expensive to the ryots, especially after heavy rains, as drainage water that escapes by mamul breaches, washes away the bund. But their request cannot be complied with, without adequately providing for the discharge of drainage water by means of masonry outlets, which would be costly, and for constructing which, there is no suitable place without paying heavy compensation, the surplus channel, having to be cut through valuable wet cultivation.

The drainage area intercepted by the channel is 3 1/2 sq. miles, giving a calculated maximum discharge of 1,111 cub. ft. per second. This quantity comes into the channel chiefly by three nullahs, and escapes, across it by the field channels and mamool breaches mentioned above, leaving 70 cub. ft. to be discharged into the tank below.

III.—B. M. on top of demarcation stone at end of bund
in rear, left flank ... 34.21

Height of datum above Mean Sea Level ... 1,234.64

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	... 1 sq. mile.
	Do. of tanks above	... Nil.
	Calculated maximum discharge by formula $C. M^{\frac{1}{2}}$	... 125 cub. ft.
	Do. from supply channel	... 75 "
	Total maximum discharge to be provided for	... 200 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at	32.00	40	226
Total maximum discharge provided for	...	...	226

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	... 330,000 sq. ft.
	Greatest width of do. from bund.	... 200 ft.
	Class of bund corresponding to do.	... 3rd class.
	Approximate capacity of tank at F. S. L.	... 990,000 cub. ft.
	Do. annual storage at do.	... 1,265,200 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	... 63.98 acres.
	Proposed ultimate area of irrigation	... 63.26 acres.
	Water stored per acre of do.	... 200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	... 511.84 acres.
	Cill of existing irrigation sluice above datum	... 25.98.

Plans and sections.

A longitudinal section of the bund showing details is given on Plate XIX.

Financial details.

The Financial details of this work are given in the statement at page 16.

SURULI NADDI GROUP.

Maukainkottai Anicut Channel Sub-Group,

No. 42, IRRIGATION WORK,

MAUKAINKOTTAI ANICUT CHANNEL.

THE Maukainkottai Anicut Channel branches from the left bank of the Suruli Naddi, and is the fourth channel receiving a constant supply from the same. It is used both for direct irrigation, and as a means of supply to Sundakkakulam tank No. 43. The total extent of irrigation dependent on the channel and the tank is 477.86 acres.

The drainage area of the Suruli Naddi at the head of this irrigation channel is 210 sq. miles, of which 90 are hilly. It gives a calculated maximum discharge of 17,057 cub. ft. per second, by formula $C. M^{\frac{1}{2}}$ — $c. m^{\frac{1}{2}}$ (C and c being taken at 542 and 100 respectively.)

The head work of this channel consists of an anicut 325 ft. long, faced with a wall of brick-work in chunam. This commands a good supply of water to the channel. There is also a surplus weir, a little below on the channel bank for the discharge of extra water entering the channel, also constructed with a front wall of brick-work in chunam, supported by rough stone work in rear. The head of the channel has been cut, with almost vertical sides through rocky soil up to the surplus weir, with an average bottom width of 10 ft. The depth of water at the head is never less than 2 ft., and the supply of water by the channel for irrigation purposes may be calculated to vary from 36 cub. ft. to 150 cub. ft. per second. The sketches of the anicut and the surplus weir are given in Plate XXI, Figs. 1 and 2.

There are no masonry works along the channel excepting the surplus weir already mentioned. Of the several field channels that branch from the main channel, three are important for which, the construction of head sluices are particularly asked for by the villagers. The regulation of water to these channels becomes troublesome and expensive to the ryots, especially after heavy rains, as drainage water that escapes by mamul breaches, washes away the bund. But their request cannot be complied with, without adequately providing for the discharge of drainage water by means of masonry outlets, which would be costly, and for constructing which, there is no suitable place without paying heavy compensation, the surplus channel, having to be cut through valuable wet cultivation.

The drainage area intercepted by the channel is $3\frac{1}{2}$ sq. miles, giving a calculated maximum discharge of 1,111 cub. ft. per second. This quantity comes into the channel chiefly by three nullahs, and escapes, across it by the field channels and mamool breaches mentioned above, leaving 70 cub. ft. to be discharged into the tank below.

Main channel.

The Maukainkottai irrigation channel is 2 miles 940 ft. long from the head to Sundakkakulam tank No. 43 which it supplies. The section of the channel decreases, as it goes down, its bottom width varying from 15 ft. below the surplus weir to 6 ft. near the tank.

The periodical clearing of silt is attended to by the villagers.

SURULI NADDI GROUP.

Maukainkottai Anicut Channel Sub-Group.

No. 43, IRRIGATION WORK,

SUNDAKKAKULAM TANK.

General description.

This is a third-class tank situated one mile to the north of Maukainkottai Village. Its surplus sluice at the left flank, has been washed away, and requires to be replaced with a suitable weir. Its bund is breached in three places, owing to the breach in Senkulam tank No. 44 situated above. These breaches which occurred three years ago, have not been closed, and consequently the cultivation is carried on with difficulty by water supplied directly by Maukainkottai Anicut Channel. It is now proposed to restore the tank completely. The extent of irrigation under this tank is 87.08 acres.

Source of supply.

The principal source of supply to this work is the Maukainkottai Anicut Channel No. 42.

Hydraulic details.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	49.00
	Maximum water level above do.	...	51.00
	Level of top of bund above do.	...	54.00

Bench marks.

I.—B. M. on demarcation stone, right flank ... 50.00

II.—B. M. on demarcation stone in rear of bund ... 45.91

Height of datum above Mean Sea Level ... 1,104.46

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	2½ sq. miles.	Maximum flood discharges.
Do. of tanks above	...	2½ "	
Calculated maximum discharge by formula			
C. M ³ —c. m ³ .	...	796 cub. ft. per. sec.	
Maximum flood discharge from supply channel	...	70 cub ft.	
Total discharge to be provided for	...	866 cub. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Proposed weir in place of ruined one at the left flank (vide Sketch, Plate XXII, Fig. 1.)	49.00	97	823	
Tamboghy in do.	48.00	3	46	
Total maximum discharge provided for	...	...	869	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	820,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	350 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	1,913,000 cub ft.	
Do. annual storage at do.	...	17,416,000 "	

DETAILS OF IRRIGATION.

Ayacut area	...	97.29 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	87.08 "	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	348.32	
Cill of existing sluice above datum	...	42.92	

A longitudinal section of the bund showing details is given on Plate XXII. Plans and sections.

The Financial details of this work are given in the statement at page 20. Financial details.

SURULI NADDI GROUP.
Maukainkottai Anicut Channel Sub-Group,
No. 44, IRRIGATION WORK,
SENKULAM TANK.

General descrip-
tion.

THIS is a third-class tank situated to the north-west of Maukainkottai village. It has a suitable site for a bye-wash which has to be improved to 154 ft. long. Some years ago, irrigation sluice No. 1 failed, resulting in a serious breach, which again caused the bursting of the Sundakkakulam No. 43. No. 2 sluice also is in a dilapidated condition. Both the sluices have to be reconstructed and the bund restored to proper condition. The extent of irrigation dependent on this tank is 74.24 acres, the whole of which now lies waste, though remission in the Revenue is made for only 21.77 acres, and the ryots have to pay for the remaining land at the reduced rate under conditions granted to them.

Source of supply.

It is a rainfed tank having a catchment area of $2\frac{1}{2}$ square miles.

Hydraulic de-
tails.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels

Full supply level above M. S. L.	...	...	48.00
Maximum water level above do.	...	...	50.00
Level of top of bund above do.	...	...	53.00

Bench marks.

I.—B. M. on top of Kundam stone in rear 106 ft. from..
bund, right flank ... 44.86

II.—B. M. on front parapet of sluice at centre ... 42.36

• III.—B. M. on demarcation boundary stone, left flank... 50.00

Height of datum above Mean Sea Level ... 1,119.65

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	$2\frac{1}{2}$ sq. miles.	Maximum flood discharges.
Do. of tanks above	...	...	$\frac{3}{8}$ sq. mile.	
Calculated maximum discharge by formula	...	...		
C. M ³ .—c. m ³ .	...	...	868 cub. ft.	
Maximum flood discharge from supply channel	...	...	Nil.	
Total discharge to be provided for..	...	...	868 cub. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Existing bye-wash at the left flank	48.00	100	} 871	
Proposed extension do.	48.00	54		
Total maximum discharge provided for	..	..	871	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,500,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	725 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	3,750,000 cub. ft.	
Approximate annual storage at do.	...	14,848,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	74.24 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	74.24 acres.	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per square mile of catchment	...	34.94 acres.	
Oill of existing sluice No. 1, above datum	...	41.00 ft.	
Do. do. No. 2 do. (vide Sketch, Plate XXII, Figs. 2 & 3.)	...	42.00 ft.	

A longitudinal section of the bund showing details is given on Plate XXII. Plans and sections.

The Financial details of this work are given in the statement at page 20. Financial details.

SURULI NADDI GROUP.
Maukainkottai Anicut Channel Sub-Group,
No. 45, IRRIGATION WORK,
KANAKAPILLAIKULAM TANK.

General description. This is a private third-class tank situated to the north-west of Maukainkottai village. The owner is willing to carry out at his own cost, the repairs considered necessary by this department. So he may be allowed to do the work now estimated for. The extent of irrigation under the tank is at present 2.35 acres, and when the storage is improved, it may go up to 7 acres.

Source of supply. This is a rainfed tank having a catchment of $\frac{1}{2}$ sq. mile.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	49.00
	Maximum water level above do.	...	50.00
	Level of top of bund above do.	...	53.00

Bench marks. I.—B. M. on demarcation stone, right flank ... 50.00

Height of datum above Mean Sea Level ... 1,141.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	$\frac{1}{2}$ sq. mile.
	Do. of tanks above	...	Nil.
	Calculated maximum discharge by formula C. M ¹ .	...	195 cub. ft.
	Do. from supply channel	...	Nil.
	Total maximum flood discharge to be provided for	...	195 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the left flank	49.00	98	196
Total maximum discharge provided for	...	...	196

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	140,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	300 ft.	
Class of bund corresponding to do.	...	3rd class	
Approximate capacity of tank at F. S. L.	...	850,000 cub. ft.	
Approximate annual storage for the ultimate area of irrigation at F. S. L.	...	1,400,000 cub. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	2.35 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	7.00 acres.	
Water stored per acre of do.	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	28.00 acres.	
A rough stone temporary sluice to be kept by villagers			

A longitudinal section of the bund showing details is given on Plate XXII. **Plans and sections.**

The Financial details of this work are given in the statement at page 20. **Financial details.**

SURULI NADDI GROUP.
Maukainkottai Anicut Channel Sub-Group,
No. 46, IRRIGATION WORK,
PUDUKKULAM TANK.

This third-class tank is situated close to Pulikkuthi village on the west. It is now in a neglected condition, with a breach unclosed near the left flank. It is proposed to close the breach, and repair the bund and store as much water as possible. The present irrigation under the tank is 2.47 acres and may extend to 10 acres, depending on the supply available. **General description.**

This is a rainfed tank having a catchment of $\frac{3}{8}$ square mile. **Source of supply.**

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :— **Hydraulic details.**

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	51.00	Standard levels.
Maximum water level above do.	...	52.00	
Level of top of bund above do.	...	55.00	

Bench marks.

I.—B. M. on demarcation stone, near 500 ft. in longitudinal section ... 50.00

Height of datum above Mean Sea Level ... 1,232.04

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.

Gross area of catchment basin ... 1 sq. mile.
Do. of tanks above ... Nil.
Calculated maximum discharge by formula $C. M^{\frac{1}{2}}$... 260 cub. ft.
Do. from supply channel ... Nil.
Total maximum discharge to be provided for ... 260 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the left flank	51.00	100	260
Proposed extension	51.00	30	
Total maximum discharge provided for			260

DETAILS OF STORAGE.

Details of storage.

Area of waterspread at F. S. L. ... 220,000 sq. ft.
Greatest width of do. from bund ... 700 ft.
Class of bund corresponding to do. ... 3rd class.
Approximate capacity of tank at F. S. L. ... 589,000 cub. ft.
Do. annual storage at do. ... 2,000,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.

Ayacut area ... 2.47 acres.
Proposed ultimate area of irrigation ... 10.00 „
Water stored per acre of do. ... 200,000 cub. ft.
Ultimate irrigation per sq. mile of catchment ... 26.66 acres.
A rough stone temporary sluice to be kept up by villagers.

Plans and sections.

A longitudinal section of the bund showing details is given on Plate XXII.

Financial details.

The Financial details of this work are given in the statement at page 20.

SURULI NADDI GROUP.*Kuchanur Anicut Channel Sub-Group,***No. 47, IRRIGATION WORK,****KUCHANUR ANICUT CHANNEL.**

This irrigation channel is the sixth off-take from the Suruli Naddi, having its head on the left bank at the anicut. It is a zemindary work belonging to Bodinayakkanur Zemindar, and has a direct irrigation of 532.16 acres belonging to Kuchanur village. General description.

The drainage area of the Suruli Naddi, above the head of this channel is about 220½ sq. miles, of which 96 sq. miles are hilly. The maximum discharge from this area calculated by formula, $C. M^{\frac{1}{2}}$ —c. m³. (where C. and c. have been taken at 543 and 100) is 17,521 cub. ft. per second. The supply available from this, may vary from 25 to 200 cub. ft. per second during cultivation season. Source of supply.

A masonry anicut 325 ft. long has been constructed nearly straight across the Suruli Naddi, at the head of the channel. The roughstone work in rear has been damaged, and crest exposed. So it is proposed to repair it, giving a roughstone apron below to prevent scour. The left flank of the anicut is exposed to the action of floods, and is liable to constant breaching. It is therefore proposed to protect it for some distance with roughstone revetment on both sides. A surplus weir has been constructed 2,100 ft. below, on the right bank of the channel for the escape of flood water entering the channel. The sketches of these works are given on Plate XXI, Figs. 3 & 4, and they should be kept in repair in order that the Government anicuts, &c., below may not be injured. The head of the channel is as usual, open with a bottom width of from 20 to 25 ft. up to the surplus weir. Head works.

There are four masonry distribution sluices lately constructed by ryots, for the other field channels, there are merely cuts. There are two outlets across a nullah, one in the main channel, and the other in the main branch channel. They have been washed away and require to be reconstructed, not merely for the sake of the cultivation under the channel, but also for the good of the Government work No. 48, and its surplus weir which frequently gets damaged by the breach caused by the failure of these works; the sketches of these works are given on Plate XXI, Figs. 5 & 6. Masonry works along the channel.

The irrigation channel intercepts a drainage area of 5¼ sq. miles, giving a calculated maximum discharge of 1,314 cub. ft. per second, besides 866 cub. ft. of surplus discharge from the Sundakkakulam Tank No. 43. The latter quantity escapes by a mamul breach and the remainder escapes by open branch channels, and the two outlets above referred to. Disposal of cross drainage.

The main channel is 3 miles 2,160 ft. Its bottom width varies from 18 to 6 ft. Main channel.

SURULI NADDI GROUP.

Kulayanur Anicut Channel Sub-Group,

No. 48, IRRIGATION WORK,

KULAYANUR ANICUT CHANNEL.

General descrip-
tion.

THIS anicut channel is taken off from the Suruli Naddi at the 8th anicut from its source, and is used both for direct irrigation, and as a means of supply to Karuvelankulam Tank No. 49, in the same sub-group. The total extent of irrigation under the channel and the tank is 193.66 acres.

Source of supply.

The area draining into the Suruli Naddi, above the head of this channel is 233 sq. miles, of which 101 sq. miles are hilly. The calculated maximum discharge over the anicut is 17,973 cub. ft. per second, and the quantity drawn off by the channel during cultivation season for irrigation purposes may vary from 15 to 160 cub. ft. per second.

Head works.

The head of this irrigation work is as usual open, situated on the left bank about 200 ft. above the site of anicut constructed for the purpose of raising the water level.

The anicut is 352 ft. long in a straight line, and consists of a front wall of brickwork in chunam protected with a flush roughstone work behind.

A sketch of it is given at Plate XXI, Fig. 7. The work is in a dilapidated condition and requires to be repaired. A new roughstone apron has to be given, where scour takes place and the work is undermined.

Masonry works
along the chan-
nel.

There are two masonry outlets in the channel bank as sketched on Plate XXI, Figs. 8 & 9. The first is designed to both discharge, the extra water entering the channel from the Suruli Naddi during freshes and the drainage brought by the nullah, across which two outlets have to be reconstructed in connection with the zemindary irrigation work No. 48. The other is to discharge mere drainage water. There are numerous fields and channels and no regulation sluices are required for the same.

Disposal of cross
drainages.

The drainage area intercepted by the channel is $1\frac{3}{4}$ sq. miles and the calculated maximum discharge of 725 cub. ft. per second escapes by the two outlets above mentioned, and the field channels without injury to the main channel with the exception of about 20 cub. ft. which enters the tank below.

Main channel.

The main channel is 0 miles 4,500 ft. from its head to the Karuvelankulam Tank No. 49. The bottom width varies from 15 to 6 ft., and the channel clearing is generally done by the villagers.

SURULI NADDI GROUP.

Kulayanur Anicut Channel Sub-Group,

No. 49, IRRIGATION WORK,

KARUVELANKULAM TANK.

THIS is a third-class tank close to Kulayanur village on the north. It has a suitable place for a bye-wash at the left flank. One of the sluices requires reconstruction. The bund is breached and requires thorough repairs. The area of irrigation dependent on this work is 96.83 acres, and there are about 34 acres more available for cultivation were the tank larger.

It receives its principal supply from the Suruli Naddi, through Kulayanur anicut channel.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	57.00	Standard levels:
Maximum water level above do.	...	...	58.50	
Level of top of bund above do.	...	...	61.50	

I.—B. M. at 1,160 ft. on longitudinal section on rear parapet of sluice, right flank ... 55.48

Bench marks.

II.—B. M. on demarcation stone, left flank ... 50.00

Height of datum above M. S. L. ... 1,033.09

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	...	1 sq. mile.	Maximum flood discharges.
Do. of tanks above	...	...	Nil.	
Calculated maximum discharge by formula C. M. ³	...	...	500 cub. ft.	
Do. from supply channel	...	...	20 "	
Total maximum flood discharge to be provided for...	...	...	520 "	

SURPLUS ARRANGEMENTS.Surplus arrange-
ments.

	Height above datum.	Length.	Maxi- mum dis- charge.
	Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the left flank...	57.00	100	522
Proposed extension of do.	57.00	42	
Total maximum discharge provided for ...	...	...	522

DETAILS OF STORAGE.

Details of storage.

Area of waterspread at F. S. L. ...	825,000 sq. ft.
Greatest width of do. from bund ...	375 ft.
Class of bund corresponding to do. ...	3rd class.
Approximate capacity of tank at F. S. L. ...	2,200,000 cub. ft.
Do. do. annual storage at F. S. L. ...	25,372 cub. ft.

DETAILS OF IRRIGATION.Details of irriga-
tion.

Ayacut area ...	110.55 acres.
Proposed ultimate area of irrigation ...	140.39 "
Water stored per acre of do. ...	200,000 cub. ft.
Ultimate irrigation per sq. mile of catchment ...	140.39 acres.
Cill of existing irrigation sluice, No. 1 above datum.	48.92
Do. do. No. 2 do. ...	50.50

Plans and sec-
tions.

A longitudinal section of the bund showing details is given on Plate XXII.

Financial de-
tails.

The Financial details of this work are given in the statement at page 20.

SURULI NADDI GROUP.*Uppukottai Anicut Channel Sub-Group,***No. 50, IRRIGATION WORK,****UPPUKOTTAI ANICUT CHANNEL.**General descrip-
tion.

THIS anicut is situated about one mile south of Uppukottai, supplying the channel of the same name, which is taken off from the left bank of the Suruli Naddi, and belongs to the Bodinayakanur Zemindar. Its irrigation is mainly direct, but at times it supplies also tank No. 51 whose owners have, it is said, no established right for a share of water from the channel. The extent of irrigation under the channel alone is 239.17 acres, and that under the tank is 23.82 acres.

The Suruli Naddi has at the head of this channel a drainage area Source of supply. of $246\frac{1}{2}$ sq. miles, of which about 106 are hilly, giving a calculated maximum discharge of 18,575 cub. ft. per second. The supply available for the channel is constant and may vary from 20 to 250 cub. ft. per second during cultivation season.

The head works of this channel consist of an irregularly shaped Head works. masonry anicut across the river with a subsequent extension, at a reduced section, and the addition of surplus sluices. The retaining wall in extension of the south or right wing, having failed, a breach exists now out-flanking the anicut. This should be reconstructed and the bank properly made, and protected with loose roughstone revetment in front. The channel has an open head.

The minor or field irrigation channels have only open cuts which answer very well. There are three masonry outlets, and they should be maintained in an efficient condition. Masonry works along the channel.

Besides the drainages of $1\frac{1}{2}$ sq. miles with a discharge of 655 Disposal of cross drainages. cub. ft. per second which flow across the channel through outlet No. 1, and several open field channels, the Sutta Ganga, the large surplus nullah, after which the second group in the minor basin is named, crosses the main channel at 0 miles 3,000 ft. by means of outlets Nos. 2 & 3. The channel bank about this place is very low and these two outlets answer the purpose very well and nothing more required to be done.

The length of the main channel is 2 miles 925 ft. It has a Main channel. varying bottom width from 16 to 6 ft., and the average bed fall of $4\frac{1}{4}$ ft. per mile. The channel is cleared by the villagers themselves wherever found necessary.

SURULI NADDI GROUP.*Uppukottai Anicut Channel Sub-Group,***No. 51, IRRIGATION WORK,****PODENDRAPURAMKULAM TANK.**

THIS is a third-class zemindary tank situated about $\frac{3}{4}$ mile from General descrip- Virapandy village. It is in a neglected condition and depended for its tion. supply on local rains, as the occasional supply from the Uppucottah anicut channel is disputed by the ryots having cultivations under the channel. The Zemindar does not take any interest in settling the dispute. The extent of irrigation dependent on this tank is 23.82 acres. As this work does not affect any Government work no investigation is made more than collecting Revenue information.

SURULI NADDI GROUP.

*Chattrapatti Anicut Channel Sub-Group,***No. 52, IRRIGATION WORK,**

CHATTRAPATTI ANICUT CHANNEL.

General description

THIS channel takes off from the left bank of the Suruli Naddi at the 12th anicut east of the Periyakulam and Cumbum road at the 13th mile. It is used both for direct irrigation, and as a source of supply to Kannimarkulam Tank No. 53. The total area irrigated by the channel and the tank is 106.11 acres.

Source of supply.

The drainage area of the Suruli Naddi at this point is 354 sq. miles, of which about 153 sq. miles are hilly and the maximum flood discharge is calculated by formula $C. M^{\frac{1}{2}}$. — $c. m^{\frac{1}{2}}$. to be about 21,306 cub. ft. per second. The head of this channel is just below that of Virapandi Anicut Channel No. 1, and the supply therefore entering this channel cannot be considered to be good, as the water is drawn off by the other. But it is constant and may vary from 3 to 70 cub. ft. per second during cultivation season.

Head works.

The head works of this channel which gets its supply through on open head consist of a masonry dam 386 ft. long and a surplus weir. The dam has a strong front wall of brick-work protected wherever required with roughstone apron of different sections. The sketches of these works are given in Plate XXIII, Figs. 1 & 2.

Masonry works along the channel.

There are no masonry works along the channel excepting the weir above mentioned. The field channel heads are open, a few of them having revetted openings. No sluices are required to be constructed.

Disposal of cross drainages.

The drainage area intercepted by the channel is 1 sq. mile giving a calculated maximum discharge of 500 cub. ft. per second. The channel flows along the side long slope of country and the surface drainage received into the channel escapes by manul breaches and open branch channels without affecting the efficiency of the channel.

Main channel.

The main channel is 1 mile 3,970 ft. long and has a bottom width of from 8 to 4 ft. The channel is kept in repairs by the villagers.

SURULI NADDI GROUP.

*Chattrapatti Anicut Channel Sub-Group,***No. 53, IRRIGATION WORK,**

KANNIMARKULAM TANK.

THIS is a third-class tank in a much neglected condition. It has a suitable site for a bye-wash and requires a permanent sluice to be constructed and the bund repaired. The extent of irrigation dependent on this tank is 21.70 acres, part of which is not cultivated on account of this work being in disrepair.

The tank receives its supply principally from the anicut channel, No. 52.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

			Standard levels
Full supply level above datum	...	50.00	
Maximum water level above do.	...	51.50	
Level of top of bund above do.	...	54.50	

I.—B. M. on demarcation stone at 1,100 ft. from end of bund, right flank	...	50.00	Bench marks.
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II.—B. M. on demarcation stone at the end of bund in rear	...	51.81	
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III.—B. M. on rock on road side at the left flank	...	51.57	
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Height of datum above Mean Sea Level	...	936.51	
--------------------------------------	-----	--------	--

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin ...	1 sq. mile.
	Do. of tanks above ...	Nil.
	Calculated maximum discharge by formula C. M ¹ ...	125 cub. ft.
	Maximum flood discharge from supply channel ...	20 "
	Total discharge to be provided for ...	145 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the left flank ...	50.00	40	147
Total maximum discharge provided for ...	...	...	147

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L. ...	390,000 sq. ft.
	Greatest width of do. from bund ...	350 ft.
	Class of bund corresponding to do ...	3rd class.
	Approximate capacity of tank at F. S. L. ...	975,000 cub. ft.
	Do. annual storage at do ...	4,340,000 "

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area ...	21.70 acres.
	Proposed ultimate area of irrigation ...	21.70 acres.
	Water stored per acre of do. ...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment ...	173.60 acres.
	Cill of proposed irrigation sluice above datum ...	43.50

Plans and sections. A longitudinal section of the bund showing detail is given on Plate XXIII.

Financial details. The Financial details of this work are given in the statement at page 20.

SURULI NADDI GROUP.*Palanisetti Anicut Channel Sub-Group.***No. 54, IRRIGATION WORK,****PALANISSETTI ANICUT.**

General description.

This is a private work not affecting any Government work and so no investigation is made further than grouping and collecting Revenue informations.

SUTTA GANGAI GROUP.**Nos. 1 to 15 & 18 to 44, IRRIGATION WORKS.**

The first fifteen and the last 27 works in the Sutta-gangai group are quite unimportant. General description.

Of these, thirty-four belong to Zemindars and the others are private ones. They do not affect any Government work or Railway, and consequently no investigation had been made of them beyond grouping them and furnishing financial details.

SUTTA GANGAI GROUP.*Sokkaya Gavundankulam Tank Sub-Group.***No. 16, IRRIGATION WORK.****PUDUKKULAM TANK.**

This is a second-class tank situated close by Combai village. It is provided with two weirs one at each flank and a bye-wash 26 ft. wide on the left flank. These being in adequate for the maximum surplus discharge from the tank calculated by formula C. M¹. taking C. as 500, it is proposed to extend the bye-wash 319 ft. more. It has three irrigation sluices requiring only repairs. The bund of the tank is protected on the inner side at the centre, where it is exposed to the action of high wind, with loose roughstone revetment, requiring repairs in places. This tank is the most important work in the group and has an extent of 159.76 acres of irrigation dependent on it. General description.

The tank though rainfed, is favourably situated as regards its supply. The most important nullah which falls into the tank has its source on the top of the hills to the west of Combai village, and the flow of water into the tank is almost constant during cultivation season. This supply gets absorbed in the sandy bed of the nullah during the dry season three quarters of a mile above the tank. Source of Supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

	53.25	Standard levels.
Full supply level above datum ...	...	
Maximum water level above do. ...	55.50	
Top of bund above do. ...	60.00	

Bench marks.

I.—B. M. on east wing of weir	56.49
II.—B. M. on top of west wing, right flank	56.09
III.—B. M. east wing wall of weir	55.94
IV.—B. M. on floor of Tamboghy, left flank	49.55
Height of datum above Mean Sea Level	1,328.45

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.

Gross area of catchment basin	10 sq. miles.
Do. of tanks above	Nil.
Calculated maximum discharge by formula C. M ³	2,395 cub. ft.
Do. from supply channel	Nil.
Total maximum flood discharge to be provided for	2,395 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Weir (in the right flank) effective at Tamboghy do. effective at	53.25	27.25	276
Weir (in the left flank) effective at Tamboghy do. effective at	49.98	6.75	222
Bye-wash effective at	53.25	22	223
	49.55	2	88
	53.75	345	1,597
Total maximum discharge provided for			2,416

DETAILS OF STORAGE.

Details of storage.

Area of waterspread at F. S. L.	3,530,000 sq. ft.
Greatest width of do. from bund	1,550 ft.
Class of bund corresponding to do.	2nd class.
Approximate capacity of tank at F. S. L.	17,297,000 cub. ft.
Do. annual storage do.	31,952,000 "

ADDENDA AND CORRIGENDA

TO THE

DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS

IN THE

SURALIYAR MINOR BASIN

Issued on 19th December 1912.

Insert the following memoir between pages 124 and 125 :—

SUTHAGANGAI TANK GROUP.

KAMATCHIKULAM SUB-GROUP.

No. 18, SETTUKULAM TANK

This tank is situated about 3 furlongs south of No. 10 Pannaipuram village in the Periyakulam taluk. It receives the drainage from its free basin and surpluses into No. 18, Kamatchikulam tank at the right flank over a paved byewash 48 feet long at the right flank, which being displaced and outflanked, a new masonry calingulah 88 feet long with 25 vents, each 3' 0" × 1' 6" high, will be provided at L.S. 3,750 to dispose off the entire surplus with a head of 2 feet over the dam stones.

Situation and source of supply and surplus arrangements.

The bund from 1,230 feet from the left of the sluice at the left flank for a total length of 4,400 feet will be made up to 3 feet above M.W.L. with top width 4 feet. The slopes will be 1½: 1 in front and 1½: 1 in rear. The breach between L.S. 3,950 to 4,150 will be closed and revetted in front.

Bund.

The vegetation on the bund will be cleared as far as necessary to allow of the execution of earthwork under kudimaramattu.

Vegetation.

The front slope of the bund is revetted for 50 feet at L.S. 3,750 and this will be removed as the new calingulah is proposed at the site and the stones thus removed will be utilised for revetting the front slope of the bund between L.S. 3,950 to 4,150 where a breach exists and the revetment thus constructed will be 1 foot above M.W.L.

Revetment.

Irrigation is carried on by a masonry sluice which is in a ruined state. So a new pipe sluice will be constructed 30 feet to the right of the existing ruined sluice.

Sluice.

F.T.L. has been fixed at + 100.00 with reference to the average level of the crest of the existing paved byewash at right flank.

Full tank level.

Owing to the inadequacy of the surplus arrangements, the tank breaches often and the surplus is outflanked. The supply odai from the hills brings in a lot of sand and silts up the bed. To remedy this, a sand sluice will be provided first at the entrance of the supply odai into the tank with its crest at F.T.L. level provided with two vents 5' 0" × 2' 6" with sill at 2½ below the F.T.L. of the tank. This, if properly regulated, will clear off the sand.

General Remarks.

DETAILS OF IRRIGATION.

Ayacut area	...	...	...	171.87 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	...	...	159.76 acres.	
Water stored per acre of	do.	...	...	200,000 cub. ft.	
Ultimate irrigation per sq. mile of catchment	...	...	...	15.97 acres.	
Cill of existing irrigation sluice No. 1, above datum.	...	...	...	41.16	
Do.	do.	No. 2,	do.	...	43.67
Do.	do.	No. 3,	do.	...	46.80

A longitudinal section of the bund showing details is given on Plate XXVII. Plans and sections.

The Financial details of this work are shown in the statement at page 24. Financial details.

SUTTA GANGAI GROUP.

Sokkaya Gavundankulam Tank Sub-Group,

No. 17, IRRIGATION WORK,**TADANKULAM TANK.**

THIS third-class tank is situated one mile north of the Combai village. It is breached owing to the neglected condition of the bund. It has a suitable site for a bye-wash: the irrigation sluice is in good order. The extent of irrigation dependent on this tank is 39.92 acres. General description.

This is a rainfed tank receiving a supply also from the surplus of Pudukulam Tank No. 16, in the bed of the surplus channel of which a temporary sand dam is put in by the villagers for diverting water. Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:— Hydraulic details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above M. S. L.	...	...	52.25	Standard levels.
Maximum water level above do.	...	...	54.25	
Level of top of bund do.	...	...	57.25	

I.—B. M. on top of front parapet of sluice, right flank 49.29

Bench marks.

II.—B. M. on top of demarcation stone, left flank ... 58.66

Height of datum above Mean Sea Level ... 1,300.87

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	... 1 sq. mile.
	Do. of tanks above	... Nil.
	Calculated maximum discharge by formula C. M ¹ .	... 260 cub. ft.
	Do. from supply channel	... 300 cub. ft.
	Total maximum discharge to be provided for	... 560 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at	52.25	100	565
Total maximum discharge provided for			565

DETAILS OF STORAGE.

Details of storage.

Area of waterspread at F. S. L.	... 1.330 mill sq. ft.
Greatest width of do. from bund	... 800 ft.
Class of bund corresponding to do.	... 3rd class.
Approximate capacity of tank at F. S. L.	... 1.770 mill cub. ft.
Do. annual storage at do.	... 7.984 mill cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.

Ayacut area	... 40.90 acres.
Proposed ultimate area of irrigation	... 39.92 acres.
Water stored per acre of do	... 200 mill cub. ft.
Ultimate irrigation per sq. mile of catchment	... 106.48 acres.
Cill of existing sluice above datum	... 46.79 ft.

Plans and sections.

A longitudinal section of the bund showing details is given on Plate XXVII.

Financial details

The Financial details of this work are given in the statement at page 24.

TENI AUR GROUP.

Ichimarattikulam Sub-Group.

No. 1, IRRIGATION WORK,

ICHIMARATTIKULAM TANK.

This is a very unimportant private tank having only 2.17 acres of irrigation under it; it has a good capacity for holding sufficient water, for the ayacut. It does not affect any Government work, nor is there any more land fit for cultivation under it.

TENI AUR GROUP.

Ichimarattikulam Sub-Group.

No. 2, IRRIGATION WORK,

KANNIMARKULAM TANK.

This is a second-class tank, nicely situated with a short bund, between two low hills, half a mile to the west of the 12th mile stone on the road from Periyakulam to Cumbum. Its roughstone weir at the right flank is damaged and has to be restored with necessary extension to effect the maximum flood discharge. It has one irrigation sluice in fair order requiring only to be provided with gibbet stones in front. The centre portion of the bund is exposed to the action of waves during high winds, and requires to be protected with roughstone revetment on the inner side. The extent of irrigation dependent on this work is 46.25 acres.

This tank is a rainfed one having only 1½ square miles of catchment and also receives occasionally a good supply from the surplus of tanks situated above, one of which No. 7 is stream fed receiving a constant supply from the Teni Aur, and surplusing constantly into the tank below.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	... 54.00	Standard levels.
Maximum water level above do.	... 56.50	
Top of bund above do.	... 61.00	

I.—B. M. on floor of bye-wash, right flank ... 53.07

Bench marks.

II.—B. M. on the top of demarcation stone east of bund, left flank ... 50.00

Height of datum above Mean Sea Level ... 934.06

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	1½ sq. mile.
	Do. of tanks above	...	1½ sq. mile.
	Calculated maximum discharge by formula		
	C. M ³ . — c. m ³ .	...	644 cub. ft.
	Do. from supply channel	...	Nil.
	Total maximum flood discharge to be provided for	...	644 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Weir (reconstructing) effective at (vide Sketch, Plate XXIV, Fig. 1.)	54.00	55	652
Total maximum discharge provided for	...	...	652

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	...	1,565,000 sq. ft.
	Greatest width of do. from bund	...	1,125 ft.
	Class of bund corresponding to do.	...	2nd class.
	Approximate capacity of tank at F. S. L.	...	4,173,000 cub. ft.
	Approximate annual storage at do.	...	9,156,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	...	46.25 acres.
	Proposed ultimate area of irrigation	...	46.25 acres.
	Water stored per acre of do.	...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	...	74.00 acres.
	Cill of existing irrigation sluice above datum	...	45.72

Plans and sections. A longitudinal section of the bund showing details is given on Plate XXIV.

Financial details. The Financial details of this work are given in the statement at page 32.

TENI AUR GROUP.
Ichimarattikulam Sub-Group,
No. 3, IRRIGATION WORK,
KANAKANKULAM TANK.

This is a third-class private tank in Bodinaikkanur zemindary estate and is situated near Kodangiputti village. It has no surplus weir, but well situated natural escapes on both flanks which require to be improved. It has one irrigation sluice in good condition; as this work affects the tank No. 2, belonging to Government and situated below, care has to be taken that it is kept up to the standard of efficiency. The extent of irrigation under this tank is 65.82 acres which generally yield double crops.

This tank has 1½ square mile of catchment and receives almost a constant supply from Teni Aur, or Kottagudi Aur Channel, through the surplus of Sirukulam No. 7.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	48.00	Standard levels.
Maximum water level above do.	...	49.00	
Top of bund above do.	...	52.00	

I.—B. M. on top of demarcation stone, right flank... 50.00

II.—B. M. on do. do. at end of bund, left flank... 49.20

Height of datum above Mean Sea Level ... 995.08

MAXIMUM FLOOD DISCHARGES PROVIDED FOR

Gross area of catchment basin	...	1½ sq. mile.	Maximum flood discharges.
Do. of tanks above	...	½ sq. mile.	
Calculated maximum discharge by formula			
C. M ³ . — c. m ³ .	...	541 cub. ft.	
Do. from supply channel	...	Nil.	
Total maximum flood discharge to be provided for	...	541 cub. ft.	

SURPLUS ARRANGEMENTS.

Surplus arrange-
ments.

	Height above datum.	Length.	Maxi- mum dis- charge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at right flank ...	48.00	50	550
Do. do. left flank ...		225	
Total maximum discharge provided for ...			550

DETAILS OF STORAGE.

Details of stor-
age.

Area of waterspread at F. S. L. ...	2,975,000 sq. ft.
Greatest width of do. from bund ...	1,287 ft.
Class of bund corresponding to do. ...	3rd class.
Approximate capacity of tank at F. S. L. ...	7,933,000 cub. ft.
Approximate annual storage at do. ...	13,164,000 cub. ft.

DETAILS OF IRRIGATION.

Details of irriga-
tion.

Ayacent area ...	65.82 acres.
Proposed ultimate area of irrigation ...	65.82 acres.
Water stored per acre of do. ...	200,000 cub. ft.
Ultimate irrigation per sq. mile of catchment ...	65.82 acres.
Cill of existing irrigation sluice above datum ...	40.37

Plans and sec-
tions.

A longitudinal section of the bund showing details is given on Plate XXIV.

Financial de-
tails.

The Financial details of this work are given in the statement at page 32.

TENI AUR GROUP.

Kottagudi Aur Anicut Channel Sub-Group.

Nos. 4 & 5, IRRIGATION WORK,

KURUVANKULAM TANK

AND

KOTTAGUDI AUR ANICUT CHANNEL.

General descrip-
tion.

THESE two works belong to Bodinaikkanur Zemindar, and do not affect the safety of any Government property. The first is called Kottagudi Aur Anicut Channel the most important work in the zemindary having 1,221.62 acres of direct irrigation under it, besides 336 acres under the tanks Nos. 6 & 7 of which it may be said to be the only source of supply. The other work is an unimportant tank not affecting any Government work.

TENI AUR GROUP.

Kottagudi Aur Anicut Channel Sub-Group.

No. 6, IRRIGATION WORK,

PERIYAKULAM TANK.

THIS is a first-class tank situated one mile to the south of Kodangiputti village in Bodinaikkanur zemindary. The surplus of this tank escaping by the bye-wash at the right flank, joins the Sutta Gangai and does not affect any Government work : but the main portion of its bund and the entire cultivation under it, are situated in the same valley as the Government tank No. 2, and the other work affecting it. It is therefore of the utmost importance that this large tank be kept in thorough repair, that any accidental breach in its bund, may not occur to ruin the works below. The extent of irrigation under this tank is 272.71 acres.

General descrip-
tion.

This tank has only $\frac{1}{2}$ a square mile of catchment receiving almost the whole of its supply from the Kottagudi Aur Anicut Channel which never gets dry.

Source of supply.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained :—

Hydraulic de-
tails.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum ...	56.50
Maximum water level do. ...	57.50
Level of top of bund do. ...	63.50

Standard levels.

I.—B. M. on top of demarcation stone in rear of bund, right flank ... 56.43

Bench marks.

II.—B. M. on centre of rear parapet ... 46.96

III.—B. M. on top of demarcation stone in rear ... 49.74

IV.—B. M. on top of demarcation stone, left flank... 54.39

Height of datum above Mean Sea Level ... 1,013.35

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	...	1/4 sq. mile.
	Do. of tanks above	...	...	Nil.
	Calculated maximum discharge by formula C. M ³ .	...	...	315 cub. ft.
	Do. from supply channel	...	...	100 "
	Total maximum discharge to be provided for	...	...	415 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at	56.50	210	420
Total maximum discharge provided for	...	...	420

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L.	...	7.48 mills sq. ft.
	Greatest width of do. from bund	...	2,600 feet.
	Class of bund corresponding to do.	...	1st class.
	Approximate capacity of tank at F. S. L.	...	22,340 mills cub. ft.
	Do. annual storage at do.	...	46,542 "

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area	...	232.71 acres.
	Proposed ultimate area of irrigation	...	232.71 "
	Water stored per acre of do.	...	200,000 cub. ft.
	Ultimate irrigation per sq. mile of catchment	...	465.42 acres.
	Cill of existing irrigation sluice above datum	...	41.46 ft.

Plans and sections. A longitudinal section of the bund showing details is given on Plate XXIV.

Financial details. The Financial details of this work are given in the statement at page 32.

TENI AUR GROUP.

Kottagudi Aur Anicut Channel Sub-Group.

No. 7, IRRIGATION WORK, SIRUKULAM TANK.

This second-class tank is situated close to No. 6 Periyakulam tank in Kodangiputti in Bodinaikanur zemindary. It has natural escapes at both ends. The discharge by the escape at the left flank does not affect any Government work: but the greater portion of the discharge is by the escape at the right flank, which affects the works below, and which at the same time becomes the chief source of supply to them. It has two irrigation sluices in good condition. The extent of irrigation under this tank is 103.29 acres.

This tank also receives like Periyakulam No. 6, a constant supply from Kottagudi Aur Anicut Channel.

The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	48.00
Maximum water level above do.	...	49.00
Level of top of bund do.	...	53.50

Standard levels.

I.—B. M. on top of demarcation stone, right flank. 49.74

Bench marks.

II.—B. M. on floor of sluice ... 39.53

III.—B. M. on top of demarcation stone, left flank... 49.97

Height of datum above Mean Sea Level ... 1,010.43

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.

Gross area of catchment basin	...	...	1 sq. mile.
Do. of tanks above...	...	...	Nil.
Calculated maximum discharge by formula C. M1.	...	...	195 cub. ft.
Do. from supply channel	...	...	100 cub. ft.
Total maximum discharge to be provided for	...	...	295 cub. ft.

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Bye-wash effective at right flank	...	...	...
Do do left flank	...	...	...
Total maximum discharge provided for	...	...	400

DETAILS OF STORAGE.

Details of storage.

Area of waterspread at F. S. L.	...	3.080 mills sq. ft.
Greatest width of do. from bund	...	1,425 ft.
Class of bund corresponding to do.	...	2nd class.
Approximate capacity of tank at F. S. L.	...	8.213
Do. annual storage at do.	...	20.658 } mills cub. ft.

DETAILS OF IRRIGATION.

Details of irrigation.

Ayacut area	...	103.29 acres.
Proposed ultimate area of irrigation	...	103.29 acres.
Water stored per acre of do.	...	200 mills cub. ft.
Ultimate irrigation per sq. mile of catchment	...	413.16 acres.
Cill of existing sluice No. 1, above datum	...	39.61
Do. No. 2, do.	...	40.61

Plans and sections.

A longitudinal section of the bund showing details is given on Plate XXIV.

Financial details.

The Financial details of this work are given in the statement at page 32.

TENI AUR GROUP.**Nos. 8 to 24, IRRIGATION WORKS.**

General description.

These tanks in the Teni Aur group belong to the Zemindars, and they do not affect any Government work or railway, and consequently no investigation has been made of them beyond grouping them and furnishing financial details.

TENI AUR GROUP.**Panasalaur Anicut Channel Sub-Group.****No. 25, IRRIGATION WORK,****PANASALAUR ANICUT CHANNEL.**

This channel, which is taken off from the Panasalaur stream, about 2½ miles west of the Ullinagaram village, is used principally as a source of supply to Merusamudram Tank No. 26 in the same sub-group. The total extent of irrigation to which the channel has to supply water is 269.89 acres, of which 14.86 acres only are directly under the channel, the rest being under the tank.

The drainage area of Panasalaur stream which is mostly hilly, is 8 sq. miles and the maximum flood discharge from the same is about 2,300 cub. ft. per second. The stream having a perennial supply at the foot of the hills, the water that enters the channel is fairly constant and may vary from 10 to 110 cub. ft. per second.

The channel receives its supply in the usual manner, through an open head and is at the head more than 24 ft. wide at bottom, taken off from an anicut 130 ft. long, consisting of roughstone in chunam with the top plastered. A sketch of it is given at Plate XXV, Fig. 1.

There is an old roughstone dam, 135 ft. above this anicut on the right bank of this stream. This appears to have been the old head of the channel, but there is not a trace of any abandoned channel. There is now from 6 to 15 ft. width of paduga formed between the front face of the dam and the bed almost flush with the crest. No information is available regarding the history of the work. But it will now act as an additional escape when the stream has a flood over 2½ ft. deep. (See Sketch No. 1.)

There is no masonry work along the channel to be described and none is required to be constructed.

The cross drainage intercepted by the channel is 1¼ sq. miles and the maximum flood discharge of about 580 cub. ft. from the same flows across the channel through natural escapes with the exception of about 100 cub. ft. which is discharged into the tank below.

The main channel is 1 mile 400 ft. long. It has an average bottom width of about 10 ft., and is maintained by the villagers in good condition.

TENI AUR GROUP.

Panasalaur Anicut Channel Sub-Group.

No. 26, IRRIGATION WORK,

MERUSAMUDRAM TANK.

General description. This is a second-class tank situated to the south of the village of Ullinagaram. No information is available of its previous history. It irrigates 255.03 acres of land.

Source of supply. The tank receives its supply principally from the Panasalaur Anicut Channel, No. 25.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	49.75
	Maximum water level above do.	...	...	51.75
	Top of bund above do.	...	...	56.25

Bench marks I.—B. M. on centre of demarcation stone in field at 100' to west end of bund ... 52.66

II.—B. M. on centre of rear parapet, right flank ... 56.25

III.—B. M. on west wing of weir adjacent to body ... 54.22

IV.—B. M. on top of east wing... ... 54.16

V.—B. M. on centre of demarcation stone 240' north of east wing of weir in No. 29 field, left flank ... 52.32

Height of datum above Mean Sea Level ... 934.66

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Gross area of catchment basin	...	1½ sq. mile.	Maximum flood discharges.
Do. do. of tanks above	...	¾ sq. mile.	
Calculated maximum discharge by formula	...	685 cub. ft.	
C. M ³ .—c. m ³	...	100 cub. ft. per sec.	
Do. from supply channel	...	785 "	
Total maximum flood discharge to be provided for...	...	785 "	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	(Cub. ft. per sec.	
Weir effective at (<i>vide</i> Sketch, Plate XXV, Fig. 2)	49.75	94.0	797	
Total maximum discharge provided for	...	...	797	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	4,260,000 sq. ft.	Details of storage.
Greatest width of do. from bund	...	2,475 ft.	
Class of bund corresponding to do.	...	2nd class.	
Approximate capacity of tank at F.S. L.	...	18,744,000 cub. ft.	
Do. annual storage at do	...	51,000,000 "	

DETAILS OF IRRIGATION.

Ayacut area	...	255.73 acres.	Details of irrigation.
Proposed ultimate area of irrigation.	...	255.03 "	
Water stored per acre of do.	...	200,000 cub. ft.	
Extent of irrigation per sq mile of catchment	...	210.77 acres.	
Cill of existing irrigation sluice, No. 1, above datum	...	44.22	
Do. do. No. 2, to be constructed	...	38.25	
(<i>vide</i> Sketch, Plate XXV, Fig. 3)	...	37.12	
Do. do. No. 3, above datum	...	37.12	

A longitudinal section of the bund showing details is given at Plate XXV. Plans and sections.

The Financial details of this work are given in the statement at page 36. Financial details.

TENI AUR GROUP.
Panasalaur Anicut Channel Sub-Group.
No. 27, IRRIGATION WORK,
KUPPAYANKULAM TANK.

General description. This is a very unimportant private tank irrigating only 2.65 acres

Source of supply. The tank is principally rained; but receives a supply from the channel of Sinnakulam No. 28.

Hydraulic details. The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels	Full supply level above datum	...	...	47.10
	Maximum water level above do.	...	...	48.10
	Level of top of bund above do.	...	...	51.10

Bench marks. I.—B. M. on demarcation stone, right flank 50.00

II.—B. M. on rear parapet of sluice 46.66

III.—B. M. on demarcation stone, left flank 48.97

Height of datum above Mean Sea Level 946.49

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	...	$\frac{1}{2}$ sq. mile.
	Do. of tanks above	...	...	Nil.
	Calculated maximum discharge by formula $C. M^{\frac{1}{2}}$	...	...	50 cub. ft.
	Do. from supply channel	...	...	10 "
	Total maximum discharge to be provided for	...	...	60 "

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Bye-wash effective at ...	47.10	30	60	
Total maximum discharge provided for ...	...	...	60	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	345 mill sq. ft.	Details of storage.
Greatest width of do. from bund.	...	...	385 ft.	
Class of bund corresponding to do.	...	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	...	2,415 mill cub. ft.	
Do. annual storage at do.	...	...	530 "	

DETAILS OF IRRIGATION.

Ayacut area	...	...	2.65 acres.	Details of irrigation.
Proposed ultimate area of irrigation	...	...	2.65 "	
Water stored per acre of do.	...	...	200 mill cub. ft.	
Extent of irrigation per sq. mile of catchment	...	...	84.80 acres.	
Cill of existing irrigation sluice above datum	...	...	43.24 ft.	

A longitudinal section of the bund showing details is given on Plate XXV. Plans and sections.

The Financial details of this work are given in the statement at Financial details page 36.

TENI AUR GROUP.

Panasalaur Anicut Channel Sub-Group.
No. 28, IRRIGATION WORK,
CHINNAKULAM TANK.

This is a 3rd-class tank adjacent to the village of Ullinagaram on the north. No reliable information is available of its history, but its weir at the right flank has been washed away some years since. The bund is out of condition, it seems to have had some revetment on the inside slope, the stones of which are lying scattered over the bed and may be used in the reconstruction of the surplus weir. General description.

This tank also receives its chief supply from the Panasalaur stream through a channel taken off just at the foot of the hills. Though the stream Panasalaur is perennial and a portion of the water enters the supply channel, the supply does not reach the tank as the channel bed in the latter portion is sandy and water is absorbed: so the supply is not constant except in seasons at least fairly favourable. Source of supply.

Hydraulic de- The following are the Hydraulic details of this tank indicating the
tails. standard of efficiency at which it should be maintained :—

STANDARD LEVELS TO BE MAINTAINED.

Standard levels.	Full supply level above datum	...	...	49.00
	Maximum water level above do.	...	...	51.00
	Top of bund above	...	...	54.00

Bench marks. I.—B. M. on centre of demarcation stone in rear of
bund, west of surplus channel, right flank ... 49.36

II.—B. M. on top of existing old wing of weir on the
west, right flank ... 51.12

III.—B. M. on top of rear parapet of sluice in centre... 46.80

IV.—B. M. on centre of demarcation stone 21 ft. south
of rear of bund ... 49.17

Height of datum above Mean Sea Level 948.06

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin	...	...	1 sq. mile.
	Do. of tanks above	...	...	Nil.
	Calculated maximum discharge by formula $C. M^{\frac{1}{2}}$	...	...	365 cub. ft.
	Do. from supply channel	...	...	55 cub. ft.
	Total maximum flood discharge to be provided for...	...	...	420 "

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Max- mum dis- charge.	Surplus arrange- ments.
	Feet.	Feet.	Cub. ft per sec.	
Weir (reconstructing) effective at (vide Sketch, Plate XXV, Fig. 4)	49.00	50.00	424	
Total maximum discharge provided for	...	...	424	

DETAILS OF STORAGE.

Area of water spread at F. S. L.	...	1,335,000 sq. ft.	Details of stor- age.
Greatest width of do. from bund	...	1,320 ft.	
Class of bund corresponding to do.	...	3rd class.	
Approximate capacity of tank at F. S. L.	...	3,604,500 cub. ft.	
Do. annual storage at do	...	6,682,000	

DETAILS OF IRRIGATION.

Ayacut area	...	32.41 acres.	Details of irriga- tion.
Proposed ultimate area of irrigation.	...	32.41 do.	
Water stored per acre of do.	...	200,000 cub. ft.	
Extent of irrigation per sq. mile of catchment	...	51.85 acres.	
Cill of existing irrigation sluice above datum	...	43.70	

A longitudinal section of the bund showing details is given on Plate XXV. Plans and sec-
tions.

The Financial details of this work are given in the statement at Financial details
page 36.

TENI AUR GROUP.

Teni Aur Anicut Channel Sub-Group.

No. 29, IRRIGATION WORK,

TENI AUR ANICUT CHANNEL.

THIS is the last anicut across the Teni Aur, and has a catchment General descrip-
area above it of 140 sq. miles which according to formula $D. = C. M^{\frac{1}{2}}$.
= 13,686 cub. ft. per second. Last year the flood rose to 3'-6"
above the crest of the anicut and taking the discharge over 295 ft. =
5,795, where the anicut is high with $C. = \frac{1}{17}$ and $c. = \frac{7}{17}$ for a length
of 70 ft. = 1,069 cub. ft. per second, for the discharge through the
breach in the channel, 7,671 cub. ft. per second allowing the discharge
to have taken place for the full length of breach at bed level, making
a total discharge of 14,535 cub. ft., this is under the supposition that
the breach had taken place before the flood was at its maximum.

This would give 6.5 ft. as the height of M. F. L. on the new anicut,
but it is not likely that the height would be ever reached as the water
would spread on the right bank, where, owing to the hard soil close to
the surface, no serious damage could be done.

Head sluice.

The area of cultivation is;—

Direct cultivation 156 acres.

Under the tank 150 „

So that at 1 cub. ft. per 20 acres of direct 7·8 cub. ft. per second would be required; and for the tank to fill in 10 days 15 cub. ft. per second, total 23 cub. ft., the fall in the first 2,000 of channel is nil, the bottom width being $7\frac{1}{2}$ ft. and is regulated by the floor of the road bridge so that level has been taken for the sill of the head sluice and to allow every drop of water in the river when it is low to enter the channel and the width of the head sluice is the same as that of the bridge.

Allowing a surface fall of ·2 ft. per 1,000 ft. when the water is flush with the crest of the anicut, the discharge would be about 34 cub. ft. per second, with the channel running $2\frac{1}{2}$ ft. deep: beyond the bridge the fall would be ·8 per 1,000 ft., the water running 2 ft. deep, the discharge being about the same.

Channel.

The channel which has its head on the left bank of the Teni Aur just at the Ullinagaram chattram, is used both for direct irrigation and as a means of supply to Tamaraikulam Tank No. 30. The total extent of irrigation under the channel and tank is 306·67 acres

Source of supply.

The Teni Aur is a perennial stream and so the channel receives a permanent supply of 15 cub. ft. per second, which may go up to 125 cub. ft. per second during cultivation season at the upper end.

Head works.

The channel has an open head at the end of an anicut 365 ft. thrown across the river for the purpose of giving command of water to the channel. The anicut has also two under sluices $3\frac{1}{2} \times 3$. Sketches of anicut and proposed head sluice are given in Plate XXVI, Figs. 1 & 2.

Masonry works along the channel.

There are two outlets of roughstone work along the channel and one masonry regulating dam, where the channel branches into two branches (*vide* Sketches Plate XXVI, Figs. 3, 4 & 5) the northern branch supplies also the Tamaraikulam Tank. Irrigation under the two branches is carried on by cuts made in the bank, which answer the purpose.

Disposal of cross Drainages.

The cross drainage intercepted by this channel is $3\frac{1}{2}$ sq. miles and the calculated flood discharge of about 1,005 cub. ft. per second from the same, escapes from the channel by means of two outlets and other natural escapes and cuts in the bund.

The main channel is one mile and 3,455 ft. long from the anicut to the point where it divides into branches. It has a varying bottom width of from 6 to 12 ft. and is kept in good repairs throughout.

Report to accompany the Revised Estimate for restoring the No. 29, Teni Aur Anicut and Channel, Teni Aur Group, Suruli Naddi Minor Basin.

SINCE the original estimate was prepared, the anicut has been much damaged. The present estimate provides for demolishing the unsound portion of the rubble stone bodywall, leaving the sound portions which average somewhere over 6 ft. in thickness: so that 7 ft. has been assumed as the distance from up-stream edge at which a rubble stone toe wall 3 ft. thick should be built. 3'—3" has been allowed in the estimate, to permit the work to bond well into the old work.

The foundation of this protecting wall is to be taken into the soft rock, 1 ft.

The apron is to be of rubble stone set on edge 2'—6" thick and resting on the solid rock; in cases where filling is required, to make up the slope, it must be done with concrete; as the existence of these holes is not yet ascertained, no provision has been made in the estimate for the concrete. The apron is to be protected by a toe wall 4 ft. deep and 3 ft. thick of rubble stone in lime. A brick skin wall 1'—6" thick, plastered, is to be built in front of the anicut between the present scouring sluice, and the site of the proposed head sluice.

TENI AUR GROUP. *Teni Aur Anicut Channel Sub-Group,* **No. 30, IRRIGATION WORK,** **TAMARA IKULAM TANK.**

THIS is a third-class tank situated about $1\frac{1}{4}$ mile east of Ullinagaram Chuttram. No information is available regarding its history. It has at present a loose rough stone weir with a Tambogly 3 ft. wide. Water is wasted through the loose rough stone work, which being very high, is never escapes over. It is therefore proposed to reconstruct the work in chunam with the stones available, it irrigates 150·22 acres dependent on it.

The principal source of supply to the tank is from the Teni Aur. anicut channel which gives a perpetual supply.

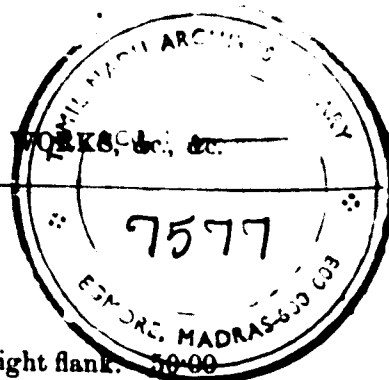
The following are the Hydraulic details of this tank indicating the standard of efficiency at which it should be maintained:—

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	47·75
Maximum water level above do.	...	...	49·00
Top of bund above do	...	...	52·00

Standard levels.

Hydraulic details.



Bench marks.

I.—B. M. on top of demarcation stone, right flank. 50.00

52.21195
M86

II.—B. M. on centre of rear parapet wall of irrigation sluice ... 43.13

Height of datum above Mean Sea Level ... 902.18

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum flood discharges.	Gross area of catchment basin ...	sq. mile.
	Do. of tanks above ...	Nil.
	Calculated maximum discharge by formula C. M1. ...	365 cub. ft. per sec.
	Do. do. from supply channel ...	35 "
	Total maximum flood discharge to be provided for ...	400 "

SURPLUS ARRANGEMENTS.

Surplus arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Weir reconstructing, effective at (vide Sketch, Plate XXV, Fig. 5.) ...	47.75	96.00	402
Total maximum discharge provided for ...	...	...	402

DETAILS OF STORAGE.

Details of storage.	Area of waterspread at F. S. L. ...	6,35,000 sq. ft.
	Greatest width of do. from bund ...	578 ft.
	Class of bund corresponding to do. ...	3rd class.
	Approximate capacity of tank at F. S. L. ...	1,841,500 cub. ft.
	Approximate annual storage at do. ...	30,000,000 "
	(Including supply from channel passing through the bank.)	

DETAILS OF IRRIGATION.

Details of irrigation.	Ayacut area ...	171.38 acres
	Proposed ultimate area of irrigation ...	150.22 "
	Water stored per acre of do. ...	200,000 cub. ft.
	Extent of irrigation per sq. mile of catchment ...	240.34 acres.
	Cill of existing irrigation sluice above datum ...	41.06

Plans and sections.

A longitudinal section of the bund showing details is given on Plate XXV.

Financial details.

The Financial details of this work are given in the statement at page 36.