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*LIST OF BOOKS AND PUBLICATIONS ON
IRRIGATION.*

TITLE.	AUTHOR.	PUBLISHER OR PLACE OF PUBLICATION.	DATE.
Irrigated India.. .. .	Hon. A. Deakin ..	Messrs. Thacker & Co., London.	1893
Irrigation Canals and other Irriga- tion Works.	P. J. Flynn ..	San Francisco, California	1892
Irrigation in India	H. M. Wilson ..	Govt. Printing Office, Washington.	1892
Le Irrigazione nell' Egitto con tre carte annesse.	.. .. .	Roma	1892
The Nira Canal. A selection from Proceedings of the Government of Bombay.	.. .. .	Bombay	1891
Irrigation Manual	Lt.-Gen. J. Mullins, R.E.	Messrs. E. & F. N. Spon, London.	1890
Les Irrigations.. .. .	A. Ronna ..	Firmin-Didot et Cie., Paris	1888-
Egyptian Irrigation	W. Willcocks..	Messrs. E. & F. N. Spon, London.	1889
Irrigation in California. The field, water-supply, and works.	W. Ham Hall ..	State Office, California..	1888
Agricultural Engineering in India..	J. R. C. Nicholls ..	Office of 'Engineering,' London.	1888
L'Irrigation en Égypte	J. Barois ..	Imprimerie Nationale, Paris.	1887
Irrigation Development: France, Italy, and Spain.	W. Ham Hall ..	State Office, Sacramento	1886
Hydraulic Works	L. D'A. Jackson ..	Messrs. W. Thacker & Co., London.	1885
Irrigation in Western America ..	Hon. A. Deakin ..	Govt. Press, Melbourne	1885
Godaveri, Kistna, Cauveri Delta, and Penner Anicut System. A selection from Proceedings of the Government of Madras.	.. .. .	Govt. Press, Madras ..	1883
Irrigation Works in Southern France	Claude Vincent ..	Govt. Press, Madras ..	1882
Continental Irrigation	H. L. Roth ..	Messrs. Trübner & Co., London.	1882
Report of the Indian Famine Com- mission, Part I. (C. 2591); Part II. (C. 2735); Part III. (C. 3086).	.. .. .	Parliamentary Paper, London.	1880 & 1885
Appendices of the above, Nos. I. to V. (C. 3086).	.. .. .	Parliamentary Paper, London.	1881
Roorkee Hydraulic Experiments ..	Capt. A. Cunning- ham, R.E.	Thomason College Press, Roorkee.	1880-81
The Irrigation Works of India and their Financial Results.	R. B. Buckley ..	Messrs. W. H. Allen & Co., London.	1880
Irrigation in India in connection with Indian Deficits.	.. .. .	Messrs. Wyman & Co., Calcutta.	1877
Les Irrigations dans le Département des Bouches-du-Rhône.	J. A. Barral ..	Imprimerie Nationale, Paris.	1877
Les Irrigations dans le Département Vaucluse.	J. A. Barral ..	Imprimerie Nationale, Paris.	1876
Irrigation Works in India, Lectures on the.	Col. F. H. Rundall, R.E.	School of Military En- gineering, Chatham.	1876

TITLE.	AUTHOR.	PUBLISHER OR PLACE OF PUBLICATION.	DATE.
Sardah Canal Project, Report on the.	Capt. J. G. Forbes, R.E.	Oudh Government Press, Lucknow.	1871
Irrigation in Southern Europe ..	Lieut. C. C. S. Moncrieff, R.E.	Messrs. E. & F. N. Spon, London.	1863
Reservoirs in the Deccan Rivers ..	G. R. Carroll ..	Education Society's Press, Bombay.	1867
Godaveri District, Results of Irrigation Works in the.	Gen. Sir A. Cotton, R.E.	Messrs. Trübner & Co., London.	1867
Ganges Canal, Controversy between Sir Proby Cautley and Sir Arthur Cotton.	.. ..	Printed for Private Circulation, London.	1863-65
Report on the Ganges Canal ..	Capt. J. Crofton ..	P. W. Dept., Calcutta ..	1865
A Project for Canals of Irrigation and Navigation from the Sone River in South Behar.	Lt.-Col. C. H. Dickens, R.E.	Public Works Dept. Press, Calcutta.	1861
Ganges Canal Works, Report on the	Col. Sir Proby Cautley, K.C.B., F.R.S.	Messrs. Smith, Elder & Co., London.	1860
The Cauveri, Kistnah, and Godaveri. A Report on the Irrigation Works on those rivers.	Capt. R. Baird Smith, R.E., F.G.S.	Messrs. Smith, Elder & Co., London.	1856
Professional Papers of Madras Engineers.	.. ..	Madras	1856
Canal Irrigation of Rohilcund, Report on the.	Capt. W. Jones, R.E.	Thomason College Press, Roorkee.	1855
Italian Irrigation	Capt. R. Baird Smith, R.E., F.G.S.	Messrs. Blackwood & Sons, Edinburgh.	1852-53
Western Jumna Canals, Memo. on the.	Major W. E. Baker, R.E.	Messrs. Smith, Elder & Co., London.	1849
Central Doab Canal, Report on the	Major T. Proby Cautley, R.A.	.. ..	1840

Roorkee Professional Papers.

These volumes contain many papers describing Indian Irrigation Works, and treating of their design, the duty and distribution of water, &c. See FIRST SERIES, Vol. I., pages 37, 57, 224, 278, 366; Vol. II., pages 18, 112, 145, 195, 203, 214, 308; Vol. III., pages 74, 319; Vol. IV., pages 233, 330, 337, 399, 411; Vol. V., pages 1, 161, 272, 375, 396; Vol. VI., pages 37, 267, 361; Vol. VII., pages 75, 189, 207, 301, 329. And SECOND SERIES, Vol. I., pages 40, 85, 360; Vol. II., pages 31, 38, 69, 141, 145, 378, 384; Vol. III., pages 39, 302, 351, 372, 394; Vol. IV., pages 8, 27, 122, 144, 211, 236, 405; Vol. V., pages 205, 408; Vol. VI., pages 55, 89, 278, 286, 374; Vol. VII., pages 19, 57, 85, 227, 287, 307, 357; Vol. VIII., page 25; Vol. IX., pages 49, 63, 125.

Proceedings of the Institution of Civil Engineers.

These Proceedings contain several papers connected with Irrigation, the principal ones are in the following volumes:—Vol. XXV., Greathed; Vol. XXVII., Login; Vol. XXVII., Wilson; Vol. XXXIII., Gordon; Vol. XXXIV., Latham; Vol. LI., Wilson; Vol. LVII., Byrne; Vol. LVIII., Buckley; Vol. LXV., Target; Vol. LXXI., Fahey; Vol. LXXIII., O'Meara; Vol. LXXIV., Ritso; Vol. LXXXVIII., Willcocks; Vol. CV., Fox.

Selections from the Proceedings of the Government of India, in the Public Works Department. The following "Selections," which refer to Irrigation Works, can be obtained from the Superintendent of Government Printing, Calcutta. They contain plates:—No. CCXV Periyar Irrigation Project, Madras; No. CCIV., Orissa Coast Canal, Bengal; No. CCXVII., Buckingham Canal, Madras; No. CCXVIII., Rushikulya Project, Madras; No. CCXIX., Palar Anicut System, Madras; No. CCXXXI., Zhara Karez Irrigation Scheme, Baluchistan; No. CCXXXII., Betwa Canal Project, North-West Provinces; No. CCXL., Failure of the Kali Nadi Aqueduct, Lower Ganges Canal; No. CCXLVIII Sidhnai Canal Project, Punjab.

DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS

IN THE

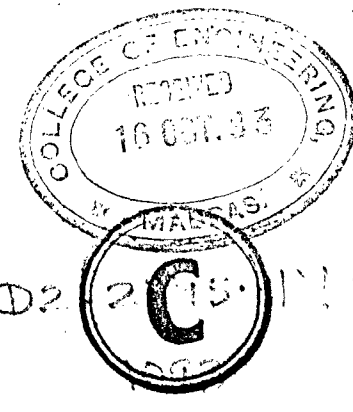
PERIYAKULAM MINOR BASIN

OF THE

UPPER VAIGAI RIVER BASIN.

The Periyakulam Minor Basin, which is a Sub-Division of the Upper Vaigai River Basin, has been designated after the town of that name situated in the centre of the Minor Basin. It includes an area of 190 square miles and comprises all lands draining into the Vaigai left bank between its junction with the Surulyaur River and the Butlagundu Minor Basin and is situated in the Periyakulam Taluq of the Madura District.

The principal supply to the Irrigation Works in this Minor Basin is from almost perennial streams, having their sources on the Pulney Hills over 7,000 feet above the level of the sea. Besides the streams which naturally flow from the Pulney Hills into the Vaigai River Basin the supply to the Irrigation Works in the Periyakulam Minor Basin was formerly supplemented by the drainage from about 2½ square miles on the plateau of the Pulney Hills, whose natural outlet was into the Amaravati River Basin. The right to this supplemental



source was disputed by the villagers of Manavanar on the Pulney plateau, and in August 1867, the dam which turned the water over into the Vaigai River Basin was destroyed. By a decree of the Principal Sudder Ameen's Court of the Madura District, dated 25th November 1869, the claims of the villagers in the Periyakulam Minor Basin was however established.

The area of this supplemental source of supply although small, is very favorably situated with reference to the rainfall of the South-West monsoon; and should the cost of a strong earthen dam not amount to more than Rs. 5,000, and the villagers concerned bind themselves to defray one-half of the cost of the work as well as the provision of watchman for the protection of the bund after it has been constructed, the construction of the dam might be undertaken as a security against seasons of deficient rainfall and as a help to work up to the full ayacut area throughout the Minor Basin even in seasons of average rainfall.

Rainfall.

The average annual rainfall on the plateau of the Pulney Hills as registered by Mr. Levinge at Kodaikanal for 10 years from 1873 to 1883 was 65.76 inches; two-thirds of this or about 40 inches fell during the period of the South-West monsoon. The average annual rainfall recorded at Periyakulam from 1870 to 1882 was only 28.28 inches. Of this 11.63 inches fell during the period of the South-West monsoon and 16.65 inches during the period of the North-East monsoon. The heaviest rainfall in 24 hours recorded at Periyakulam was 3.85 inches on the 12th November 1874 and on the 8th August 1883, 3.20 inches fell in $2\frac{1}{2}$ hours—between $4\frac{1}{2}$ and 7 P. M. at the same place.

Maximum Flood Discharges.

In calculating the maximum flood discharges from the catchment areas within the Periyakulam Minor Basin, working co-efficients of from 500 to 700 (according to the nature of the ground) for the formula $D = CM^{\frac{2}{3}}$ have been selected.

Percentage of Rainfall available.

The percentage of rainfall available for irrigation is that portion of the annual fall which actually runs off the surface of the ground,

and in the Periyakulam Basin may be taken at from 10 to 40 per cent. according to the intensity of the annual fall and other circumstances.

In the Periyakulam Minor Basin there are 75 different Irrigation Works having a total Ayacut area of 8132 acres. These works have been grouped for professional treatment as shown in the Group Irrigation Map. Scale 1 mile to the inch, and their financial details are given in the following statement in the order of this grouping.

Grouping of the
Irrigation Works.

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, Zemindary, or Inam.	Total Irrigable Ayaout.	Full Assessment on Do. Land and Water.	Average cul-			
Group.	Sub-Group.	No. in Group or Isolated Work.					First crop.			
							Extent.	Assessment.		
								Land.	Water.	
1	2	3	4	5	6	7	8	9	10	11
						Acres.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
			Varagha Naddi Channel		Government ...	481-98	2,293 1 1	387-68	500 12 1	876 8 8
					Dry brought in ...	...	...	1-80	...	8 13 1
					Inam Free ...	...	...	29-40	...	...
					Do. Charged ...	...	...	1-46	0 4 0	0 8 0
					Dry brought in ...	...	...	4-05	...	4 1 10
					Total...	481-98	2,293 1 1	424-39	501 0 1	889 15 7
			Periyakulam Tank		Government ...	803-72	4,304 2 9	781-49	1,008 10 6	1,789 3 1
					Dry brought in ...	0-61	2 4 7	0-61	...	2 4 7
					Inam Free ...	25-41	...	25-41	...	...
					Do. Charged ...	12-59	11 8 10	12-59	2 10 6	5 2 8
					Dry brought in ...	0-96	0 11 1	0-96	...	0 11 1
					Total...	843-29	4,318 11 3	821-06	1,011 5 0	1,797 5 5
			Pappiamputty Tank		Government ...	295-04	2,039 13 7	292-86	198 4 8	1,066 15 4
					Inam Free ...	1-72	...	1-72	...	...
					Do. Charged ...	12-11	...	12-11	2 14 2	5 12 6
					Total...	308-87	2,039 13 7	306-69	201 2 10	1,072 11 10
			Tamaraikulam Supply Channel		Government ...	12-96	53 7 11	12-86	16 9 11	18 1 6
					Inam Free ...	1-38	...	1-38	...	...
					Total...	14-34	52 7 11	14-24	16 9 11	18 1 6
			Tamaraikulam Tank		Government ...	296-67	1,730 9 6	293-70	379 6 4	767 11 7
					Dry brought in ...	2-04	7 4 9	2-04	...	7 4 9
					Inam Free ...	24-86	...	24-86	...	...
					Do. Charged ...	14-62	12 10 0	14-62	2 12 11	5 9 9
					Total...	338-19	1,750 8 3	335-22	382 3 3	780 10 1
			Sengkulam Tank		Government ...	45-11	162 9 0	35-65	42 1 7	51 3 6
			Karasankulam Tank		Do. ...	85-17	280 5 6	66-25	77 10 10	79 1 6
					Inam Free ...	4-52	...	4-52	...	...
					Do. Charged ...	0-53	0 4 0	0-53	0 0 11	0 1 9
					Total...	90-22	280 9 6	71-30	77 11 9	79 3 3
			Poothoo Camen Urni Tank		Government ...	16-16	35 0 0	16-16	20 14 0	2 7 4
					Total of Sub-Group.	2138-16	10,932 12 7	2024-71	2,253 0 5	4,691 10 6
			Kullar Athigarikulam Channel		Government ...	47-08	241 3 2	42-22	53 3 5	93 11 0
			Selpankulam Tank		Do. ...	27-05	108 7 7	...	...	...
			Athigarikulam Tank		Do. ...	129-35	723 8 3	125-20	157 12 11	318 0 7
			Odaikulam Tank		Do. ...	124-58	449 11 2	67-63	85 4 11	73 14 9
			Manakattukulam Tank.		Do. ...	120-05	360 6 9	70-56	88 14 10	44 12 11
					Dry brought in ...	0-22	0 10 6	0-22	0 6 4	0 1 2
					Total...	120-27	361 1 3	70-78	89 5 2	44 14 1
			Anamuttan Vadaku Voikal		Government ...	20-43	93 10 2	20-43	25 12 0	36 10 9
					Dry brought in ...	1-51	9 4 6	1-51	2 11 6	3 7 6
					Inam Dry do. ...	7-04	30 8 8	7-04	25 7 3	2 8 8
					Total...	28-98	133 7 4	28-98	53 14 9	42 10 11

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

tivation during the 5 years 1878 to 1883.

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.
387-68	688 9 8	500 12 1	1,565 2 4	2,065 14 5					
1-80	...	...	8 13 1	8 13 1					
29-40	...	...	...	...					
1-46	0 6 0	0 4 0	0 14 0	1 2 0					
4-05	...	...	4 1 10	4 1 10					
424-39	688 15 8	501 0 1	1,578 15 3	2,079 15 4					
781-49	1,398 15 7	1,008 10 6	3,188 2 8	4,196 13 2					
0-61	...	...	2 4 7	2 4 7					
25-41	...	...	...	...					
12-59	3 11 8	2 10 6	8 14 4	11 8 10					
0-96	...	...	0 11 1	0 11 1					
821-06	1,402 11 3	1,011 5 0	3,200 0 8	4,211 5 8					
292-88	632 10 0	198 4 8	1,699 9 4	1,897 14 0					
1-72	...	...	...	...					
12-11	4 5 4	2 14 2	10 1 10	13 0 0					
306-69	636 15 4	201 2 10	1,709 11 2	1,910 14 0					
12-86	17 5 8	16 9 11	35 7 2	52 1 1					
1-38	...	...	...	...					
14-24	17 5 8	16 9 11	35 7 2	52 1 1					
293-70	573 12 1	379 6 4	1,341 7 8	1,720 14 0					
2-04	...	...	7 4 9	7 4 9					
24-86	...	...	...	...					
14-62	4 3 4	2 12 11	9 13 1	12 10 0					
335-22	577 15 5	382 3 3	1,358 9 6	1,740 12 9					
35-65	46 10 5	42 1 7	97 13 11	139 15 6					
66-25	78 6 0	77 10 10	157 7 6	235 2 4			12-23	24 6 7	24 6 7
4-52	...	...	...	...					
0-53	0 1 4	0 0 11	0 3 1	0 4 0					
71-30	78 7 4	77 11 9	157 10 7	235 6 4			12-23	24 6 7	24 6 7
16-16	11 10 8	20 14 0	14 2 0	35 0 0			2-14	4 10 4	4 10 4
2024-71	3,460 11 9	2,253 0 5	8,152 6 3	10,405 6 8			14-37	29 0 11	29 0 11
42-22	73 7 3	53 3 5	167 2 3	220 5 8	...	25 5 1	...	...	25 5 1
...	...	...	...	...	...	108 7 7	...	...	108 7 7
125-20	237 14 9	157 12 11	555 15 4	713 12 3	...	...	...	...	...
67-63	79 9 11	85 4 11	153 8 8	238 13 7	114 8 4	...	...	...	114 8 4
70-56	66 13 10	88 14 10	111 10 9	200 9 7	...	37 0 9	...	...	37 0 9
0-22	0 3 0	0 6 4	0 4 2	0 10 6	...	...	...	...	...
70-78	67 0 10	89 5 2	111 14 11	201 4 1	...	37 0 9	...	...	37 0 9
20-43	31 3 5	25 12 0	67 14 2	93 10 2	...	2 0 2	...	...	2 0 2
1-51	3 1 6	2 11 6	6 9 0	9 4 6	...	...	...	...	...
7-04	2 8 9	25 7 3	5 1 5	30 8 8	...	...	...	...	...
28-98	36 13 8	53 14 9	79 8 7	133 7 4	...	2 0 2	...	...	2 0 2

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.					Average cultivation during the 5 years 1878 to 1883.			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, Zemindary, or Inam.	Net Revenue due to Iri- gation including Work- ing Expenses 15-21.	Do. per acre Irrigated 22-9.	Increase over Ayacut.	Decrease below Ayacut.	Ultimate Extent of Iri- gation.		
						22	23	24	25	26		
						Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.		
Varagha Naddi Group.	Tamaraikulam Sub-Group.	1	Varagha Naddi Channel		Government ...	1,565 2 4	4 0 7	...	11'44	387'68		
					Dry brought in ...	8 13 1	4 14 4	...	...	1'80		
					Inam Free ...	...	...	...	...	29'40		
					Do. Charged ...	0 14 0	0 9 7	...	...	1'46		
					Dry brought in ...	4 1 10	1 0 2	...	...	4'05		
					Total...	1,578 15 3	3 11 6	...	11'44	424'39		
					2	Periyakulam Tank ...	Government ...	3,188 2 8	4 1 3	...	14'23	781'49
							Dry brought in ...	2 4 7	3 12 0	...	...	0'61
							Inam Free ...	...	...	...	...	25'41
							Do. Charged ...	8 14 4	0 11 4	...	...	12'59
							Dry brought in ...	0 11 1	0 11 7	...	...	0'96
							Total...	3,200 0 8	3 14 4	...	14'23	821'06
					3	Pappiamputty Tank ...	Government ...	1,699 9 4	5 12 10	...	2'18	292'86
							Inam Free ...	...	...	...	...	1'72
							Do. Charged ...	10 1 10	0 13 4	...	...	12'11
							Total...	1,709 11 2	5 9 2	...	2'18	306'69
					4	Tamaraikulam Supply Channel ...	Government ...	35 7 2	2 12 1	...	...	12'86
							Inam Free ...	...	...	...	...	1'38
							Total...	35 7 2	2 12 1	...	...	14'24
					5	Tamaraikulam Tank ...	Government ...	1,341 7 8	4 9 1	...	...	293'70
							Dry brought in ...	7 4 9	3 9 3	...	...	2'04
							Inam Free ...	...	...	...	...	24'86
							Do. Charged ...	9 13 1	0 10 9	...	...	14'62
							Total...	1,358 9 6	4 12 4	...	...	335'22
6	Sengkulam Tank ...	Government ...	97 13 11	2 11 10	...	9'46	35'65					
7	Karasankulam Tank...	Do. ...	133 0 11	2 0 1	...	18'92	66'25					
		Inam Free ...	...	...	...	...	4'52					
		Do. Charged ...	0 3 1	0 5 10	...	...	0'53					
		Total...	133 4 0	1 13 10	...	18'92	71'30					
8	Poothoo Camen Urni Tank ...	Government ...	9 7 8	0 9 5	...	...	16'16					
		Total of Sub-Group.	8,123 5 4	4 0 2	...	56'23	2024'71					
Kullar Sub-Group.					Government ...	141 13 2	3 5 9	...	4'86	42'22		
					Do. ...	...	...	...	27'05	...		
					Do. ...	555 15 4	4 7 1	...	4'15	125'20		
					Do. ...	39 0 4	0 9 3	...	56'95	67'63		
					Do. ...	74 10 0	1 0 11	...	49'49	70'56		
					Dry brought in ...	0 4 2	1 2 11	...	...	0'22		
					Total...	74 14 2	1 0 11	...	49'49	70'78		
14	Anamuttan Vadaku Voikal ...	Government ...	65 14 0	3 3 7	...	...	20'43					
		Dry brought in...	6 9 0	4 5 6	...	...	1'51					
		Inam Dry do. ...	5 1 5	0 11 7	...	...	7'04					
		Total...	77 8 5	2 11 10	...	...	28'98					

Works in the Periyakulam 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.	Rs. A. P.	Rs. A. P.	34	
1,565 2 4 8 13 1 ... 0 14 0 4 1 10	... ... ... ... ...							
1,578 15 3	...	...	320 0 0	320 0 0	20 5 3	...	✓	
3,188 2 8 2 4 7 ... 8 14 4 0 11 1	... ... ... ... ...							
3,200 0 8	...	...	4,630 0 0	4,630 0 0	144 10 8	...	✓	
1,699 9 4 ... 10 1 10	... ... ...							
1,709 11 2	...	...	2,000 0 0	2,000 0 0	116 14 6	...	✓	
35 7 2 ...	... ...							
35 7 2	...	...	...	...	...	...		
1,341 7 8 7 4 9 ... 9 13 1	... ... ... ...							
1,353 9 6	...	...	3,000 0 0	3,000 0 0	220 12 0	...	✓	
97 13 11	...	...	530 0 0	530 0 0	542 3 0	...	✓	
157 7 6 ... 0 3 1	... ... ...							
157 10 7	...	..	390 0 0	390 0 0	247 6 8	...	✓	
14 2 0	4 10 4	...	250 0 0	250 0 0	177 0 0	1 14 0	✓	
8,152 6 3	29 0 11	...	11,120 0 0	11,120 0 0	136 6 5	0 4 2		
167 2 3	25 5 1	...	90 0 0	90 0 0	53 13 0	28 2 0	✓ Tank silted up not to be repaired.	
...	...	...	...	...	...	...		
555 15 4	...	...	380 0 0	380 0 0	68 0 0	...	✓ * Not to be repaired, excessive surplus works required.	
153 8 8	114 8 4	...	...	...	...	...		
111 10 9 0 4 2	37 0 9 ...							
111 14 11	37 0 9	..	275 0 0	275 0 0	245 8 0	13 7 6	✓	
67 14 0 6 9 0 5 1 5	2 0 0							
79 8 5	2 0 0	...	20 0 0	20 0 0	25 8 0	10 0 0	✓ N.B.—Works marked *have been repaired by the ryots and Nanja Tirva only charged.	

N.B.—Works marked *have been repaired by the ryots and Nanja Tirva only charged.

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.				No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindary 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
Varagah Naddi Group. Kullar Sub-Group. Vythenathapuram Ani-cut Voikal Sub-Group.	15		Chinnanai Nada Voikal.		Government ...	Acres. 47-50	Rs. 233 0 11	P. 46-33	Rs. 58 6 4	P. 93 0 2
	16		Chinnanai Therku Voikal ...		Government ...	173-93	850 0 11	170-23	214 8 11	339 11 4
					Inam free ...	10-21	...	10-21	...	...
					Do. charged ...	2-88	3 8 0	2-88	0 12 5	1 8 11
					Total...	187-02	853 8 11	183-32	215 5 4	341 4 3
	17		Koraikulam Channel ...		Government ...	85-91	500 12 10	74-47	93 13 10	206 3 8
					Inam free ...	1-76	...	1-76	...	...
					Do. charged ...	6-74	9 12 0	6-74	2 2 8	4 5 4
					Total...	94-41	510 8 10	82-97	96 0 6	210 9 0
	18		Koraikulam Tank ...		Government ...	79-02	409 15 8	79-02	99 4 11	174 0 3
					Dry brought in ...	2-14	14 7 11	2-14	3 5 7	6 7 0
					Total...	81-16	424 7 7	81-16	102 10 6	180 7 3
	19		Chackiliankulam Tank.		Government ...	5-87	12 11 0	5-87	7 6 5	1 1 4
	20		Kadambankulam Channel ...		Government ...	116-50	735 2 8	115-38	145 6 10	340 13 8
					Dry brought in ...	1-73	8 15 2	1-73	2 9 5	3 6 0
					Total...	118-23	744 1 10	117-11	148 0 3	344 3 8
	21		Kadambankulam Tank.		Government ...	81-88	520 15 1	81-88	103 1 8	244 3 1
					Inam free ...	13-55	...	13-55	...	...
					Total...	95-43	520 15 1	95-43	103 1 8	244 3 1
	22		Settikulam Channel ...		Government ...	113-73	638 1 10	100-00	126 0 8	240 15 9
					Dry brought in ...	1-22	4 2 1	1-22	1 8 6	1 3 6
					Inam free ...	6-90	...	6-90	...	...
					Do. charged ...	1-30	5 6 1	1-30	1 11 0	2 1 9
					Total...	123-15	647 10 0	109-42	129 4 2	244 5 0
	23		Settikulam Tank ...		Government ...	86-46	481 0 10	85-05	106 7 9	209 12 10
					Inam free ...	1-76	...	1-76	...	...
					Total...	88-22	481 0 10	86-81	106 7 9	209 12 10
	24		Vari Voikal ...		Government ...	83-22	521 2 7	82-18	103 9 4	241 3 9
					Inam free ...	9-72	...	9-72	...	...
					Do. charged ...	1-17	1 12 0	1-17	0 6 2	0 12 6
					Dry brought in ...	0-33	1 2 0	0-33	0 6 9	0 5 3
					Total...	94-44	524 0 7	93-40	104 6 3	242 5 6
	25		Bothenkulam Channel.		Government ...	32-93	156 4 4	32-93	42 11 3	61 7 8
					Dry brought in ...	0-32	1 6 10	0-32	0 9 6	0 8 11
					Total...	33-25	157 11 2	33-25	43 4 9	62 0 7
	26		Bothenkulam Tank ...		Government ...	35-25	195 10 1	31-50	42 12 10	87 12 0
				Dry brought in ...	...	4 7 4	0-44	0 12 9	2 7 1	
				Inam free ...	...	...	1-76	...	...	
				Total...	35-25	200 1 5	33-70	43 9 7	90 3 1	
				Total of Sub-Group.	1481-24	7,327 15 6	1303-58	1,597 8 8	2,836 11 1	
A.	26		Vythenathapuram Ani-cut Voikal ...		Vadagarai usual wet	5-14	11 1 11	5-14	6 5 0	1 1 8
					Dry converted into wet & dry crops watered	5-87	12 11 8	5-87	2 2 0	6 5 10
					Total for Sub-Group	11-01	23 13 7	11-01	8 7 0	7 7 6

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

tivation during the 5 years 1873 to 1883.

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.
46-33	75 11 3	58 6 4	168 11 5	227 1 9	...	...	...	...	...
170-23	277 2 2	214 8 11	616 13 6	831 6 5	...	60 11 5	...	...	60 11 5
10-21	...	...	...	...	...	...	...	...	...
2-88	1 2 8	0 12 5	2 11 7	3 8 0	...	...	...	...	...
183-32	278 4 10	215 5 4	619 9 1	834 14 5	...	60 11 5	...	...	60 11 5
74-47	150 0 9	93 13 10	356 4 5	450 2 3	...	...	...	...	...
1-76	...	...	...	...	...	...	...	...	...
6-74	3 4 0	2 2 8	7 9 4	9 12 0	...	...	...	...	...
82-97	153 4 9	96 0 6	363 13 9	459 14 3	...	...	...	...	...
79-02	136 10 6	99 4 11	310 10 9	409 15 8	...	8 9 2	...	...	8 9 2
2-14	4 11 4	3 5 7	11 2 4	14 7 11	...	...	...	...	...
81-16	141 5 10	102 10 6	321 13 1	424 7 7	...	8 9 2	...	...	8 9 2
5-87	4 3 10	7 6 5	5 5 2	12 11 7	...	8 7 9	...	...	8 7 9
115-38	243 2 2	145 6 10	583 15 10	729 6 8	...	59 8 0	...	...	59 8 0
1-73	2 15 9	2 9 5	6 5 9	8 15 2	...	...	...	...	...
117-11	246 1 11	148 0 3	590 5 7	738 5 10	...	59 8 0	...	...	59 8 0
81-88	173 10 4	103 1 8	414 13 5	520 15 1	...	...	...	...	...
13-55	...	...	...	...	...	...	...	...	...
95-43	173 10 4	103 1 8	414 13 5	520 15 1	...	...	...	...	...
100-00	183 8 2	126 0 8	424 7 11	550 8 7	...	47 0 11	...	...	47 0 11
1-22	1 6 1	1 8 6	2 9 7	4 2 1	...	...	...	...	...
6-90	...	...	...	...	...	...	...	...	...
1-30	1 9 4	1 11 0	3 11 1	5 6 1	...	...	...	...	...
109-42	186 7 7	129 4 2	430 12 7	560 0 9	...	47 0 11	...	...	47 0 11
85-05	158 2 3	106 7 9	367 15 1	474 6 10	...	...	...	...	...
1-76	...	...	...	...	...	...	...	...	...
86-81	158 2 3	106 7 9	367 15 1	474 6 10	...	...	...	...	...
82-18	172 6 6	103 9 4	413 10 3	517 3 7	...	0 6 3	...	...	0 6 3
9-72	...	...	...	...	...	...	...	...	...
1-17	0 9 4	0 6 2	1 5 10	1 12 0	...	...	...	...	...
0-33	0 6 0	0 6 9	0 11 3	1 2 0	...	...	...	...	...
93-40	173 5 10	104 6 3	415 11 4	520 1 7	...	0 6 3	...	...	0 6 3
32-93	52 1 5	42 11 3	113 9 1	156 4 4	...	...	...	...	...
0-32	0 4 5	0 9 6	0 13 4	1 6 10	...	...	...	...	...
33-25	52 5 10	43 4 9	114 6 5	157 11 2	...	...	...	...	...
31-50	65 4 5	42 12 10	153 0 5	195 13 3	...	...	0-05	0 3 7	0 3 7
0-44	1 3 6	0 12 9	3 10 7	4 7 4	...	...	...	...	...
1-76	...	...	...	...	...	...	...	...	...
33-70	66 7 11	43 9 7	156 11 0	200 4 7	...	...	0-05	0 3 7	0 3 7
1303-58	2,204 6 7	1,597 8 8	5,041 1 8	6,638 10 4	114 8 4	357 9 1	0-05	0 3 7	472 5 0
5-14	3 13 3	6 5 0	4 12 11	11 1 11	...	...	...	...	...
5-87	4 3 10	2 2 0	10 9 8	12 11 8	...	...	...	...	...
11-01	8 1 1	8 7 0	15 6 7	23 13 7	...	...	...	...	...

Works in the Periyakulam Minor Basin.

[illegible]

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.			No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindary, or Inam.	Total Irrigable Ayaat.	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
						Acres.	Rs. A. P.	Acres.	Rs. A. P.	Rs. A. P.
Varagha Naddi Group.	Alagaparai Anicut Channel Sub-Group.	27	Alagaparai Anicut Channel ...	Government ...	77-08	384 10 6	77-08	99 15 11	156 7 4	
				Dry brought in ...	0-15	0 12 9	0-15	0 4 3	0 5 8	
				Inam charged ...	2-07	11 3 7	2-07	2 11 0	1 0 11	
				Total...	79-30	396 10 10	79-30	102 15 2	157 13 11	
		28	Balappanaiken Tank Channel ...	Government ...	46-01	228 11 2	45-94	57 14 6	94 8 11	
		29	Balappanaiken Tank ...	Do. ...	54-15	311 5 10	53-78	68 12 8	132 15 3	
		30	Seventhupathan Channel ...	Do. ...	7-63	40 4 0	7-63	9 6 10	17 0 8	
				Dry brought in ...	0-15	0 8 9	0-15	0 3 1	0 2 9	
				Total...	7-78	40 12 9	7-78	9 9 11	17 3 5	
		31	Velankulam Tank ...	Government ...	183-97	1,261 9 6	180-59	227 9 10	603 10 9	
				Inam free ...	8-60	...	8-60	...	...	
				Do. charged ...	7-37	38 12 0	7-31	8 9 10	17 3 6	
				Total...	199-94	1,300 5 6	196-50	236 3 8	620 14 3	
		32	Odai Voikal Channel...	Government ...	51-70	300 5 10	51-70	65 2 7	135 1 4	
		33	Chinnapulankulam Channel ...	Do. ...	41-01	250 3 3	41-01	53 3 0	113 9 10	
		34	Chinnapulankulam Tank ...	Do. ...	36-51	195 9 10	36-51	47 5 7	103 11 5	
				Dry brought in ...	3-25	30 15 6	3-25	6 14 4	16 0 11	
				Total...	39-76	226 9 4	39-76	54 3 11	119 12 4	
		35	Andikulam Tank ...	Government ...	44-82	464 7 3	43-99	90 7 1	211 8 2	
				Dry brought in ...	0-59	2 8 10	0-59	1 1 0	0 15 10	
				Inam free ...	25-74	...	25-74	...	...	
				Total...	71-15	467 0 1	70-32	91 8 1	212 8 0	
		36	Thalavoyai Channel ...	Government ...	61-88	301 12 7	61-46	79 7 9	129 2 9	
				Dry brought in ...	1-67	8 1 2	1-67	2 1 7	3 3 2	
				Inam free ...	...	...	2-49	...	...	
				Total...	63-55	309 13 9	65-62	81 9 4	132 5 11	
		37	Urittikulam Tank ...	Government ...	11-43	73 5 2	11-40	14 12 7	27 7 6	
				Total of Sub-Group	665-78	3,905 3 6	663-11	835 15 5	1,764 4 8	
Kumbakara Anicut Channel Sub-Group	Kumbakara Anicut Channel	38	Kumbakara Anicut Channel	Government ...	47-12	224 6 10	39-29	55 8 6	71 10 0	
				Inam free ...	3-52	...	3-52	...	...	
				Total...	50-64	224 6 10	42-81	55 8 6	71 10 0	
		39	Verappanaiken Voikal.	Government ...	10-27	27 11 6	7-76	10 1 10	12 6 9	
		40	Verappanaiken Tank ..	Do. ...	37-08	165 7 8	35-08	45 7 11	59 12 3	
		41	Pattathikulam ...	Do. ...	106-58	511 15 7	101-69	135 12 3	202 10 6	
				Inam free ...	...	...	3-52	...	...	
		Do. charged ...	...	4 8 0	0-58	1 8 0	1 8 0			
		Dry brought in ...	...	2 10 6	0-73	0 14 2	0 14 2			
		Total...	106-58	519 2 1	106-52	138 2 5	205 0 8			
		Total of Sub-Group	204-57	936 12 1	192-17	249 4 8	348 13 8			

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

tivation during the 5 years 1878 to 1883.

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.
77-08	128 3 3	99 15 11	284 10 7	384 10 6	...	...	...	...	...
0-15	0 2 10	0 4 3	0 8 6	0 12 9	...	...	...	...	...
2-07	7 7 8	2 11 0	8 8 7	11 3 7	...	...	...	...	...
79-30	135 13 9	102 15 2	293 11 8	396 10 10	...	...	...	...	...
45-94	76 3 9	57 14 6	170 12 8	228 11 2	...	...	...	...	...
53-78	108 1 2	68 12 8	241 0 5	309 13 1	...	...	...	...	...
7-63	13 3 9	9 6 10	30 4 5	39 11 3	...	...	...	...	...
0-15	0 2 11	0 3 1	0 5 8	0 8 9	...	...	...	...	...
7-78	13 6 8	9 9 11	30 10 1	40 4 0	...	...	...	...	...
180-59	415 10 3	227 9 10	1,019 5 0	1,246 14 10	...	...	...	...	...
8-60	...	...	...	...	...	...	...	...	...
7-31	12 14 8	8 9 10	30 2 2	38 12 0	...	...	...	...	...
196-50	428 8 11	236 3 8	1,049 7 2	1,285 10 10	...	...	...	...	...
51-70	100 1 11	65 2 7	235 3 3	300 5 10	...	...	...	...	...
41-01	83 6 7	58 3 0	197 0 5	250 3 5	...	...	...	...	...
36-51	75 8 4	47 5 7	179 3 9	226 9 4	...	...	...	...	...
3-25	8 0 3	6 14 4	24 1 2	30 15 6	...	...	...	...	...
39-76	83 8 7	54 3 11	203 4 11	257 8 10	...	...	...	...	...
43-99	150 15 7	90 7 1	362 7 9	452 14 10	...	...	...	...	...
0-59	0 8 0	1 1 0	1 7 10	2 8 10	...	...	...	...	...
25-74	...	...	...	...	...	...	...	...	...
70-32	151 7 7	91 8 1	363 15 7	455 7 8	...	...	...	...	...
61-46	104 5 6	79 7 9	233 8 3	313 0 0	...	...	...	...	...
1-67	2 12 5	2 1 7	5 15 7	8 1 2	...	...	...	...	...
2-49	...	...	...	...	...	...	...	...	...
65-62	107 1 11	81 9 4	239 7 10	321 1 2	...	...	...	...	...
11-40	21 2 0	14 12 7	48 9 6	63 6 1	...	...	...	...	...
663-11	1,308 14 10	835 15 5	3,073 3 6	3,809 2 11	...	...	...	...	...
39-29	53 9 3	55 8 6	125 3 3	180 11 9	...	...	...	...	...
3-52	...	...	...	...	...	...	...	...	...
42-81	53 9 3	55 8 6	125 3 3	180 11 9	...	...	...	...	...
7-76	11 3 4	10 1 0	23 10 1	33 11 1	...	...	2-51	10 14 3	10 14 3
35-08	52 10 0	45 7 11	112 6 3	157 14 2	...	...	...	...	...
101-69	169 3 2	135 12 3	371 13 8	507 9 11	...	...	0-31	1 5 4	1 5 4
3-52	...	...	...	...	...	...	...	...	...
0-53	1 8 0	1 8 0	3 0 0	4 8 0	...	...	...	...	...
0-73	0 14 2	0 14 2	1 12 4	2 10 6	...	...	...	...	...
106-52	171 9 4	133 2 5	376 10 0	514 12 5	...	...	0-31	1 5 4	1 5 4
192-17	238 15 11	249 4 8	637 13 7	887 2 3	...	...	2-82	12 3 7	12 3 7

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.		No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindary, or Inam.	Average cultivation during the 5 years 1878 to 1883.		Proposed		
Group.	Sub-Group.			Net Revenue due to Irrigation including Work-ing Expenses 15-21.	Do. per acre Irrigated 22-9.	Increase over Ayacut.	Decrease below Ayacut.	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.
Varagha Naddi Group.	Alagaparai Anicut Sub-Group.	27	Alagaparai Anicut Channel ...	Government ... 284 10 7 Dry brought in ... 0 8 6 Inam charged ... 8 8 7 Total... 293 11 8	3 11 1 3 8 8 4 2 0 3 11 3	...	...	77-08 0-15 2-07 79-30
		28	Balappanaiken Tank Channel ...	Government ... 170 12 8	3 11 6	...	0-07	45-94
		29	Balappanaiken Tank ..	Do. ... 241 0 5	4 7 8	...	0-37	53-78
		30	Seventhipathan Channel	Do. ... 30 4 5 Dry brought in ... 0 5 8 Total... 30 10 1	3 15 6 2 5 9 3 15 0	...	0-07	7-63 0-15 7-78
		31	Velankulam Tank ...	Government ... 1,019 5 0 Inam free ... 30 ... 2 Do. charged ... 30 2 2 Total... 1,049 7 2	5 10 4 ... 4 2 0 5 5 5	...	3-38	180-59 8-60 7-31 196-50
		32	Odai Voikal Channel...	Government ... 235 3 3	4 8 9	...	...	51-70
		33	Chinnapulankulam Channel ...	Do. ... 197 0 5	4 12 10	...	...	41-01
		34	Chinnapulankulam Tank ...	Do. ... 179 3 9 Dry brought in ... 24 1 2 Total... 203 4 11	4 14 7 7 6 6 5 1 10	...	...	36-51 3-25 39-76
		35	Andikulam Tank ...	Government ... 362 7 9 Dry brought in ... 1 7 10 Inam free ... Total... 363 15 7	8 3 10 2 8 5 ... 5 2 9	...	0-83	43-99 0-59 25-74 70-32
		36	Thalavoyai Channel ...	Government ... 233 8 3 Dry brought in ... 5 15 7 Inam free ... Total... 239 7 10	3 12 9 3 9 3 ... 3 10 5	...	...	61-46 1-67 2-49 65-62
		37	Urittikulam Tank ...	Government ... 48 9 6	4 4 3	...	0-03	11-40
			Total of Sub-Group.	3,073 3 6	4 8 7	...	4-75	663-11
Kumbakarai Anicut Sub-Group.	Kumbakarai Anicut Sub-Group.	38	Kumbakarai Anicut Channel ...	Government ... 125 3 3 Inam free ... Total... 125 3 3	3 3 0 ... 2 14 10	...	7-83	39-29 3-52 42-81
		39	Verappanaiken Voikal..	Government ... 12 11 10	1 10 3	...	2-51	7-76
		40	Verappanaiken Tank...	Government ... 112 6 3	3 3 3	...	2-00	35-03
		41	Pattathikulam ...	Do. ... 370 8 4 Inam free ... Do. charged ... 3 0 0 Dry brought in ... 1 12 4 Total... 375 4 8	3 10 4 ... 5 2 9 2 6 10 3 8 4	...	0-06	101-69 3-52 0-58 0-73 106-52
			Total of Sub-Group.	625 10 0	3 4 1	...	12-40	192-17

Works in the Periyakulam Minor Basin.

Cultivation.		Estimated outlay to secure standard of efficiency.					Remarks.
Expected net Revenue from do. including work-ing expenses.	Expected increase of Re-venue 27-22	Original Work.	Repairs.	Total.	Outlay percentage on ul-timate net Revenue 31 X 100 ÷ 27.	Expected Increase of Re-venue 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.			
284 10 7 0 8 6 8 8 7	...	...	...	...	...	...	
293 11 8	...	...	300 0 0	300 0 0	102 0 0	...	✓
170 12 8	...	...	5 0 0	5 0 0	2 15 0	...	✓
241 0 5	...	...	470 0 0	470 0 0	195 0 0	...	✓
30 4 5 0 5 8	...	...	...	...	...	...	
30 10 1	...	...	...	...	...	...	
1,019 5 0	...	...	...	...	...	...	
30 2 2	...	...	...	...	...	...	
1,049 7 2	...	...	996 0 0	996 0 0	95 0 0	...	✓
235 3 3	...	...	...	...	...	...	
197 0 5	...	...	...	...	...	...	
179 3 9 24 1 2	...	...	...	...	...	...	
203 4 11	...	285 0 0	135 0 0	400 0 0	197 0 0	...	✓
362 7 9 1 7 10	...	...	...	...	...	...	
363 15 7	...	...	140 0 0	140 0 0	38 0 0	...	✓
233 8 3 5 15 7	...	...	...	...	...	...	
239 7 10	...	...	5 0 0	5 0 0	2 0 0	...	✓
48 9 6	...	...	70 0 0	70 0 0	144 0 0	...	✓
3,073 3 6	...	285 0 0	2,121 0 0	2,386 0 0	80 14 9	...	
125 3 3	...	...	...	...	...	...	
125 3 3	...	...	...	...	...	...	
23 10 1	10 14 3	...	...	...	...	1,089 1 0	Defect of water.
112 6 3	...	...	300 0 0	300 0 0	265 0 0	...	✓
371 13 8 3 0 0 1 12 4	1 5 4	...	...	...	...	...	
376 10 0	1 5 4	...	330 0 0	330 0 0	87 0 0	0 6 6	✓
637 13 7	12 3 7	...	630 0 0	630 0 0	49 12 5	1 15 0	

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.			No. in District Irrigation Register.	Items of Irrigation whether Govern- ment, Zemindary, 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
Kukalar Ancient Channel Sub-Group.										
	42	Kukalar Channel on the Right bank ...		Government ...	27-69	149 7 6	26-98	35 0 0	63 3 5	
				Dry brought in ...	...	...	0-74	1 2 8	4 2 10	
				Total...	27-69	149 7 6	27-72	36 2 8	67 6 3	
	43	Kykalankulam Tank ...		Government ...	39-98	247 9 1	39-98	51 13 9	113 3 2	
	44	Periapulankulam Tank.		Do. ...	19-36	69 12 2	19-36	25 1 9	21 6 6	
				Dry brought in ...	0-14	1 7 8	0-14	0 4 2	0 13 0	
				Total...	19-50	71 3 10	19-50	25 5 11	22 3 6	
	45	Kukalar Channel on the left bank.		Government ...	11-45	45 11 7	8-03	9 4 6	7 12 1	
				Inam free ...	0-81	...	0-81	...	...	
				Do. charged ...	3-52	15 4 4	3-52	6 5 10	3 13 1	
				Total...	15-78	60 15 11	12-36	15 10 4	11 9 2	
	46	Pudukulam Tank ...		Government ...	115-84	352 6 3	100-54	127 3 0	78 8 11	
				Total of Sub-Group.	218-79	881 10 7	200-10	256 3 8	292 15 0	
Varagha Naddi Group.										
	47	Nundiapuram Ancient Channel ...		Government ...	88-80	358 8 10	85-76	110 12 1	120 14 6	
				Dry brought in ...	2-98	8 13 10	2-98	...	8 13 10	
				Inam free ...	6-10	...	6-10	...	...	
				Do. charged ...	0-86	0 8 6	0-86	0 1 9	0 3 7	
				Dry brought in ...	3-73	13 7 10	3-73	...	13 7 10	
				Total...	102-47	381 6 6	99-43	110 13 10	143 7 9	
	48	Nundiapuram Tank ...		Government ...	122-32	680 4 10	120-31	155 6 10	225 12 9	
				Inam free ...	3-07	...	3-07	...	...	
				Do. charged ...	1-02	0 12 0	1-02	0 2 8	0 5 4	
				Total...	126-41	681 0 10	124-40	155 9 6	226 2 1	
	49	Pottaikulam Tank ...		Government ...	26-70	144 9 0	26-23	33 14 1	60 15 11	
				Inam free ...	1-90	...	1-90	...	...	
				Do. charged ...	2-31	0 14 0	2-31	0 3 1	0 6 3	
				Total...	30-91	145 7 0	30-44	34 1 2	61 6 2	
	50	Luckiamputty Tank ...		Government ...	26-53	124 11 1	26-25	33 14 6	43 8 3	
				Inam free ...	1-90	13 11 7	1-90	...	...	
				Total...	28-43	138 6 8	28-15	33 14 6	48 8 3	
	51	Pottaivannankulam Tank ...		Government ...	24-60	115 7 7	24-45	32 1 1	44 6 2	
				Inam free ...	2-66	17 9 0	2-66	...	...	
				Total...	27-26	133 0 7	27-11	32 1 1	44 6 2	
	52	Nedoonkulam Tank ...		Government ...	154-66	690 6 10	144-80	187 0 8	265 5 1	
				Dry brought in ...	0-21	0 8 6	0-21	0 7 0	0 3 3	
				Inam free ...	5-72	33 12 10	5-72	...	...	
				Do. charged ...	0-39	2 8 1	0-39	0 0 11	0 1 9	
				Total ..	160-98	732 4 3	151-12	187 8 7	265 10 1	
				Total of Sub-Group.	476-46	2,211 9 10	460-65	554 0 8	859 8 6	

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

tivation during the 5 years 1878 to 1883.

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.
26-98	49 0 6	35 0 0	112 3 11	147 3 11	...	...	...	...	...
0-74	2 1 4	1 2 8	6 4 2	7 6 10	...	...	...	...	...
27-72	51 1 10	36 2 8	118 8 1	154 10 9	...	...	...	...	...
39-98	82 8 2	51 13 9	195 11 4	247 9 1	...	...	...	...	...
19-36	23 3 11	25 1 9	44 10 5	69 12 2	...	...	...	...	...
14	0 6 6	0 4 2	1 3 6	1 7 8	...	...	...	...	...
19-50	23 10 5	25 5 11	45 13 11	71 3 10	...	...	...	...	...
8-03	8 8 4	9 4 6	16 4 5	25 8 11	...	...	...	...	...
0-81	...	...	...	...	...	...	...	...	...
3-52	5 1 5	6 5 10	8 14 6	15 4 4	...	...	...	...	...
12-36	13 9 9	15 10 4	25 2 11	40 13 3	...	...	...	...	...
100-54	102 13 11	127 3 0	181 6 10	308 9 10	...	12 11 8	...	...	12 11 8
200-10	273 12 1	256 3 8	566 11 1	822 14 9	...	12 11 8	...	...	12 11 8
85-76	115 13 4	110 12 1	236 11 10	347 7 11	...	...	0-68	2 10 7	2 10 7
2-98	...	...	8 13 10	8 13 10	...	...	...	...	...
6-10	...	...	...	...	...	...	...	...	...
0-86	0 2 8	0 1 9	0 6 3	0 8 0	...	...	...	...	...
3-73	...	...	13 7 10	13 7 10	...	...	...	...	...
99-48	116 0 0	110 13 10	259 7 9	370 5 7	...	...	0-68	2 10 7	2 10 7
120-31	225 9 7	155 6 10	451 6 4	606 13 2	...	...	0-25	1 2 6	1 2 6
3-07	...	...	...	...	...	...	...	...	...
1-02	0 4 0	0 2 8	0 9 4	0 12 0	...	...	...	...	...
124-40	225 13 7	155 9 6	451 15 8	607 9 2	...	...	0-25	1 2 6	1 2 6
26-23	47 6 11	33 14 1	108 6 10	142 4 11	...	...	...	...	...
1-90	...	...	...	...	...	...	...	...	...
2-31	0 4 8	0 3 1	0 10 11	0 14 0	...	...	...	...	...
30-44	47 11 7	34 1 2	109 1 9	143 2 11	...	...	...	...	...
26-25	41 3 4	33 14 6	89 11 7	123 10 1	...	13 11 11	...	...	13 11 11
1-90	...	...	...	...	...	...	...	...	...
28-15	41 3 4	33 14 6	89 11 7	123 10 1	...	13 11 11	...	...	13 11 11
24-45	33 3 8	32 1 1	82 9 10	114 10 11	...	41 10 9	...	...	41 10 9
2-66	...	...	...	...	...	...	...	...	...
27-11	38 3 8	32 1 1	82 9 10	114 10 11	...	41 10 9	...	...	41 10 9
144-80	226 2 11	187 0 8	491 8 0	678 8 8	...	249 9 11	...	...	249 9 11
0-21	0 5 3	0 7 0	0 8 6	0 15 6	...	...	...	...	...
5-72	...	...	...	...	...	...	...	...	...
0-39	0 1 4	0 0 11	0 3 1	0 4 0	...	...	...	...	...
151-12	226 9 6	187 8 7	492 3 7	679 12 2	...	249 9 11	...	...	249 9 11
460-65	695 9 8	554 0 8	1,485 2 2	2,109 6 10	...	305 0 7	0-93	3 13 1	308 13 8

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.			Items of Irrigation whether Government, Zemindary, or Inam.	Average cultivation during the 5 years 1878 to 1883.		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 Ayaent.	Decrease below Ayaent.	Ultimate Extent of Irrigation.
				22	23	24	25	26
				Rs. A. P.	Rs. A. P.	Acres.	Acres.	Acres.
Kukular Anicut Channel Sub-Group.	42	Kukular Channel on the Right bank ...	Government ...	112 3 11	4 2 7	...	...	26-98
			Dry brought in ...	6 4 2	8 7 4	...	...	0-74
			Total...	118 8 1	4 4 5	...	...	27-72
	43	Kykalankulam Tank ...	Government ...	195 11 4	4 14 4	...	...	39-98
	44	Periapulankulam Tank.	Do. ...	44 10 5	2 4 11	...	...	19-36
			Dry brought in ...	1 3 6	8 11 3	...	...	0-14
			Total...	45 13 11	2 5 8	0-14	...	19-50
	45	Kukular Channel on the left bank ...	Government ...	16 4 5	2 0 5	...	3-42	8-03
			Inam free ...	...	...	...	...	0-81
			Do. charged ...	8 14 6	2 8 6	...	...	3-52
Nundipuram Anicut Channel Sub-Group.			Total...	25 2 11	2 0 6	...	3-42	12-36
	46	Pudukulam Tank ...	Government ...	168 11 2	1 10 10	...	15-30	100-54
			Total of Sub-Group.	553 15 5	2 12 3	0-14	18-72	200-10
	47	Nundiapuram Anicut Channel ...	Government ...	234 1 3	2 11 8	...	...	85-76
			Dry brought in ...	8 13 10	...	...	...	2-98
			Inam free ...	...	...	...	...	6-10
			Do. charged ...	0 6 3	...	...	...	0-86
			Dry brought in ...	13 7 10	...	...	...	3-73
			Total...	256 13 2	2 14 5	...	...	99-43
	48	Nundiapuram Tank ...	Government ...	450 3 10	4 4 6	...	...	120-31
Nundiapuram Anicut Channel Sub-Group.			Inam free ...	...	...	...	...	3-07
			Do. charged ...	0 9 4	0 9 2	...	...	1-02
			Total...	450 13 2	4 7 2	...	...	124-40
	49	Pottaikulam Tank ...	Government ...	108 6 10	4 2 2	...	0-47	26-23
			Inam free ...	...	...	...	...	1-90
			Do. charged ...	0 10 11	0 4 9	...	...	2-31
			Total...	109 1 9	4 4 2	...	0-47	30-44
	50	Luckiamputty Tank ...	Government ...	75 15 8	2 14 4	...	0-28	26-25
			Inam free ...	...	...	...	...	1-90
			Total...	75 15 8	2 13 11	...	0-28	28-15
Nundiapuram Anicut Channel Sub-Group.	51	Pottaivannankulam Tank ...	Government ...	40 15 1	1 10 10	...	0-17	24-45
			Inam free ...	...	...	...	...	2-66
			Total...	40 15 1	1 10 9	...	0-17	27-11
	52	Nedoonkulam Tank ...	Government ...	241 14 1	1 10 10	...	9-86	144-80
			Dry brought in ...	0 8 6	2 8 6	...	...	0-21
			Inam free ...	...	...	...	...	5-72
			Do. charged ...	0 3 1	0 7 11	...	...	0-39
			Total...	242 9 8	1 9 9	0-21	9-86	151-12
			Total of Sub-Group.	1,176 4 6	2 11 3	0-21	10-78	460-65

Works in the Periyakulam 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 X 31.	
27	28	29	30	31	32	33	34
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
112 3 11	...	...	...	...	...	...	
6 4 2	...	...	...	...	...	...	
118 8 1	...	...	755 0 0	755 0 0	637 0 0	...	
195 11 4	...	...	150 0 0	150 0 0	77 0 0	...	
44 10 5	...	...	...	...	...	...	
1 3 6	...	...	...	...	...	...	
45 13 11	...	...	70 0 0	70 0 0	152 9 0	...	
16 4 5	...	...	...	...	...	...	
8 14 6	...	...	...	...	...	...	
25 2 11	...	...	...	...	...	...	
181 6 10	12 11 8	...	360 0 0	360 0 0	198 8 0	5 7 8	Defect of water.
566 11 1	112 11 8	...	1,335 0 0	1,335 0 0	235 9 3	0 15 3	
236 11 10	2 10 7	...	...	...	...	...	
8 13 10	...	...	...	...	...	...	
0 6 3	...	...	...	...	...	...	
13 7 10	...	...	...	...	...	...	
259 7 9	2 10 7	...	1,035 0 0	1,035 0 0	898 14 0	0 4 1	
521 6 4	1 2 6	...	...	...	...	...	
0 9 4	...	...	...	...	...	...	
521 15 8	1 2 6	...	531 0 0	531 0 0	101 12 0	0 3 6	
108 6 10	...	...	...	...	...	...	
0 10 11	...	...	...	...	...	...	
109 1 9	...	...	330 0 0	330 0 0	802 8 0	...	
89 11 7	13 11 11	...	...	...	...	...	Insufficiency of water.
...	...	...	...	...	...	...	
89 11 7	13 11 11	...	205 0 0	205 0 0	228 8 0	6 10 10	
82 10 10	41 10 9	...	...	...	...	...	Do. do.
...	...	...	...	...	...	...	
82 10 10	41 10 9	...	260 0 0	260 0 0	314 8 0	16 0 6	
491 8 0	248 14 4	...	...	...	...	...	Bund of this Tank to be thoroughly repaired Vide-Section and sluice to be repaired.
0 8 6	...	...	...	...	...	...	
0 3 1	...	...	...	...	...	...	
492 3 7	248 14 4	285 0 0	1,989 0 0	2,274 0 0	462 0 0	10 15 1	
1,555 3 2	308 0 4	285 0 0	4,350 0 0	4,635 0 0	298 0 8	6 10 6	

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.				No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindary, 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
Melamangalam Anicut Channel Sub-Group.										
	53		Melamangalam Anicut Channel ...		Government ...	636.42	4,636 8 5	623.03	804 11 4	2,246 9 6
					Inam free ...	43.69	506 7 10	43.69	...	...
					Do. charged ...	7.13	63 3 0	7.13	1 8 0	3 0 0
					Do. Dry brought in.	1.95	5 14 6	1.95	1 5 0	2 10 0
					Total ..	689.19	5,212 1 9	675.80	807 8 4	2,252 3 6
	54		Naranen Tank and an addition from the Silivarpur Tank. ...		Government ...	82.52	205 11 11	79.48	102 9 10	30 1 11
					Do. ...	74.38	392 11 9	68.15	91 2 2	164 10 5
					Waste brought in.	0.59	...	0.59	0 11 11	0 10 9
					Inam free ...	3.86	...	3.86	...	...
	55		Silivarpur Tank ...		Total...	78.83	392 11 9	72.60	91 14 1	165 5 2
					Total of Sub-Group.	849.95	5,810 9 5	827.88	1,002 0 3	2,447 10 7
Kilamangalam Anicut Channel Sub-Group.										
	56		Kilamangalam Anicut Channel ...		Government ...	524.76	2,795 1 2	521.60	673 11 10	1,180 12 3
					Dry brought in ...	0.54	4 6 7	0.54	...	4 6 7
					Inam free ...	14.75	...	14.75	...	...
					Total...	540.05	2,799 7 9	536.89	673 11 10	1,185 2 10
	57		Vettuvankulam Tank...		Government ...	178.55	1,580 0 4	177.18	226 12 5	822 13 1
					Dry brought in ...	0.07	0 8 10	0.07	...	0 8 10
					Inam free ...	27.36	...	27.36	...	...
					Do. charged ...	3.78	4 10 0	3.78	1 8 8	1 8 8
					Total...	209.76	1,585 3 2	208.39	228 5 1	824 14 7
	58		Ottaikulam Tank ...		Government ...	42.31	96 11 1	42.31	52 14 5	11 9 0
					Inam free ...	3.79	...	3.79	...	...
					Total...	46.10	96 11 1	46.10	52 14 5	11 9 0
	59		Pudukulam Tank ...		Government ...	75.03	417 2 3	74.16	95 12 8	180 10 9
					Inam free ...	2.22	...	2.22	...	...
					Total...	77.25	417 2 7	76.38	95 12 8	180 10 9
					Total of Sub-Group.	873.16	4,898 8 7	967.76	1,050 13 0	2,202 5 2
Gullapuram Anicut Channel Sub-Group.										
	60		Gullapuram Anicut Channel ...		Government ...	335.01	1,110 13 4	329.02	311 14 2	421 9 11
					Dry brought in ...	0.19	0 5 11	0.19	...	0 5 11
					Inam free ...	11.71	...	11.71	...	...
					Do. charged ...	2.21	1 4 0	2.21	0 6 8	0 6 8
					Total...	349.12	1,112 7 3	343.13	312 4 10	422 6 6
	61		Periakulam Tank ...		Government ...	420.99	2,052 3 2	411.76	390 5 0	950 2 10
					Inam free ...	24.92	...	24.92	...	...
					Do. charged ...	5.89	3 14 0	5.89	1 4 8	1 4 8
					Total...	451.80	2,056 1 2	442.57	391 9 8	951 7 6
	62		Sernkulam Tank ...		Government ...	53.88	216 4 5	53.16	50 6 3	91 3 9
					Inam free ...	5.15	...	5.15	...	...
					Total...	59.03	216 4 5	58.31	50 6 3	91 3 9
					Total of Sub-Group.	859.95	3,384 12 10	844.01	754 4 9	1,465 1 9
					Total of Group...	7768.06	40,289 14 11	7,483.97	8,553 2 6	16,809 0 11

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

tivation during the 5 years 1878 to 1883.

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.
623.03	1,525 10 5	804 11 4	3,772 3 11	4,576 15 3	...	82 11 2	...	...	82 11 2
43.69	...	...	...	...	...	...	...	...	...
7.13	2 4 0	1 8 0	5 4 0	6 12 1	...	...	...	...	...
1.95	1 15 6	1 5 0	4 9 6	5 14 6	...	...	...	...	...
675.80	1,529 13 11	807 8 4	3,782 1 5	4,589 9 9	...	82 11 2	...	...	82 11 2
79.48	66 6 0	102 9 10	96 7 11	199 1 9	...	...	...	...	...
68.15	127 14 3	91 2 2	292 8 8	383 10 10	...	...	...	...	...
0.59	0 11 4	0 11 11	1 6 1	2 2 0	...	...	...	...	...
3.86	...	...	...	...	...	...	...	...	...
72.60	128 9 7	91 14 1	293 14 9	385 12 10	...	...	...	...	...
827.88	1,724 13 6	1,002 0 3	4,172 8 1	5,174 8 4	...	82 11 2	...	...	82 11 2
521.60	927 4 0	673 11 10	2,108 0 3	2,781 12 1	...	...	...	...	...
0.54	...	...	4 6 7	4 6 7	...	...	...	...	...
14.75	...	...	...	...	...	...	...	...	...
536.89	927 4 0	673 11 10	2,112 6 10	2,786 2 8	...	...	...	...	...
177.18	524 12 8	226 12 5	1,347 9 9	1,574 6 2	...	...	...	...	...
0.07	...	...	0 8 10	0 8 10	...	...	...	...	...
27.36	...	...	...	...	...	...	...	...	...
3.73	1 8 8	1 8 8	3 1 4	4 10 0	...	...	...	...	...
208.39	526 5 4	228 5 1	1,351 3 11	1,579 9 0	...	...	...	...	...
42.31	32 3 8	52 14 5	43 12 8	96 11 1	...	56 10 11	...	...	56 10 11
3.79	...	...	...	...	...	...	...	...	...
46.10	32 3 8	52 14 5	43 12 8	96 11 1	...	56 10 11	...	...	56 10 11
74.16	138 3 8	95 12 8	318 14 5	414 11 1	...	301 8 5	...	...	301 8 5
2.22	...	...	...	...	...	...	...	...	...
76.38	108 3 8	95 12 8	318 14 5	414 11 1	...	301 8 5	...	...	301 8 5
867.76	1,624 0 8	1,050 12 0	3,826 5 10	4,877 1 10	...	358 3 4	...	...	358 3 4
300.02	366 12 0	311 14 2	788 5 11	1,100 4 1	...	57 6 0	...	...	57 6 0
0.19	...	...	0 5 11	0 5 11	...	...	...	...	...
11.71	...	...	...	...	...	...	...	...	...
2.21	0 6 8	0 6 8	0 13 4	1 4 0	...	...	...	...	...
343.13	367 2 8	312 4 10	789 9 2	1,102 14 0	...	57 6 0	...	...	57 6 0
411.76	670 3 11	390 5 0	1,620 6 9	2,010 11 9	...	49 4 7	...	...	49 4 7
24.92	...	...	...	...	...	...	...	...	...
5.89	1 4 8	1 4 8	2 9 4	3 14 0	...	...	...	...	...
412.57	671 8 7	391 9 8	1,623 0 1	2,014 9 9	...	49 4 7	...	...	49 4 7
53.16	70 13 0	50 6 3	162 0 9	212 7 0	...	209 6 8	...	...	209 6 8
5.15	...	...	...	...	...	...	...	...	...
58.31	70 13 0	50 6 3	162 0 9	212 7 0	...	209 6 8	...	...	209 6 8
844.01	1,109 8 3	754 4 9	2,574 10 0	3,328 14 9	...	316 1 3	...	...	316 1 3
7483.97	12,690 13 3	8,553 2 6	29,529 14 2	38,053 0 8	114 8	41,432 5 1	18 17	45 5 2	1,592 2 7

Statement of Financial Details of the Irrigation.

Grouping for Professional Treatment.				No. in District Irrigation Register.	Items of Irrigation whether Govern-ment, Zemindary, or Inam.	Average cultivation during the 5 years 1878 to 1883.		Proposed		
Group.	Sub-Group.	No. of Group or Isolated Work.	Name and Description of Irrigation work.			Net Revenue due to Irrigation including Work- ing expenses 15-21.	Do. per acre Irrigated 22-29.	Increase over Ayacut.	Decrease below Ayacut.	Ultimate Extent of Irrigation.
						22	23	24	25	26
Varagha Naddi Group.	Melamangalam Anicut Channel sub-Group	53	Melamangalam Anicut Channel ...	Government ... Inam free ... Do. charged ... Do. Dry brought in.		Rs. A. P. 3,689 8 9 ... 5 4 0 4 9 6	Rs. A. P. 5 14 9 ... 0 11 9 2 5 8	Acres.	Acres. 13-39	Acres. 623-03 43-69 7-13 1-95
			Total...		3,699 6 3	5 7 7	...	13-39	675-80	
		54	Naranen Tank and an addition from the Silivarpatty ...	Government ...	96 7 11	1 3 5	...	3-4	79-48	
		55	Silivarpatty Tank ...	Do. ... Waste brought in. Inam free ...	292 8 8 1 6 1 ...	4 4 8 2 5 5 ...	...	5-64	68-15 0-59 3-86	
			Total...	293 14 9	4 0 11	...	5-64	72-60		
		Total of Sub-Group.				4,089 12 11	4 15 0	...	22-07	827-88
	Kilamangalam Anicut Channel Sub-Group.	56	Kilamangalam Anicut Channel ...	Government ... Dry brought in ... Inam free ...	2,108 0 3 4 6 7 ...	4 0 8 8 2 9 ...	...	...	521-60 0-54 14-75	
			Total...	2,112 6 10	3 15 2	...	...	536-89		
		57	Vettuvankulam Tank...	Government ... Dry brought in ... Inam free ... Do. charged ...	1,347 9 9 0 8 10 ... 3 1 4	7 9 8 7 14 2 ... 0 13 1	...	...	177-18 0-07 27-36 3-78	
			Total...	1,351 3 11	6 7 4	...	...	208-39		
		58	Ottaitulam Tank ...	Government ... Inam free ...	... ...	0 15 3 ...	...	...	42-31 3-79	
		Total...	...	0 14 0	...	...	46-10			
	Pudukulam Tank ...	59	Pudukulam Tank ...	Government ... Inam free ...	17 6 0 ...	0 3 9 ...	...	...	74-16 2-22	
			Total ..	17 6 0	0 3 9	...	...	76-38		
		Total of Sub-Group.				3,468 2 6	3 15 4	...	...	867-76
	Gullapuram Anicut Channel Sub-Group.	60	Gullapuram Anicut Channel ...	Government ... Dry brought in ... Inam free ... Do. charged ...	730 15 11 0 5 11 ... 0 13 4	2 3 7 1 15 2 ... 0 6 0	...	...	329-02 0-19 11-71 2-21	
			Total...	732 3 2	2 2 3	...	...	343-13		
		61	Periakulam Tank ...	Government ... Inam free ... Do. charged ...	1,571 2 2 ... 2 9 4	3 13 0 ... 0 7 0	51-23	...	462-99 24-92 5-89	
			Total...	1,573 11 6	3 8 10	51-23	...	493-80		
		62	Serukulam Tank ...	Government ... Inam free ...	... ...	... ...	...	...	53-16 5-15	
		Total...	...	...	...	...	58-31			
	Total of Sub-Group.				2,258 8 9	2 10 9	51-23	...	895-24	
Total of Group.				27,907 11 7	3 12 5	60-00	299-94	7433-21		

Works in the Periyakulam 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	34
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
3,772 3 11	82 11 2	...	...	...	...	...	Anicut to be repaired.
5 4 0	...	...	...	...	...	...	
4 9 6	...	...	...	...	...	...	
3,782 1 5	82 11 2	...	690 0 0	690 0 0	18 4 0	11 15 9	*Said to be repaired by ryots, and munga tirva charged.
96 7 11	...	...	165 0 0	165 0 0	171 0 0	...	
292 8 8	...	...	...	...	...	...	
1 6 1	...	...	...	...	...	...	
...	...	...	...	...	...	...	
293 14 9	...	...	160 0 0	160 0 0	54 0 0	...	
4,172 8 1	82 11 2	...	1,015 0 0	1,015 0 0	24 5 2	8 2 3	
2,108 0 3	...	...	...	...	...	...	
4 6 7	...	...	...	...	...	...	
...	...	...	...	...	...	...	
2,112 6 10	...	...	840 0 0	840 0 0	39 12 0	...	
1,347 9 9	...	...	...	...	...	...	
0 8 10	...	...	...	...	...	...	
...	...	...	...	...	...	...	
3 1 4	...	...	...	...	...	...	
1,351 3 11	...	...	3,627 0 0	3,627 0 0	268 8 0	...	
43 12 8	43 12 8	...	...	...	...	...	A new sluice is to be built for this tank and water rate should be increased.
...	...	...	...	...	...	...	
43 12 8	43 12 8	285 0 0	128 0 0	413 0 0	318 12 0	10 9 8	When the work estimated for has been carried out—the supply of this tank will be improved.
318 14 5	301 8 5	...	...	...	...	...	
...	...	...	...	...	...	...	
318 14 5	301 8 5	...	110 0 0	110 0 0	34 8 0	274 1 10	
3,826 5 10	358 3 4	285 0 0	4,705 0 0	4,990 0 0	130 6 7	7 2 10	
788 5 11	57 6 0	...	...	...	...	...	Anicut to be repaired.
0 5 11	...	...	...	...	...	...	
0 13 4	...	...	...	...	...	...	
789 9 2	57 6 0	...	1,260 0 0	1,260 0 0	159 12 0	4 8 10	
1,781 5 0	210 2 10	...	...	...	...	...	Tank to be thoroughly repaired.
2 9 4	...	...	...	...	...	...	
1,783 14 4	210 2 10	...	3,280 0 0	3,280 0 0	183 8 0	6 0 6	
162 0 9	162 0 9	...	...	...	...	...	A breached Tank partly repaired by the Revenue Department, not yet completed.
...	...	...	...	...	...	...	
162 0 9	162 0 9	...	60 0 0	60 0 0	37 0 0	270 0 0	
2,735 8 3	476 15 6	...	4,600 0 0	4,600 0 0	168 2 4	10 5 10	
29,691 6 5	1,753 10 10	855 0 0	32,461 0 0	33,316 0 0	112 3 4	5 5 8	

Statement of Financial Details of the Irrigation.

Grouping for Professional Treatment.			No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindary, or Inam.	Total Irrigable Ayacont.	Full Assessment on Do. Land and Water.	Average cul-			
Group.	Sub-Group.	No. of 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
Varattar Group.	Seekoadai Sub-Group.	1	Jevakamma Urani ...		Government ...	Acres. 0-55	Rs. A. P. 1 15 9	Acres. 0-55	Rs. A. P. 0 12 5	Rs. A. P. 0 8 9
		2	Seekoadai Anicut Channel ...		Do. ...	7-32	21 11 9	6-58	9 3 8	3 12 11
		3	Do. ...		Do. ...	1-25	3 9 8	1-25	1 13 7	0 8 10
				Total of Sub-Group.		9-12	27 5 2	8-38	11 13 8	4 14 6
	Varattar Sub-Group.	4	Ramanpalani Anicut Channel ...		Government ...	5-25	15 3 2	5-25	7 12 3	2 5 10
					Dry brought in ...	...	...	0-23	0 4 1	0 3 2
					Total...	5-25	15 3 2	5-48	8 0 4	2 9 0
		5	Moothusami Duffadar Anicut Channel and Sokkamanaikan Urani Tank ...		Government ...	21-77	62 15 7	21-77	32 3 3	9 12 6
					Dry brought in ...	...	...	2-57	2 13 7	2 8 8
					Total...	21-77	62 15 7	24-34	35 0 10	12 5 2
		6	Varattar Spring Channel and Govinda Mudali kulam ...		Government ...	23-24	52 11 0	22-87	27 7 3	7 2 3
					Dry brought in ...	...	...	0-92	1 1 3	0 9 8
					Total...	23-24	52 11 0	23-79	28 8 6	7 11 11
7		Jekkama Reddi Urani...		Government ...	0-87	2 8 9	0-87	1 4 9	0 6 5	
			Dry brought in ...	...	...	0-35	0 6 1	0 6 1		
			Total...	0-87	2 8 9	1-22	1 10 10	0 12 6		
8	Kuluvai kulam ...		Government ...	1-73	5 0 1	1-73	2 8 11	0 12 7		
9	Muddiakavandan Urani		Do. ...	5-29	15 4 9	5-29	7 13 3	2 5 11		
10	Puvilacheri kulam ...		Do. ...	118-93	343 13 6	109-97	134 9 1	77 0 7		
			Inam charged ...	...	...	2-16	2 5 8	0 12 7		
			Total...	118-93	343 13 6	112-13	136 14 9	77 13 2		
11	Varattar Channel ...		Government ...	63-77	190 13 2	60-55	78 3 6	42 0 1		
			Dry brought in ...	1-99	2 15 5	1-99	...	2 15 5		
			Total...	65-76	193 12 7	62-54	78 3 6	44 15 6		
12	Sivanandi Tevan Anicut Channel and Kannimar kulam Tank ...		Do. ...	29-53	84 8 11	29-53	43 10 11	12 11 0		
			Dry brought in ...	...	...	8-69	6 14 11	10 2 8		
			Total...	29-53	84 8 11	38-22	50 9 10	22 13 8		
13	Vannararaman Anicut Channel ...		Government ...	7-50	27 0 10	0-58	0 13 7	0 9 0		
			Total of Sub-Group.	279-87	802 14 5	275-32	350 4 4	172 12 11		
			Total of Group...	288-99	830 3 7	283-70	362 2 0	177 11 5		
			Grand Total of Periyakulam Minor Basin...	8057-05	41,120 1 8	7667-67	8,915 4 6	16,986 12 4		

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

tivation during the 5 years 1878 to 1883.

Second crop.		Gross Assessment.				Deductions and Remissions.				
Extent.	Water Rate.	Land.	Water 11+13.	Total 14+15.	Fixed.	Temporary		Occasional		Total.
						Extent.	Amount.	Extent.	Amount.	
12	13	14	15	16	17	18	19	20	21	
Acres. 0-55	Rs. A. P. 0 10 7	Rs. A. P. 0 12 5	Rs. A. P. 1 3 4	Rs. A. P. 1 15 9	Rs. A. P. ...	Rs. A. P. ...	Acres. ...	Rs. A. P. ...	Rs. A. P. ...	
6-58	6 8 4	9 3 8	10 5 3	19 8 11	...	...	0-34	1 1 3	1 1 3	
1-25	1 3 3	1 13 7	1 12 1	3 9 8	...	...	0-25	0 2 10	0 2 10	
8-38	8 6 2	11 13 8	13 4 8	25 2 4	...	...	0-59	1 4 1	1 4 1	
5-25	5 1 1	7 12 3	7 6 11	15 3 2	...	...	1-05	0 12 2	0 12 2	
0-23	0 3 7	0 4 1	0 6 9	0 10 10	...	...	...	...	...	
5-48	5 4 8	8 0 4	7 13 8	15 14 0	...	...	1-05	0 12 2	0 12 2	
21-77	20 15 10	32 3 3	30 12 4	62 15 7	...	...	14-02	40 9 10	40 9 10	
2-57	2 11 2	2 13 7	5 3 10	8 1 5	...	...	...	...	...	
24-34	23 11 0	35 0 10	36 0 2	71 1 0	...	...	14-02	40 9 10	40 9 10	
22-87	17 4 10	27 7 3	24 7 1	51 14 4	...	...	2-83	6 9 8	6 9 8	
0-92	0 13 5	1 1 3	1 7 1	2 8 4	...	...	...	...	...	
23-79	18 2 3	28 8 6	25 14 2	54 6 8	...	...	2-83	6 9 8	6 9 8	
0-87	0 13 7	1 4 9	1 4 0	2 8 9	...	...	0-17	0 2 0	0 2 0	
0-35	0 6 1	0 6 1	0 12 2	1 2 3	...	...	...	...	...	
1-22	1 3 8	1 10 10	2 0 2	3 11 0	...	...	0-17	0 2 0	0 2 0	
1-73	1 10 7	2 8 11	2 7 2	5 0 1	...	...	...	...	...	
5-29	5 1 7	7 13 3	7 7 6	15 4 9	...	...	...	...	...	
109-97	106 6 6	134 9 1	183 7 1	318 0 2	...	...	12-11	17 2 1	17 2 1	
2-16	1 9 1	2 5 8	2 5 8	4 11 4	...	...	...	...	...	
112-13	107 15 7	136 14 9	185 12 9	322 11 6	...	...	12-11	17 2 1	17 2 1	
60-55	60 1 9	78 3 6	102 1 10	180 5 4	...	...	4-73	18 4 8	18 4 8	
1-99	...	...	2 15 5	2 15 5	...	...	...	...	...	
62-54	60 1 9	78 3 6	105 1 3	183 4 9	...	...	4-73	18 4 8	18 4 8	
29-53	28 3 0	43 10 11	40 14 0	84 8 11	...	...	8-54	24 1 9	24 1 9	
8-69	8 8 9	6 14 11	18 11 5	25 10 4	...	...	...	...	...	
38-22	36 11 9	50 9 10	59 9 5	110 3 3	...	...	8-54	24 1 9	24 1 9	
0-58	0 11 4	0 13 7	1 4 4	2 1 11	...	...	...	...	...	
275-32	260 10 2	350 4 4	433 7 1	783 11 5	...	...	43-45	107 10 2	107 10 2	
283-70	269 0 4	362 2 0	446 11 9	808 13 9	...	...	44-04	108 14 3	108 14 3	
7667-67	12,959 13 7	8,915 4 6	29,946 9 11	38,861 14 5	114 8 4	1,432 5 1	62-21	154 3 5	1,701 0 10	

Statement of Financial Details of the Irrigation

Grouping for Professional Treatment.		No. in District Irrigation Register.	Items of Irrigation whether Government, Zemindary, or Ioam.	Average cultivation during the 5 years 1878 to 1883.		Proposed		
Group.	Sub-Group.			Net Revenue due to Irrigation including Working Expenses 15-21.	Do. per acre Irrigated 22-9.	Increase over Ayacut.	Decrease below Ayacut.	Ultimate Extent of Irrigation.
	No. in Group or Isolated Work.		Name and Description of Irrigation work.	22	23	24	25	26
Varattar Group.	Seekoadai Sub-Group.	1	Jevakamma Urani ...	Government ...	Rs. A. P. 1 3 4	Rs. A. P. 2 3 2	Acres.	Acres.
				Proposed cultivation with its revenue.	5.28	...	5.28	0.55
		2	Seekoadai Anicut Channel ...	Do. ...	9 4 0	1 6 6	...	5.83
	Do.	3	Do. ...	Do. ...	1 9 3	1 4 2	...	6.58
			Total of Sub-Group.	12 0 7	1 7 0	52.8	...	13.66
	Ramanpalani Anicut Channel ...	4	Ramanpalani Anicut Channel ...	Government ...	6 10 9	1 4 4	3.97	9.22
			Dry brought in ...	0 6 9	1 13 4	...	...	0.23
			Total...	7 1 6	1 4 8	3.97	...	9.45
	Moothusami Duffadar Anicut Channel and Sakkamanaikan Urani Tank ...	5	Moothusami Duffadar Anicut Channel and Sakkamanaikan Urani Tank ...	Government ...	...	...	7.43	29.20
			Dry brought in ...	...	2 0 5	...	...	2.57
			Total...	...	0 3 6	7.43	...	31.77
	Varattar Spring Channel and Govinda Mudali kulam ...	6	Varattar Spring Channel and Govinda Mudali kulam ...	Government ...	17 13 5	0 12 6	2.64	25.51
			Dry brought in ...	1 7 1	1 9 1	...	...	0.92
			Total...	19 4 6	0 12 11	2.64	...	26.43
	Jekkama Reddi Urani...	7	Jekkama Reddi Urani...	Government ...	1 2 0	1 4 8	2.64	3.51
			Dry brought in ...	0 12 6	2 2 9	...	...	0.35
			Total...	1 14 2	1 8 7	2.64	...	3.86
	Kuluvai kulam ...	8	Kuluvai kulam ...	Government ...	2 7 2	1 6 8	...	1.73
		9	Muddiakavandan Urani	Do. ...	7 7 6	1 6 7	...	5.29
		10	Puvilacheri kulam ...	Do. ...	166 5 0	1 8 2	...	109.97
	Inam charged ...		Inam charged ...	2 5 8	1 1 5	...	...	2.16
			Total...	168 10 8	1 8 1	...	...	112.13
	Varattar Channel ...	11	Varattar Channel ...	Government ...	83 13 2	1 6 2	...	60.55
				2 15 5	...	...	...	1.99
				86 12 7	...	...	...	62.54
	Sivanandi Tevan Anicut Channel and Kannimar kulam Tank ...	12	Sivanandi Tevan Anicut Channel and Kannimar kulam Tank ...	Do. ...	16 12 3	0 9 2	13.22	42.75
			Dry brought in ...	18 11 5	2 2 5	...	...	8.69
			Total...	35 7 8	0 14 10	13.22	...	51.44
	Vannararaman Anicut Channel ...	13	Vannararaman Anicut Channel ...	Government ...	1 4 4	0 12 0	...	0.58
			Total of Sub-Group.	325 12 11	1 2 10	29.90	...	305.22
			Total of Group...	337 13 6	1 3 2	35.13	...	318.88
			Grand Total of Periyakulam Minor Basin...	28,245 9 1	3 10 11	95.18	299.94	7766.93

Works in the Periyakulam 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. 1 3 4 11 11 8	Rs. A. P. 11 11 8	Rs. A. P. ...	Rs. A. P. ...	Rs. A. P. ...	Rs. A. P. ...	Rs. A. P. ...	
12 15 0	11 11 8	...	75 0 0	75 0 0	579 12 0	15 10 3	✓
10 5 3	1 1 3	...	45 0 0	45 0 0	436 4 0	2 6 0	✓
1 12 1	0 2 10	...	...	...	...	...	
25 0 4	12 15 9	...	120 0 0	120 0 0	479 2 7	10 13 1	
14 0 4	7 5 7	...	...	...	...	...	
0 6 9	...	...	...	...	...	...	
14 7 1	7 5 7	...	28 0 0	28 0 0	193 12 0	26 4 0	✓
42 3 10	42 3 10	...	...	...	...	...	
5 3 10	...	...	...	...	...	...	
47 7 8	41 3 10	...	205 0 0	205 0 0	431 12 0	20 1 10	✓
28 15 9	11 2 4	...	...	...	...	...	
1 7 1	...	...	...	...	...	...	
30 6 10	11 2 4	...	23 0 0	23 0 0	75 12 0	48 7 4	✓
5 12 8	4 10 8	...	...	...	...	...	
0 12 2	...	...	...	...	...	...	
6 8 10	4 10 8	...	46 0 0	46 0 0	700 0 0	8 14 9	✓
2 7 2	...	...	140 0 0	140 0 0	5,743 8 0	...	✓
7 7 6	...	...	200 0 0	200 0 0	2,666 8 0	...	✓
183 7 1	17 2 1	...	...	...	...	...	
2 5 8	...	...	...	...	...	...	
185 12 9	17 2 1	...	1,300 0 0	1,300 0 0	699 8 0	1 5 1	✓
102 1 10	18 4 8	...	9 0 0	9 0 0	8 8 0	203-3-10	✗
2 15 5	...	...	...	...	...	...	
105 1 3	18 4 8	...	9 0 0	9 0 0	8 8 0	203 3 10	✓
63 0 2	46 3 11	...	...	...	...	...	
18 11 5	...	...	...	...	...	...	
81 11 7	46 3 11	274 0 0	939 0 0	1,213 0 0	1,484 0 0	3 13 0	✓
1 4 4	...	...	...	...	...	...	
482 11 0	156 14 1	274 0 0	2,890 0 0	3,164 0 0	655 7 11	4 15 4	
507 11 4	169 13 10	274 0 0	3,010 0 0	3,284 0 0	646 13 3	5 2 9	
20,199 1 9	1,953 8 3	1,129 0 0	35,471 0 0	36,600 0 0	121 3 1	5 5 4	

Tank breached this year and requires considerable repairs.

Anicut and bank require considerable repairs.

Work to be abandoned and ayacut to be included in No. 12.

11
25
53

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 Irrigation Work as follows.

—o—

VARAGHA NADDI GROUP.
TAMARAikulam SUB-GROUP.
NO. 1 IRRIGATION WORK.
VARAGHA NADDI CHANNEL.

General.

This Irrigation Work which is also utilized as a supply channel for other Irrigation Works in the same sub-group is the first offtake from the Varagha Naddi a perennial stream from the Pulney Hills.

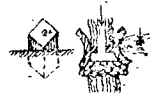
Source of Supply.

The drainage area of the Varagha Naddi above the point where the channel is taken off is 15 sq. miles. This area with a coefficient of 700 gives a maximum Flood discharge of 4256 c. ft. per second and the probable supply available for the channel varies from 10 to 150 c. ft. per second during the cultivation season.

D = CM³

Bench Marks.

I.—B. M. cut with chisel on top of stone
(on left bank of Varaghanadi channel near Pudu Anicut) above Mean
Sea Level 984.34



II.—B. M. on top of demarcation stone
(on right bank of Varaghanadi channel near Ottai Anicut) above Mean
Sea Level 974.74



Head Works.

The offtake has been effected at a favourable site at the foot of the Hills about 6 miles above the town of Periyakulam. The boulders in the bed of the stream have been taken up and arranged as a loose stone dam called the "Talaitu Covil Dam," a sketch of this work which answers its purposes admirably is given in Plate II, Fig. 1.

Channel Head.

The head of the channel is open with a bottom width of 18 feet, and nothing is required at this point further than the occasional removal of boulders when rolled into the channel by heavy floods.

Section of Channel Head.

The total Irrigation under this channel including the Irrigation under the tanks supplied by it is 2130.84 acres—vide statement of Financial details page 4—and the theoretic constant supply for this area at the rate of 2 c. ft. per second—per 100 acres would be 38 c. ft. per second. But in order that the low floods of the Varagha Naddi may be utilized and carried off to the storage tanks of the sub-group below, the channel at its head is kept clear with a bottom width of 18 feet.

Disposal of Cross
Drainage.

From the head of the channel to the "Pudu Anai" where the first irrigation channel is taken off; the channel intercepts the drainage of $3\frac{3}{4}$ sq. miles with a maximum Flood discharge of 1687 c. ft. per second. This is passed by three natural outlets of rough stones about 2 feet above bed of channel; these outlets are in serviceable order. Below the Pudu Anai, the main channel intercepts the drainage from $3\frac{1}{4}$ sq. miles with a maximum Flood discharge of 1,500 c. ft. per second, as the channel is here in a natural hollow, the flood has to be carried down it and disposed of at the tanks it supplies.

The main channel below the Pudu Anai being taken along a natural depression in the ground, not much labour is required to maintain it at the standard of efficiency.

The following are the principal works along the main channel which have to be maintained in an efficient condition and they are referred to in the order in which they occur.

At 1 mile 1970 feet from the head a masonry dam called the Pudu Anai has been built for the purpose of giving a command of water to the first direct irrigation channel. A sketch of this work is given at Fig. 2, Plate II. The work was damaged, but has been restored and brought up to the standard of efficiency indicated on the sketch. The irrigation channel has an open head which is periodically cleared.

At 2 miles 1600 ft. from the head is a similar dam called Otai Anai; a sketch of it is given at Fig. 3, Plate II. This work also was damaged but slightly and has been brought up to the standard of efficiency indicated on the sketch.

At 3 miles 1,800 ft. from the head is a loose rough stone dam, for the regulation of water at the Kodamurti Branch Channel. A sketch of the work is given at Fig. 4, Plate II. Its crest is flush with the bed of the Main Channel. No permanent dam is required as the regulation of the water is effected by arranging the stones as required.

At 4 miles 50 ft. from the head is another rough stone Dam for the regulation of the water at the 1st supply channel to Periyakulam Tank, a sketch of this work is given at Fig. 5, Plate II.

At 4 miles 1,250 ft. from the head is a regulator for the supply to the Periyakulam Tank of which it sketch a given at Fig. 6, Plate II.

At 4 miles 1,730 ft. from the head is the last work on the Main Channel which is a rough stone regulator for the supply to the Pappiamputty tank of which a sketch is given at Fig. 7, Plate II.

No new masonry works are required for this Irrigation work, but the standard of efficiency of the existing works as indicated on the sketches Plate II should be maintained.

Concluding
Remarks.

VARAGHA NADDI GROUP,
TAMARAikulam SUB-GROUP.
NO. 2, IRRIGATION WORK.
PERIYAKULAM TANK.

General Description.	This is a first class Tank receiving its principal supply from the Varagha Naddi through the Varagha Naddi Channel.
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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	...	...	...	...	95.40
	Maximum water level above do.	...	...	...	...	97.15
	Level of top of bund above do.	...	...	...	...	103.15

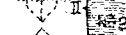
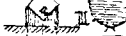
MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	... ..	§ sq. mile.
	Maximum flood discharge from do.	... ..	365 c. ft.
	Number of tanks above...	... ..	Nil.
	Maximum flood discharge through do.	... ..	Nil.
	Maximum flood discharge from supply channel	... ..	500 c. ft.
	Total discharge to be provided for	... ..	865 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.		Height above datum.	Length.	Maximum discharge.
		ft.	ft.	cub. ft. per sec.
No. 1	Surplus sluice of two vents at 8300 ft. from the right flank effective at	93.34	7.2	162
No. 2	Weir 8500 ft. from right flank effective at	96.89	33	76
No. 3	Weir at the left flank effective at	95.40	103	717
Total maximum flood discharge provided for				955

The position of the mamul breach which may be opened in cases of emergency is at 800 feet from the right flank.

Bench Marks.	I.—B. M. on top of stone on bund right flank	102.49	
	II.—B. M. do. do. between right and left flanks	104.51	
	III.—B. M. do. do. on bund at north west corner between right and left flanks	103.41	
	IV.—B. M. on top of upright stone of 1st calingulah left flank	98.48	
	Height of Datum above Mean Sea Level...	851.93	

DETAILS OF STORAGE.

DETAILS OF STORAGE.			
Area of water spread at F. S. L.	...	...	9,000,000 sq. ft.
Greatest width of do. from bund	...	...	2,500 ft.
Class of Bund corresponding to do.	...	...	First Class.
Approximate capacity of Tank at F. S. L.	...	...	42,000,000 c. ft.
Approximate annual storage at do.	...	...	126,000,000 c. ft.

ADDENDA AND CORRIGENDA

TO THE
DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS

IN THE

PERIYAKULAM MINOR BASIN.

Issued on 20th October 1926.

Pages 31 and 32.

No. 3, PAPPIAMPUTTY TANK.

Delete the existing entries under the heading 'Surplus arrangements' and *substitute—*

	Height above ground.	Length.	Maximum discharge
	FT.	FT.	CUSECS.
	average.		
Paved bywash	67.57	110	403
Weir at L.S. 5,777 feet effective at ...	67.57	14.25	79
2 vents of 3 feet wide each	64.46	6	172
Surplus sluice at left flank	61.45	6	380
Total maximum discharge provided for ...	...	..	1,034

Under the heading ' Bench marks ' *for* B.M. Nos. II, III and IV *read* the following :—

II.—B.M. on east wall of rear cistern of sluice No. 3 ...	...	+62.29
III.—B.M. on north end of rear head wall of sluice No. 2 ...	...	+61.71
IV.—B.M. on rear head wall of sluice No. 1 ...	...	+59.74

Under the heading "Details of irrigation" make the following corrections:—

Sill of existing irrigation sluice No. 1 above datum for '63-87' read '50-78'	
Do. do. 2 do. for '55-71' read '55-70'	
Do. do. 3 do. for '50-78' read '58-86'	

DETAILS OF IRRIGATION.

Ayacut area	843.29 acres.	Details of Irriga- tion.
Proposed ultimate area of Irrigation	821.06 acres.	
Water stored per acre of do.	150000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	"	
Cillof existing Irrigation sluice No. 1 above datum	88.21	
do. do. do. „ 2 do. ...	79.33	
do. do. do. „ 3 do. ...	80.23	

Sketches of the masonry works as well as a longitudinal section **Plans & Sections**
of the bund are given on Plate II.

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

VARAGHA NADDI GROUP.
TAMARAikulAM SUB-GROUP.
NO. 3, IRRIGATION WORK.
PAPPIAMPUTTY TANK.

This is a second class tank receiving its principal supply from **General Descrip-**
the Varagha Naddi through the Varagha Naddi Channel No. 1. **tion.**

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum.	67.56	Standard Levels.
Maximum water level above do.	69.06	
Level of top of bund above do.	73.56	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

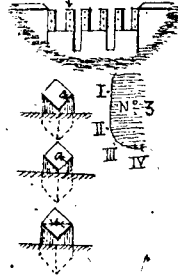
Area of free basin	1½sq.miles.	Maximum Flood Discharges.
Maximum flood discharge from do.	540 c. ft.	
Number of tanks above	Nil.	
Maximum flood discharge through do.	Nil.	
Maximum flood discharge from supply channel	500 c. ft.	
Total discharge to be provided for	1040 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length	Maxi- mumdis- charge.	Surplus Arrange- ments.
	Feet.	Feet.	Cub. ft. per sec.	
No. 1 Weir 1,000 ft. from the right flank effective at. ...	67.56	14.25	79	
2 Vents each 3 ft. effective at	64.46	6.0	172	
No. 2 Weir 6150 ft. from the right flank effective at	61.30	6.0	388	
Proposed byewash at the right flank	67.56	110	404	
Total maximum discharge provided for			1043	

The position of the mamul breach which may be opened in cases of emergency is at 1400 ft. from the right flank.

Bench Marks.

I.—B. M. on top of upright stone of calingulah close to north wing ...	70.74	
II.—B. M. on top of stone in rear of bund between right and left flanks ...	66.90	
III.—B. M. on top of stone in do. do. ...	66.35	
IV.—B. M. cut with chisel on top of stone on bund left flank ...	74.89	
Height of Datum above Mean Sea Level...	880.17	

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F. S. L. approximate ...	3,800,000 sq. ft.
	Greatest width of do. from bund... ..	1,550 ft.
	Class of bund corresponding to do. ...	Second Class.
	Approximate capacity of tank at F. S. L. ...	16,000,000 c. ft.
	Approximate annual storage at do. ...	48,000,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	308.87 acres.
	Proposed ultimate area of Irrigation	306.69 acres.
	Water stored per acre of do.	150,000 c. ft.
	Ultimate Irrigation per sq. mile of Catchment	"
	Cill of existing Irrigation sluice No. 1 above datum. 63.87	
	Do. do. do. „ 2 do. 55.71	
	Do. do. do. „ 3 do. 50.78	

Plans & Sections. Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate II.

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

VARAGHA NADDI GROUP.

TAMARAİKULAM SUB-GROUP.

NO. 4, IRRIGATION WORK.

TAMARAİKULAM SUPPLY CHANNEL.

General.

This Irrigation work is simply the continuation of No. 1 work, Varagha Naddi Channel, it is principally used for the purpose of supplying the Tamaraikulam Tank No. 5 Irrigation work, but it has also a small extent of direct Irrigation under it. The channel throughout is in good condition requiring only periodical cleaning.

VARAGHA NADDI GROUP. TAMARAİKULAM SUB-GROUP.

NO. 5, IRRIGATION WORK. TAMARAİKULUM TANK.

This is a first class tank receiving its principal supply from the Varagha Naddi through the Varagha Naddi Channel Nos. 1 and 4.

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	98.90	Standard Levels.
Maximum water level above do.	100.90	
Level of top of bund above do.	106.90	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

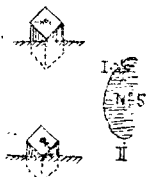
Area of free basin	3½ sq. miles.	Maximum Flood Discharges.
Maximum flood discharge from do.	1205 c. ft.	
Number of tanks above	4	
Maximum flood discharge through do.	Included in free basin.	
Maximum Flood discharge from supply channel	800 c. ft.	
Total discharge to be provided for	2005 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	
	Feet.	Feet.	Cub. ft. per sec.	
Weir at the right flank effective at	100.00	77	231	Surplus Arrangements.
Vent in do. do.	93.70	11	646	
Do. do. do.	94.97	6	265	
Proposed byewash at the left flank	98.90	150	860	
Total maximum discharge provided for			2002	

The position of the mamul breach which may be opened in cases of emergency is at 4,000 feet from the right flank.

Bench Marks

I.—B. M. cut with chisel on top of stone in rear of bund right flank	96.33	
II.—B. M. on top of demarcation stone on bund left flank... ..	99.58	

Height of Datum above Mean Sea Level... 811.01

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F. S. L.	...	...	4,400,000 sq. feet.
	Greatest width of do. from bund	...	...	1,700 feet.
	Class of bund corresponding to do.	...	...	First Class.
	Approximate capacity of tank at F. S. L.	...	...	16,500,000 c. feet.
	Approximate annual storage at do.	...	...	49,500,000 c. feet.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	...	...	338.19 acres.
	Proposed ultimate area of Irrigation	...	...	335.22 acres.
	Water stored per acre of do.	...	...	150,000 c. feet.
	Ultimate Irrigation per sq. mile of catchment	...	...	"
	Cill of existing Irrigation Sluice No. 1 above datum	...	...	77.67
	Do. do. do. No. 2 do.	...	...	77.50
	Do. do. do. No. 3 do.	...	...	80.50

Plans & Section. Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate II.

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

VARAGHA NADDI GROUP

(1)

Page 34.

No. 6 SENGKULAM TANK.

In the second line of the memoir *after* the words "Tank No. 7" *add* the following :—

"The bund will be made up to 3 feet above M.W.L. with top width 6 feet and slopes of $1\frac{1}{2}$ to 1 both in front and rear. The slopes of the common bund between this tank and No. 7 Karasankulam will be turfed and its top will be gravelled to a thickness of 2 inches".

Maximum water level above do.	...	...	...
Level of top of bund above do.	...	...	104.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	$\frac{1}{4}$ sq. mile.
	Maximum flood discharge from do.	...	...	195 c. feet
	Number of tanks above	...	...	1
	Maximum flood discharge through do.	...	...	175 c. feet
	Maximum flood discharge from supply channel	...	...	"
	Total discharge to be provided for	...	...	370 c. feet

SURPLUS ARRANGEMENTS.

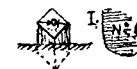
Surplus Arrangements.		Height above datum.	Length.	Maximum discharge.
		Feet.	Feet.	Cub. ft. per sec.
	Weir 100 feet from right flank effective at	...	...	...
	Proposed byewash at the right flank	94.75	3	167
		100.00	60	220
	Total maximum discharge provided for	...	...	387

There is no mamul breach for this tank and none is required.

I.—B. M. cut with chisel on top of stone

on bund right flank ... 101.68

Bench Marks.



Height of Datum above Mean Sea Level... 894.17

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,220,000 sq. feet.	Details of Storage.
Greatest width of do. from bund	...	1,100 feet.	
Class of bund corresponding to do.	...	Third Class.	
Approximate capacity of tank at F. S. L.	...	2,440,000 c. feet.	
Approximate annual storage at do.	...	7,320,000 c. feet.	

DETAILS OF IRRIGATION.

Ayacut area	...	45.11 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation	...	35.65 acres.	
Water stored per acre of do.	...	150,000 c. feet.	
Ultimate Irrigation per sq. mile of Catchment	...	"	
Cill of existing Irrigation sluice above datum	...	87.51	

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate II.

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

VARAGHA NADDI GROUP

(2)

Page 35.

No. 7, KARASANKULAM TANK.

In the second line of the memoir *after* the words "cleared periodically" *add* the following :—

"The bund will be made up to 3 feet above M.W.L. with top width of 6 feet and slopes of $1\frac{1}{2}$ to 1 both in front and rear. The existing sluice being damaged beyond repairs will be replaced by a 9-inch cement pipe sluice."

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	100.31	Standard Levels.
Maximum water level above do.	...	102.06	
Level of top of bund above do.	...	105.06	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	...	$\frac{1}{4}$ sq. mile.	Maximum Flood Discharges.
Maximum flood discharge from do.	...	315 c. feet.	
Number of tanks above...	...	Nil	
Maximum flood discharge through do.	...	Nil	
Maximum flood discharge from supply channel	...	185 c. feet.	
Total discharge to be provided for	...	500 c. feet.	

SURPLUS ARRANGEMENTS.

	Height above Datum.	Length.	Maximum discharge.
	Feet.	Feet.	cu. feet per sec.
Surplus Arrangements- No 1 Weir 360 ft. from the right flank effective at ...	99.18	12	175
Thamboghi effective at ...	97.58	5.5	allowing for obstruction.
No. 2 Weir 2820 ft. from the right flank effective at ...	100.31	18	126
Thamboghi effective at ...	97.11	6	200
Total maximum discharge provided for ...			501

The position of the mamul breach which may be opened in cases of emergency is at 2,500 feet from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund at right flank ... 103.96

II.—B. M. on top of upright stone close to the west wing of calingulah left flank... 100.74

Height of Datum above Mean Sea Level... 894.97

DETAILS OF STORAGE.

Details of Storage	Area of water spread at F.S.L. ...	1,330,000 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. ...	4,500,000 c. ft.
	Approximate annual storage at do. ...	13,500,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	90.22 acres
	Proposed ultimate area of Irrigation ...	71.30 acres
	Water stored per acre of do. ...	150,000 c. ft
	Ultimate Irrigation per square mile of catchment...	...
	Cill of existing Irrigation sluice above datum ...	89.96

Plans & Sections.

Sketches of the masonry works as well as a longitudinal section of the bund showing the position and cill level of the existing Irrigation sluice is given on Plate II.

Financial Details

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

VARAGHA NADDI GROUP.
TAMARAikulAM SUB GROUP.
NO 8. IRRIGATION WORK.
POOTHOOcAMEN URNI TANK.

This is a third class tank and is a rain-fed one.

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

General Description.

Hydraulic Details.

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum ...	97.50	Standard Levels
Maximum water level above do. ...	99.00	
Level of top of bund above do. ...	102.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin ...	1/4 sq. mile	Maximum Flood Discharges.
Maximum flood discharge from do. ...	410 c. ft.	
Number of tanks above ...	Nil.	
Maximum flood discharge through do. ...	Nil.	
Maximum flood discharge from supply channel ...	Nil.	
Total discharge to be provided for ...	410 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. feet per sec.
Weir 2600 ft. from the right flank effective at ...	96.50	3.75	43
Proposed byewash at ...	97.50	100	367
Total maximum discharge provided for ...			410

Surplus Arrangements.

The position of the Mamul breach which may be opened in cases of emergency is at 2400 ft. from the right flank.

Bench Marks.

I.—B. M. cut with chisel on top of stone

on bund, right flank ... 98.37

II.—B. M. on top of stone on bund left

flank ... 99.71

Height of Datum above Mean Sea Level... 874.74

DETAILS OF STORAGE.

Area of waterspread at F.S.L. ...	750,000 sq. ft.	Details of Storage
Greatest width of do. from bund ...	550 ft.	
Class of bund corresponding to do. ...	3rd class.	
Approximate capacity of tank at F.S.L. ...	1,200,000 c. ft.	
Approximate annual storage at do. ...	2,400,000 c. ft.	

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	...	...	...	16.16 acres.
	Proposed ultimate area of Irrigation	...	...	...	16.16 acres.
	Water stored per acre of do.	...	...	...	150,000 c. ft.
	Ultimate Irrigation per square mile of catchment	...	...	...	...
	Cill of existing Irrigation sluice above Datum	...	...	...	88.80

Plans & Sections. Sketches of the masonry works as well as a longitudinal section of the bund showing the position and cill level of the existing Irrigation sluice is given on Plate II.

Financial Details. The Financial details of this work are shown in statement at page 6.

VARAGHA NADDI GROUP.

KULLAR SUB GROUP.

NOS. 9, 14, 15, 16, 17, 20, 22, 24, & 25 IRRIGATION WORKS.

KULLAR CHANNEL AND BRANCHES.

General. The Kullar Channel is the first, and only important channel, which receives a supply from the Kullar stream an affluent of the Varagha Naddi River. The stream, has its source in the Pulney Hills, and the supply of water is fairly constant.

Source of supply. The drainage area of the Kullar stream above the head of the channel is $15\frac{1}{2}$ sq. miles. The maximum flood discharge (using coefficient = 700) is, therefore, 4,350 cubic feet per second; and the supply passed down the channel during the cultivation season, probably varies from 15 to 250 cubic feet per second when the stream is in flood.

Bench Marks.

Head Works. A loose stone dam has been constructed across the bed of the stream, *vide* sketch Fig. 1 Plate III. The work is suitable, and should be kept in repair by the ryots.

Main channel. The length of the main channel (Group Nos. 14, 22 and 24) is 5 miles 2,200 feet. The total irrigation under the channel, its branches, and the seven tanks of which it is the main source of supply, amounts to 1347.92 acres, *vide* statement of Financial details pages 6 to 8.

The channel is of sufficiently large section, having an average bottom width of 18 feet. Owing to the rapid fall of the bed and the rocky nature of the soil, the labour required to maintain this channel in an efficient state is by no means great, and consists of the occasional removal of obstructions and clearance of silt. This work should, as heretofore, be performed by the interested ryots themselves.

There are six branches (Group Nos. 9, 15, 16, 17, 20 and 25) **Branch Channels** from the main channel, all of which have direct irrigation in addition to supplying the various tanks in the Sub-Group. Of these the only channel calling for special remark is that supplying the Athigarikulam Tank, which has its offtake at a distance of 600 feet from the head of the main channel. This channel has been excavated through side long ground of hard rocky nature and is not, therefore, liable to much damage from the upland drainage water which flows across it.

There are three (mamul) regulating dams across the channel, and of these one only is a permanent structure. The first dam is at a distance of 600 feet from the head of the channel and has for its object the regulation of the water supply between the main and the Athigarikulam branch channels. It consists of a dam formed by arranging boulders across the rocky bed of the main channel. The dam is placed on periods, the duration of which is fixed by the villagers concerned. **Masonry works along the Main Channel.** Plate III Fig 2).

At 1 mile 2,820 feet from the head is the second dam, called the "Chennawannar Covil Parai;" by means of this dam the water supply is regulated to branch channels Nos. 15 and 16 which directly irrigate considerable area, and finally discharge into the Koraikulam Tank. This is also a temporary dam composed of loose stone and jungle grass.

The third dam is at a distance of 2 miles 2,040 feet from the head of the channel, and is named the "Kadambankulam Anai," its object being to increase the supply to the Channel and Tank of that name works Nos. 20 and 21). A sketch of this masonry work is given on Plate III Fig 3.

The cross drainage received by the main channel in its upper reaches is unimportant. The lower reaches of the channel (Nos. 22 and 24) receive drainage water, but, as the channel is here carried along a natural depression, and is moreover of large section, the water is received without injury, and finally discharged into the Pambaur River. **Disposal of Cross Drainage.**

The Athigarikulam branch channel (No. 9) intercepts the drainage of $2\frac{1}{4}$ square miles; but as already stated, the surface drainage water flows across the channel without causing any considerable damage. There is one masonry outlet (*vide* sketch Fig. 4 Plate III) just west of the Athigarikulam Tank, the object of which is to pass the flood water brought down by a nullah having a drainage area of about $\frac{3}{4}$ square mile. This work is maintained in an efficient condition.

VARAGHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 10 IRRIGATION WORK.
SELPANKULAM TANK.

This Irrigation Work is very much out of repair and has not been in use for the last 30 years. The bed of the tank is much silted, and a considerable portion has been occupied for punjah cultivation. It is therefore considered an abandoned work (*vide* Collector's letter No. 4002 dated 1st November 1883).

VARAGHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 11 IRRIGATION WORK.
ATHIGARIKULAM TANK.

General Description.

This is a third class tank receiving its principal supply from the Kullar through the Athigarikulam Branch 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	...	...	99.80
Maximum Water Level above do.	...	...	101.80
Level of top of bund above do.	...	...	104.80

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.

Area of free basin	...	...	$\frac{3}{4}$ sq. mile.
Maximum flood discharge from do.	...	...	492 c. ft.
Number of tanks above	...	...	Nil.
Maximum flood discharge through do.	...	...	Nil.
Maximum flood discharge from supply channel	...	...	162 c. ft.
Total discharge to be provided for	...	...	654 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

Existing masonry weir situated at 2,700 feet from Rt. flank	...	...	...
Existing byewash at left flank	...	...	...
Total maximum Flood discharge provided for	...	...	...

The position of the mamul breach which may be opened in cases of emergency is at 2,300 feet from right flank.

Bench Marks.

I.—B. M. on top of demarcation stone in rear of bund, right flank	...	97.68
II.—B. M. on crest of calingulah close to the south wing	...	99.80
Height of Datum above Mean Sea Level...	...	899.86

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	1,395,000 sq. ft.	Details of Storage
Greatest width of do from bund	...	750 ft.	
Class of bund corresponding to do.	...	Third class.	
Approximate capacity of tank at F. S. L.	...	2,090,000 c. ft.	
Approximate annual storage at do.	...	6,270,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	129.35 acres.	Details of Irrigation
Proposed ultimate area of Irrigation	...	125.20 acres.	
Water stored per acre of do.	...	144,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...	"	
Cill of existing Irrigation sluice above datum	...	85.89	

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate III. Plans & Sections.

The financial details of this work are shown in the statement at page 6. Financial Details.

VARAGHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 12 IRRIGATION WORK.
ODAIKULAM TANK.

This Irrigation work is very much out of repair and has not been in use for upwards of 15 years. A portion of ayacut has been included under No. 11 work, and a portion of its bed has been occupied for punjah cultivation. It is not to be restored by the Public Works Department (*vide* Collector's No. 4002 dated 1st November 1883.)

been
been
occupied
Public
November

VARACHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 13 IRRIGATION WORK.
MANAKATTUKULAM TANK.

General Description. This is a third class tank receiving its principal supply from the Kullar direct.

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.	...	...	50.50
	Level of top of bund above do.	...	...	53.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	...	1/8 sq. mile
	Maximum flood discharge from do.	...	...	...	150 c. ft..
	Number of tanks above	...	...	...	Nil.
	Maximum flood discharge through do.	...	...	...	Nil.
	Maximum flood discharge from supply channel	...	...	...	25 c. ft.
	Total discharge to be provided for	...	...	...	175 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

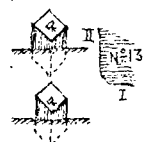
Damaged existing masonry weir is not to be restored	...
Proposed bye wash at right flank	...
Total Maximum discharge provided for	...

Height above datum.	Length.	Maximum discharge.
Feet.	Feet.	cub. ft. per sec.
49.00	50	183
		183

The position of the mamul breach which may be opened in cases of emergency is at 1,500 ft. from right flank.

Bench Marks,

I.—B. M. on top of stone in bund, left flank	...	52.66
II.—B. M. on do. do. right flank	...	50.59
Height of Datum above Mean Sea Level...	...	972.85



DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	176,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	250 ft.	
Class of bund corresponding to do.	...	Third class.	
Approximate capacity of tank at F. S. L.	...	528,000 c. ft.	
Approximate annual storage at do.	...	3,168,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	120.27 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation	...	70.78 acres.	
Water stored per acre of do.	...	38,300 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...	"	
Cill of existing Irrigation sluice above datum	...	45.09	

A longitudinal section of the bund showing the position and cill level of the Irrigation sluice is given on Plate III.

The financial details of this work are shown in the statement at page 6.

VARACHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 18, IRRIGATION WORK.
KORAIKULAM TANK.

This is a third class Tank receiving its principal supply from the Kullar through the Koraikulam branch channel No. 17.

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	...	46.76	Standard Levels
Maximum water level above do.	...	48.26	
Level of top of bund above do.	...	51.26	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	...	3/4 sq. mile.	Maximum Flood Discharges.
Maximum flood discharge from basin	...	410 c. ft.	
Number of tanks above	...	Nil	
Maximum flood discharge through do.	...	Nil	
Maximum flood discharge from supply channel	...	90 c. ft.	
Total discharge to be provided for	...	500 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maxi- mum dis- charge.
	Feet.	Feet.	Cub. ft. per. sec.
Existing masonry weir near the right flank	47.26	37.5	112
Thomboghy of do.	46.00	2.5	25
Proposed byewash at right flank	46.76	100	367
Total maximum flood discharge provided for			504

Surplus Arrangements.

The position of the mamul breach which may be opened in cases of emergency is at 2,500 ft. from right flank.

Bench Marks:

I.—B. M. on top of demarcation stone on bund south of old calingulah ...	50.83	
II.—B. M. on top of stone in rear of bund between right and left flanks.	49.05	
III.—B. M. on top of stone on bund, left flank ...	54.03	
Height of Datum above Mean Sea Level...	904.84	

DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F. S. L. ...	822,000 sq. ft.
	Greatest width of do, from bund ..	600 ft
	Class of bund corresponding to do. ...	Third class
	Approximate capacity of tank at F. S. L. ...	3,288,000 c. ft.
	Approximate annual Storage at do. ...	13,152,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	81.16 acres
	Proposed ultimate area of Irrigation ...	89.17 acres
	Water stored per acre of do, ...	151,000 c. ft.
	Ultimate Irrigation per. sq. mile of catchment ...	
	Cill of existing Irrigation sluice above datum ...	39.24

Plans & Sections. Sketches of the masonry works as well as a longitudinal section of the bund are given on plate III.

Financial Details. The financial details of this work are shown in the statement at page 6.

VARAGHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 19, IRRIGATION WORK.
CHACKILIANKULAM TANK.

This tank has been abandoned, and its ayacut converted into dry, with the exception of about 3 acres which can be irrigated by the Koraikulam tank (Group No. 18.) *Vide* Collector's letter No. 4002 dated 1st November 1883.

VARAGHA NADDI GROUP.
KULLAR SUB GROUP.
NO. 21 IRRIGATION WORK.
KADAMBANKULAM TANK.

General Description. This is a third class tank receiving its principal supply from the Kullar through Kadambankulam branch channel No. 20.

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	48.50	Standard Levels.
Maximum water level above do.	50.75	
Level of top of bund above do.	53.75	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	1/8 sq. mile	Maximum Flood Discharges.
Maximum flood discharge from do.	125 c. ft.	
Number of tanks above	Nil.	
Maximum flood discharge through do.	Nil.	
Maximum flood discharge from supply channel	20 c. ft.	
Total discharge to be provided for	145 c. ft.	

SURPLUS ARRANGEMENTS.

Height above datum.	Length.	Maximum discharge.	
Feet.	Feet.	cub. ft. per sec.	Surplus Arrangements.
Existing masonry weir situated at 3100 ft. from rt. flank ...	48.50	14.5	147
			147

Total maximum discharge provided for ...

The position of the mamul breach which may be opened in cases of emergency is at 500 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank ...	51.44	
II.—B. M. on top of upright stone close to the east wing of calingulah ...	50.14	

Height of Datum above Mean Sea Level... 902.00

DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F. S. L. ...	852,000 sq. ft.
	Greatest width of do from bund ...	600 ft.
	Class of bund corresponding to do. ...	Third class.
	Approximate capacity of tank at F. S. L. ...	3,408,000 c. ft.
	Approximate annual storage at do. ...	13,632,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	95.43 acres.
	Proposed ultimate area of Irrigation ...	95.43 acres.
	Water stored per acre of do. ...	143,000 c. ft.
	Cill of existing Irrigation sluice above datum ...	40.74

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate III.

The financial details of this work are shown in the statement at page 8.

VARAGHA NADDI GROUP.
KULLAR SUB-GROUP.
NO. 23 IRRIGATION WORK.
SETTIKULAM TANK.

General Description. This is a third class tank receiving its principal supply from the Kullar through the Settikulam channel No. 22.

Hydraulic. No. 23, SETTIKULAM TANK.

Under the heading "Standard levels to be maintained" add the following:—

Standard. Top width of bund ... 6 feet.
 Side slopes of bund ... $1\frac{1}{2}$ to 1 in front and 2 to 1 in rear.

Maximum Flood Discharges.

Area of free basin ...	...	...	...	$\frac{1}{4}$ sq. mile.
Maximum flood discharge from do. ...	...	...	...	195 c. ft.
Number of tanks above ...	...	...	...	Nil.
Maximum flood discharge through do. ...	...	...	...	Nil.
Maximum flood discharge from supply channel ...	...	...	...	45 c. ft.
Total discharge to be provided ...	...	...	...	240 c. ft.

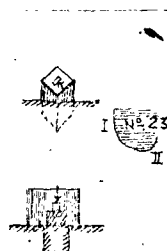
SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	cub. ft. per sec.
Existing masonry weir situated at 4542 ft. from rt. flank ...	100.00	11.25	62
Thamboghy of do. ...	97.00	3.25	93
Proposed byewash at the left flank ...	100.00	25	92
Total Maximum discharge provided for...			247

The position of the mamul breach which may be opened in cases of emergency is at 1,500 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank ... 103.87
 II.—B. M. on top of upright stone close to the east wing of calingulah ... 102.92
 Height of Datum above Mean Sea Level... 835.32



DETAILS OF STORAGE.

area of waterspread at F. S. L. ...	...	902,000 sq. ft.	Details of Storage
reatest width of do. from bund ...	...	650 ft.	
lass of bund corresponding to do. ...	...	Third Class.	
approximate capacity of tank at F. S. L. ...	...	3,157,000 c. ft.	
Approximate annual storage at do. ...	...	12,628,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area ...	...	88.22 acres.	Details of Irrigation
Proposed ultimate area of Irrigation ...	...	86.81 acres.	
Water stored per acre of do. ...	...	140,000 c. ft.	
Ultimate irrigation per sq. mile of catchment ...	...	"	
Cill of existing Irrigation sluice No. 1 above datum	91.33		
Do. do. do. No. 2 do.	90.08		

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate III. **Plans & Sections.**

The financial details of this work are shown in the statement at **Financial Details.** page 8.

VARAGHA NADDI GROUP.
KULLAR SUB-GROUP.
NO. 26 IRRIGATION WORK.
BOTHENKULAM TANK.

This is a third class tank receiving its principal supply from the Kullar through Bothenkulam Channel No. 25. **General Description.**

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 ...	...	48.22	Standard Levels.
Maximum water level above do. ...	...	49.22	
Level of top of bund above do. ...	...	52.22	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin ...	...	$\frac{1}{4}$ sq. mile.	Maximum Flood Discharges.
Maximum flood discharge from do. ...	...	125 c. ft.	
Number of tanks above ...	...	Nil.	
Maximum flood discharge through do. ...	...	Nil.	
Maximum flood discharge from supply channel ...	...	25 c. ft.	
Total discharge to be provided for ...	...	150 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	cub. ft. per sec.
Existing byewash ...	48.22	15	150
Proposed extension of do. ...	...	60	
Total maximum discharge provided for..			150

The position of the mamul breach which may be opened in case of emergency is at 1,900 ft. from the right flank.

Bench Marks.

I.—B. M. on top stone on bund, Right

flank... ..

52.29



II.—B. M. on do do left flank...

52.09

Height of Datum above Mean Sea Level... 866.00

DETAILS OF STORAGE.

Details of Storage

Area of waterspread at F. S. L.	962,000 sq. ft.
Greatest width of do. from bund	750 ft.
Class of bund corresponding to do.	Third Class.
Approximate capacity of tank at F. S. L.	1,684,000 c. ft.
Approximate annual storage at do.... ..	5,052,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.

Ayacut area	35.25 acres.
Proposed ultimate area of Irrigation... ..	33.70 acres.
Water stored per acre of do.	150,000 c. ft.
Ultimate Irrigation per sq. mile of catchment	"
Cill of existing Irrigation sluice No. 1 above datum	43.05.
Do do do No. 2 do.	44.44.

Plans & Sections.

A longitudinal section of the bund showing the position and cill level of the irrigation sluices is given on Plate 111.

Financial Details.

The financial details of this work are shown in the Statement at page 8.

VARAGHA NADDI GROUP.

VYTHENATHAPURAM ANICUT CHANNEL SUB-GROUP.

26
A IRRIGATION WORK.

VYTHENATHAPURAM ANICUT CHANNEL.

General.

This anicut is situated about half a mile north of the traveller's bungalow at Periyakulam, and was constructed by Kylasam Pillai, about 15 years ago at his own expense, and on a small scale, is really a clever piece of engineering, the bend of a river being reclaimed for cultivation, and a new cut made.

Irrigation.

This is the third anicut on the Paumbar river. There are 11.01 acres of irrigation dependent on its supply. The Catchment area above is 0.25 square miles giving a discharge of 221 c. ft. per second of which 1.2 c. ft. per second passes through the head sluice.

Cross Drainage.

The cross drainage and surplus water from the fields, is passed under the channel by an aqueduct, vide Plate VI, after this the channel goes through a deep cutting to the rest of the ground conveniently: all the works are in fair order.

Financial Details.

The financial details are given in page 10 of the statement.

VARAGHA NADDI GROUP.

ALAGAPARAI ANICUT CHANNEL SUB-GROUP

NOS. 27, 28, 30, 32, 33, & 36 IRRIGATION WORKS

ALAGAPARAI ANICUT CHANNEL AND BRANCHES.

The Alagaparai anicut channel is the second irrigation channel receiving its supply from the Pambaur River, and its head is situated on the right bank of stream, one mile below the Kumbakarai anicut.

The drainage area of the Pambaur above the Alagaparai anicut is 11 sq. miles and the maximum flood discharge passed over the anicut is estimated to amount to 3,458 cub. ft. per second.

The supply of water drawn off by the channel during the cultivation season probably varies between 20 and 180 cub. ft. per second—the latter being the maximum quantity the channel is capable of carrying.

Bench Marks.

I.—B. M. on crest of Alagaparai Anicut

close to the south wing... ..

36.15



Height of Datum above Mean Sea Level... 952.14

The Alagaparai anicut is a substantial masonry work 350 ft. in length and of varying sections (vide Plate III, Fig. 9), and it is maintained as indicated in the plan and sections.

The head of the channel is open and has a bottom width of 7 ft. with sides almost perpendicular. The channel has been excavated through hard rocky ground, and the depth of cutting at its head is 6 feet.

The main channel (Group Nos. 27 and 26) is 2 miles 1,320 ft. in length. Its average bottom width is about 6 ft. and bed fall 25 ft. per mile. The direct cultivation under the channel commences at a distance of 3,800 ft. from its head, at which point, also, the most important branch channel (No. 28) has its off-take. The total wet cultivation under the main channel, its branches, and the five tanks supplied by them, amounts to 781.35 acres (vide statement of Financial details page 10).

There are four branch channels (Group Nos. 28, 30, 32 and 33) supplying the tanks of the sub-group. Of these the most important is that which supplies the Palappanaikken and Velankulam

tanks, the latter of which is the only large tank in the Sub-Group. The channels are in fairly good order; and the annual repairs required to maintain them should be executed by the villagers.

Masonry works
along the Main
Channel.

The only work along the main channel is an outlet (*vide* Plate III, Fig. 11) formed of large boulders in the right bank of the channel, at a distance of 1 mile 3,400 feet from its head. It is intended to discharge surplus water, and so prevent damage to the channel. At 4,900 feet along branch channel No. 28, there is a similar loose stone Calingulah in the left bank (*vide* Plate III, Fig. 10). The Calingulah is provided with a Thamboghy and water is passed by means of this work into "the Odai Voikal," a low level channel which discharges into the Velankulam. All that will be required to maintain these works, is the re-arrangement, when displaced, of the large boulders of which they are formed.

Disposal of Cross
Drainage.

Both the main and branch channels generally follow the natural slope of the country and are not therefore exposed to damage from cross drainage water. A portion of the branch channel No. 28 intercepts a small cross drainage, but the flood water due to this is passed into the Odai Voikal by means of the Calingulah above mentioned.

VARAGHA NADDI GROUP. ALAGAPARAI ANICUT CHANNEL SUB-GROUP.

NO. 29, IRRIGATION WORK.

PALAPPANAICKEN TANK.

General Descrip-
tion.

This is a third class tank receiving its principal supply from the Pambaur Alagaparai anicut channel through Palappanaikken branch channel 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	...	...	115.68
Maximum water level above do.	...	...	116.68
Level of top of bund above do.	...	...	119.68

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood
Discharges.

Area of free basin	...	...	3/4 sq. mile
Maximum flood discharge from do.	...	...	410 c. ft.
Number of tanks above	...	...	Nil
Maximum flood discharge through do.	...	...	Nil
Maximum flood discharge from supply channel	...	...	10 c. ft.
Total discharge to be provided	...	...	420 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrange-
ments.

Height above Datum.	Length.	Maxi- mum Dis- charge
Feet.	Feet.	Cub. ft. per. sec.
Proposed bye-wash at right flank	115.68	210
Total maximum discharge provided for		420

The position of the mamul breach which may be opened in cases of emergency is at 1,700 ft. from the right flank.

Bench Marks.

I.—B. M. on top of demarcation stone in

rear of bund, right flank.. ... 118.33

II.—B. M. on top of stone on bund, left

flank... ... 120.09

Height of Datum above Mean Sea Level... 839.66

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	517,000 sq. ft.	Details of Storage.
Greatest width of do. from bund	...	600 ft.	
Class of bund corresponding to do.	...	Third class	
Approximate capacity of tank at F. S. L.	...	1,938,000 c. ft.	
Approximate annual storage at do.	...	7,755,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	54.15 acres	Details of Irriga- tion.
Proposed ultimate area of irrigation	...	53.78 "	
Water stored per acre of do.	...	140,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...	...	
Cill of existing irrigation sluice No. 1 above datum	...	112.07	
Do. do. do. No. 2 do.	...	107.91	

A longitudinal section of the bund showing the position and cill levels of the Irrigation sluices is given on Plate III. Plans & Sections.

The financial details of this work are shown in the statement at page 10. Financial Details.

VARAGHA NADDI GROUP. ALAGAPARAI ANICUT CHANNEL SUB-GROUP.

NO. 31, IRRIGATION WORK.

VELANKULAM TANK.

This is a second class tank receiving its principal supply from the Pambaur Alagaparai anicut channel through branch channels, Nos. 30 and 32. General Descrip-
tion.

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	...	100.28	Standard Levels.
Maximum water level above do.	...	102.28	
Level of top of bund above do.	...	106.73	

D2. 21195
M93

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	4 sq. miles.
	Maximum flood discharges from do.	1,260 c. ft.
	Number of tanks above	1
	Maximum flood discharge through do.	{ Included in free basin.
	Do. flood discharge from supply channel	
	Total discharge to be provided for... ..	1,300 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.	Height above Datum.	Length.	Maximum Discharge.
Existing masonry weir situated at 4,650 ft. from the right flank...	100.27	15	127
Proposed bye-wash at left flank...	100.27	208	1,175
Total maximum flood discharge provided for...			1,302

The position of the mamul breach which may be opened in cases of emergency is at 900 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank...	108.41
II.—B. M. on top of stone in rear of bund between right and left flanks ...	101.64
III.—B. M. on top of 3rd or centre up-right stone of calingulah..	102.78

Height of Datum above Mean Sea Level... 841.36

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F.S.L.	2,425,000 sq. ft.
	Greatest width of do. from bund	1,000 ft.
	Class of bund corresponding to do.	Second class
	Approximate capacity of tank at F.S.L.	9,700,000 c. ft.
	Approximate annual storage at do.	29,100,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacent area	199.94 acres
	Proposed ultimate area of irrigation	196.50 "
	Water stored per acre of do.	148,000 c. ft.
	Ultimate irrigation per square mile of catchment	
	Cill of existing irrigation sluice No. 1 above datum	
	Do. do. do. No 2 do.	

Plans & Sections. Sketches of the masonry works, as well as a longitudinal section of the bund, are given on Plate III.

Financial Details. The financial details of this work are shown in the statement at page 10.

VARACHA NADDI GROUP.
ALAGAPARAI ANICUT CHANNEL
SUB-GROUP.
NO. 34 IRRIGATION WORK.
CHINNAPULANKULAM TANK.

This is a third class tank receiving its principal supply from the Pambaur Alagaparai anicut channel through the Chinnapulankulam branch channel No. 33. General Description.

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	108.00	Standard Levels.
Maximum water level above do.	109.00	
Level of top of bund above do.	112.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	1/2 sq. mile	Maximum Flood Discharges.
Maximum flood discharge from do.	125 c. ft.	
Number of tanks above	Nil	
Maximum flood discharge through do.	Nil	
Maximum flood discharge from supply channel	25 c. ft.	
Total discharge to be provided for	150 c. ft.	

SURPLUS ARRANGEMENTS.

Surplus Arrangements.	Height above datum.	Length.	Maximum discharge.
Existing bye-wash at the left flank	108.00	75	150
Total maximum flood discharge provided for			150

The position of the mamul breach which may be opened in cases of emergency is at 200 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank...	111.05
II.—B. M. on top of demarcation stone in rear of bund, left flank ...	109.00

Height of Datum above Mean Sea Level... 840.30

DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F. S. L.	...	...	225,000 sq. ft.
	Greatest width of do. from bund	...	...	720 ft.
	Class of bund corresponding to do.	...	...	Third class
	Approximate capacity of tank at F. S. L.	...	...	900,000 c. ft.
	Approximate annual storage at do.	...	...	5,400,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	...	...	39.76 acres.
	Proposed ultimate area of Irrigation	...	...	39.76 acres.
	Water stored per acre of do.	...	...	138,000 c. ft.
	Ultimate Irrigation per sq. mile of catchment	...	...	...
	Cill of existing Irrigation sluice above datum	...	...	100.94

Plans & Sections. A longitudinal section of the bund is given on Plate III.

Financial Details. The financial details of this work are given in the statement at page 10.

VARAGHA NADDI GROUP.
ALAGAPARAI ANICUT CHANNEL
SUB-GROUP.

NO. 35 IRRIGATION WORK.**ANDIKULAM TANK.**

General Description. This is a third class tank receiving its principal supply from the Pambaur Alagaparai anicut channel No. 36.

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	...	...	47.00
	Maximum water level above do.	...	...	48.00
	Level of top of bund above do.	...	...	51.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	...	1/2 sq. mile
	Maximum flood discharge from do.	...	...	...	125 c. ft.
	Number of tanks above ...	...	...	...	Nil
	Maximum flood discharge through do.	...	...	...	Nil
	Maximum flood discharge from supply channel...	...	...	...	25 c. ft.
	Total discharge to be provided for	...	...	...	150 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

				Height above datum.	Length.	Maxi- mum dis- charge.
				Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the right flank...	...	...	...	47.00	6	} 150
Proposed extension of do.	...	...	...	47.00	69	
Total Maximum flood discharge provided for						150

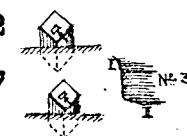
The position of the mamul breach which may be opened in cases of emergency is at 600 feet from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right

flank... 53.02

II.—B. M. on do do left flank. 53.77



Height of Datum above Mean Sea Level... 890.65

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	540,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	...	500 ft.	
Class of bund corresponding to do.	...	...	Third class.	
Approximate capacity of tank at F. S. L.	...	...	2,160,000 c. ft.	
Approximate annual storage at do.	...	...	10,800,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	...	...	71.15 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation	...	...	...	70.32 "	
Water stored per acre of do.	...	...	...	153,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...	...	...	...	
Cill of existing Irrigation sluice No. 1 above datum...	...	...	...	41.90	
Do. do. do. No. 2 do.	...	...	...	42.16	

A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate III. **Plans & Sections.**

The financial details of this work are shown in the statement at page 10. **Financial Details**

VARAGHA NADDI GROUP.
ALAGAPARAI ANICUT CHANNEL
SUB-GROUP

NO. 37 IRRIGATION WORK.**URITTIKULAM TANK.**

This is a third class tank receiving its principal supply from the Pambaur Alagaparai anicut channel No. 36. **General Description.**

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	...	...	82.00	Standard Levels.
Maximum water level above do.	...	...	83.00	
Level of top of bund above do.	...	...	86.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	... 1/8 sq. mile
	Maximum flood discharge from do.	... 125 c. ft.
	Number of Tanks above	... Nil
	Maximum flood discharge from do.	... Nil
	Maximum flood discharge from supply channel	... 25 c. ft.
	Total discharge to be provided for	... 150 c. ft.

SURPLUS ARRANGEMENTS.**Surplus Arrangements.**

	Height above datum.	Length	Maximum discharge.
Existing bye-wash at the right flank	82.00	75	150
Total maximum flood discharge provided for			150

The position of the mamul breach which may be opened in cases of emergency is at 150 ft. from the right flank.

Bench Marks.

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

84.24



II.—B. M. on top of demarcation stone in rear of bund, left flank

81.73



Height of Datum above Mean Sea Level... 841.47

DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F. S. L.	... 160,000 sq. ft.
	Greatest width of do. from bund	... 300 ft.
	Class of bund corresponding to do.	... Third class
	Approximate capacity of tank at F. S. L.	... 400,000 c. ft.
	Approximate annual storage at do.	... 1,600,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	... 11.43 acres
	Proposed ultimate area of Irrigation	... 11.40 ,,
	Water stored per acre of do.	... 140,000 c. ft.
	Ultimate Irrigation per sq. mile of catchment ... ..	... ..
	Cill of existing Irrigation pot sluice No. 1 above datum.	79.63
	do. do. do. ,, 2 do.	77.74

Plans & Sections. A longitudinal section of the bund is given on Plate III.

Financial Details. The financial details of this work are shown in the statement at page 10.

VARACHA NADDI GROUP.
KUMBAKARAI CHANNEL SUB-GROUP.
NOS: 38 AND 39 IRRIGATION WORKS.
KUMBAKARAI CHANNEL AND BRANCHES.

The Kumbakarai channel is the first off-take from the Pambaur General river. Its head is situated on the left bank of the river at the foot of the Pulney Hills, and just west of the Kodakanel Ghaut Road.

The Pambaur has its source near Kodakanel, where the average annual rainfall is 65.76 inches. The drainage area above the head of the channel is 10 1/2 sq. miles, and the maximum flood discharge of the river at this point is approximately 3,350 cubic feet per second. The sectional area of the supply channel is small and the quantity of water drawn off by the channel during the cultivation season is estimated to vary between 10 and 40 cubic feet per second.

Bench Marks.

No masonry work has been constructed across the bed of the stream; nor is any such work required. The channel has been taken off at a point where the stream has a sudden fall of 6 ft. over solid rock. The top, or crest, of the rock is not of a quite uniform level, and where low, holes have been drilled, into which stout jungle wood pegs are inserted to give support to a temporary dam composed of branches and earth (*Vide* Plate III, Fig. 13.)

Head Works.

The head of the channel is open, and its bottom width is 4 feet.

The length of the main channel (Group No. 38) which supplies the Pattathikulam tank is 1 mile 2,970 feet; and the total wet cultivation under the channel and the two tanks supplied by it, amounts to 192.17 acres; *vide* Statement of Financial Details. The channel has, for the greater part of its course, been excavated through rocky ground, and the bed fall is considerable. The labor required to maintain this Irrigation Work in an efficient condition is small, and is usually performed by the ryots.

Main Channel.

There is only one branch (Group No. 39) which supplies the Veerappanaiken Tank, and has its point of off-take from the main channel at a distance of 2,640 ft. from the head of the latter.

Masonry works.

There are no masonry works along the channel or its branch.

Disposal of Cross Drainage.

The quantity of drainage water entering the upper portion of the main channel and the branch channel is small; and, being discharged by means of natural outlets, causes little injury. The lower portion of the main channel does not receive any cross drainage water.

VARAGHA NADDI GROUP.
KUMBAKARAI CHANNEL SUB-GROUP.
NO. 40 IRRIGATION WORK.
VEERAPPANAICKEN TANK.

General Description.

This is a third class tank receiving its principal supply from the Pambaur Kumbakarai channel through the Branch Channel No. 39.

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 ...	...	99.00
Maximum water level above do. ...	...	100.00
Level of top of bund above do. ...	...	103.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.**Maximum Flood Discharges.**

Area of free basin ...	...	1/2 sq. mile
Maximum flood discharge from do. ...	...	125 c. ft.
Number of tanks above... ..	...	Nil
Maximum flood discharge through do. ...	...	Nil
Maximum flood discharge from supply channel ...	...	25 c. ft.
Total discharge to be provided for ...	...	150 c. ft.

SURPLUS ARRANGEMENTS.**Surplus Arrangements.**

Height above datum.	Length.	Maximum discharge.
Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the left flank ...	99.00	15
Proposed extension of do. ...	99.00	27
		150
Total maximum flood discharge provided for ...		150

The position of the mamul breach which may be opened in cases of emergency is at 1,800 ft. from the right flank.

Bench Marks.

- I.—B. M. on top of stone on bund, right flank ...
- II.—B. M. on top of east sidewall of rear cistern of sluice ...
- III.—B. M. on top of stone on bund, left flank ...

106.64	
89.43	
101.85	

Height of Datum above Mean Sea Level... 909.91

DETAILS OF STORAGE.

Area of water spread at F. S. L. ...	910,000 sq. ft.	Details of Storage
Greatest width of spread from bund ...	800 ft.	
Class of bund corresponding to do. ...	Third class	
Approximate capacity of tank at F. S. L. ...	2,502,000 c. ft.	
Approximate annual storage at do. ...	5,005,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area ...	37.08 acres	Details of Irrigation.
Proposed ultimate extent of irrigation... ..	35.08 "	
Water stored per acre of do. ...	143,000 c. ft.	
Ultimate irrigation per sq. mile of catchment ...	...	
Cill of existing irrigation sluice above datum ...	86.33	

A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate III. **Plans & Sections.**

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

VARAGHA NADDI GROUP.
KUMBAKARAI CHANNEL SUB-GROUP.
NO. 41 IRRIGATION WORK.
PATTATHIKULAM TANK.

This is a third class tank receiving its principal supply from the Pambaur Kumbakarai Channel. **General Description.**

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 ...	...	95.00	Standard Levels.
Maximum water level above do. ...	...	96.00	
Level of top of bund above do. ...	...	99.50	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

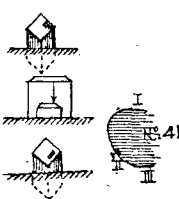
Area of free basin ...	...	1 1/2 sq. miles.	Maximum Flood Discharges.
Maximum flood discharge from do. ...	...	655 c. ft.	
Number of tanks above ...	...	1	
Maximum flood discharge through do. ...	...	Included in free basin.	
Do. flood discharge from supply channel ...	...	45 c. ft.	
Total discharge to be provided for ...	...	700 c. ft.	

SURPLUS ARRANGEMENTS.

Height above datum.	Length	Maximum discharge.
Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at the right flank ...	95.00	10
Proposed extension of do. ...	95.00	180
		700
Total maximum flood discharge to be provided for ...		700

The position of the manual breach which may be opened in cases of emergency is at 2,400 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank	...	...	104.36	
II.—B. M. on top of east sidewall of rear cistern of sluice	...	...	95.43	
III.—B. M. on top of stone on bund, left flank	...	...	102.41	

Height of Datum above Mean Sea Level... 881.81

DETAILS OF STORAGE.

Details of Storage.	Area of water spread at F. S. L.	...	...	1,549,000 sq. ft.
	Greatest width of do. from bund	...	...	1,150 ft.
	Class of bund corresponding to do.	...	...	Third class
	Approximate capacity of tank at F. S. L.	...	...	5,421,000 c. ft.
	Do. annual storage at do.	...	...	16,264,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacent area	...	...	106.58 acres
	Proposed ultimate area of Irrigation	...	...	106.52 "
	Water stored per acre of do.	...	...	153,000 c. ft.
	Ultimate Irrigation per sq. mile of catchment	...	...	...
	Cill of existing Irrigation sluice No. 1 above datum	...	...	84.38
	Do. do. do. No. 2 do.	...	...	90.41

Plans & Sections. The longitudinal section of the bund showing the position and cill level of the sluices is given on Plate III.

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

VARAGHA NADDI GROUP.
KUKALAR ANICUT CHANNEL
SUB-GROUP.
NO. 42 IRRIGATION WORK.
**KUKALAR ANICUT CHANNEL ON
THE RIGHT BANK.**

General.

This is a short channel excavated in order to supply the Kykalankulam tank with water from the Kukalar stream. The channel is the second and last off-take from the Kukalar and its head is situated one mile above the point where the latter stream flows into the Pambaur.

The Kukalar has a drainage area of 19 square miles above the head of the supply channel; and its maximum flood discharge at this point is calculated to be 4960 c. ft. per second. The maximum quantity of water the channel is estimated to be capable of discharging is 50 c. ft. per second; and, as the stream has its source on the Pulney Hills, the supply of water seldom fails during the Irrigation season.

Bench Marks.

A masonry anicut has been constructed across the Kukalar (*vide* sketch Plate III Fig. 14) and the work is maintained as indicated.

The channel has an open head, situated at the right flank of the anicut.

The length of the channel is 1800 ft.; and the area of irrigated land supplied by it, and by the Kykalankulam Tank, is 67.67 acres (*vide* statement of Financial details.) The channel has an average bottom width of 6 feet, and it is maintained in repair by the ryots.

Two minor sluices have been constructed for the purpose of supplying the land directly irrigated from the channel. No additional masonry works are required.

The only drainage crossing the channel is that brought down by a nallah which has been formed by the overflow of the Kukalar above the anicut, when in flood. A masonry escape 80 feet in length was constructed in order to pass this flood water across the channel; but this work has, recently, been entirely washed away. The course of the nallah has been diverted so that the water carried by it may be discharged over the anicut. This has been effected by the excavation of a short cut with a flood bank formed of excavation spoil on its western side, and as no cross drainage water can find access to the channel; the site of the ruined escape has been closed with an earthen bank.

VARAGHA NADDI GROUP.
KUKALAR ANICUT CHANNEL
SUB-GROUP.
NO. 43 IRRIGATION WORK.
KYKALANKULAM TANK.

General Description. This is a third class Tank receiving its principal supply from the Kukalar channel on the right side.

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	...	...	50.50
	Maximum water level above do	...	...	52.50
	Level of top of bund above do	...	...	55.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	...	$\frac{3}{4}$ sq. mile.
	Maximum flood discharge from do	...	...	...	260 c. ft.
	Number of tanks above	...	...	...	Nil.
	Maximum flood discharge through do	...	...	...	Nil.
	Maximum flood discharge from supply channel	...	...	...	40 c. ft.
	Total maximum discharge to be provided for	...	...	...	300 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

Weir at 450 ft. from the right flank effective at	...	...	...
Thamboghy in do do	...	...	...
Total maximum discharge provided for	...	...	...

Height above datum.	Length.	Maximum discharge.
Feet.	Feet.	Cub. ft. per sec.
50.50	11.75	100
47.50	6	201
		301

The position of the mamul breach which may be opened in cases of emergency is at 400 feet from the right flank.

Bench Marks.

I.—B. M. on crest of calingulah close to the North wing, right flank ... 50.50

II.—B. M. on top of stone on bund, left flank... 53.38

Height of Datum above Mean Sea Level... 902.25



DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	1,385,000 sq. ft.	Details of Storage
Greatest width of do from bund	...	...	900 ft.	
Class of bund corresponding to do	...	...	Third Class.	
Approximate capacity of tank at F. S. L.	...	...	3,116,000 c. ft.	
Approximate annual storage at do	...	...	6,232,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	...	39.98 acres.	Details of Irrigation.
Proposed ultimate area of irrigation	...	...	39.98 acres.	
Water stored per acre of do	...	...	156,000 c. ft.	
Ultimate irrigation per sq. mile of catchment	...	...	"	
Cill of existing irrigation sluice No. 1 above datum	...	...	41.27	
Do do do No. 2 do	...	...	46.90	

Sketches of the masonry works, as well as a longitudinal section of the Bund are given on Plate III. **Plans & Sections.**

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

VARAGHA NADDI GROUP.
KUKALAR ANICUT CHANNEL
SUB GROUP.
NO. 44 IRRIGATION WORK.
PERIAPULANKULAM TANK.

This is a third class tank fed by rain. **General Description.**

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 level above do.	...	...	47.25	
Level of top of bund above do.	...	...	50.25	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	...	...	$\frac{1}{4}$ sq. mile	Maximum Flood Discharges.
Maximum flood discharge from do.	...	...	195 c. ft.	
Number of tanks above	...	...	Nil.	
Maximum flood discharge through do.	...	...	Nil.	
Maximum flood discharge from supply channel	...	...	Nil.	
Total maximum discharge to be provided for	...	...	195 c. ft.	

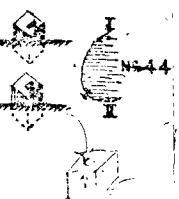
SURPLUS ARRANGEMENTS.

Surplus Arrangements.

	Height above datum.	Length.	Maximum discharge.
	ft.	ft.	cub. ft. per sec.
Existing byewash at the left flank	46.00	70	195
Total maximum discharge provided for			195

The position of the mamul breach which may be opened in cases of emergency is at 400 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank	50.65	
II.—B. M. do. do. left flank...	49.79	
Height of Datum above Mean Sea Level...	930.08	

DETAILS OF STORAGE.

Details of Storage.

Area of water spread at F. S. L.	644,000 sq. ft.
Greatest width of do: from bund	575 ft.
Class of bund corresponding to do.	Third class.
Approximate capacity of tank at F. S. L.	1,449,000 c. ft.
Approximate annual storage at do:	2,898,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.

Ayacut area	19.50 acres.
Proposed ultimate area of Irrigation	19.50 acres.
Water stored per acre of do.	150,000 c. ft.
Ultimate Irrigation per sq. mile of catchment.	78.00 acres.
Cill of existing Irrigation sluice above datum	41.31

Plans & Sections.

A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate III.

Financial Details.

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

VARAGHA NADDI GROUP.

KUKALAR ANICUT CHANNEL SUB-GROUP.

NO. 45, IRRIGATION WORK.

KUKALAR ANICUT CHANNEL ON LEFT BANK.

This is the first channel receiving its supply from the Kukalar General stream.

The drainage area of the Kukalar above the point where the channel is taken off, is $18\frac{1}{2}$ square miles and the calculated maximum flood discharge passed over the anicut is 4,900 cubic ft. per second.

The supply drawn off by the channel during the cultivation season probably varies between 10 and 70 cubic ft. per second, the latter quantity being the maximum it is considered the channel is capable of discharging.

Bench Marks.

I.—B. M. on crest of Kukalar Anicut close to the left or South wing above

M. S. L.	978.03	
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The only head work consists of a masonry anicut across the Kukalar (*vide* sketch Plate III, Fig. 16.). The channel takes off at the left flank of this anicut, and has an open head, with bottom width of about 7 ft.

The channel is 2,900 ft. in length, and the area of land irrigated by it, and by the Pudukulam tank which it supplies, is 132.43 acres, (*vide* statement of financial details). The channel is in fairly good condition, and the trifling repairs required to maintain it should be carried out by the ryots interested.

No masonry works have been constructed, and none are considered to be necessary.

The channel receives a small quantity of surface drainage, a portion of which is discharged by means of natural outlets, and the remainder is carried down and discharged into the Pudukulam tank.

VARAGHA NADDI GROUP.
KUKALAR ANICUT CHANNEL
SUB-GROUP.

NO. 46, IRRIGATION WORK.

PUDUKULAM TANK.

General Description. This is a third class tank receiving its principal supply from the Kukalar.

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	...	...	51.00
	Maximum water level above do.	...	...	52.50
	Level of top of bund above do.	...	...	55.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	$\frac{3}{4}$ sq. mile
	Maximum flood discharged from do.	...	...	410 c. ft.
	Number of tanks above...	...	...	Nil.
	Maximum flood discharge through do.	...	...	Nil.
	Do. flood discharge from supply channel...	...	...	65 c. ft.
	Total maximum discharge to be provided	...	...	475 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

	Height above datum	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per. sec.
Weir at the left flank effective at	51.00	20	110
Thamboghy in do do.	50.00	17	201
Proposed bye-wash at the left flank	51.00	45	165
Total maximum discharge provided...			476

The position of the mamul breach which may be opened in cases of emergency is at 300 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank	56.68	
II.—B. M. on southern sidewall of rear cistern of 1st sluice	42.01	
III.—B. M. on southern sidewall of rear cistern of 2nd sluice	49.10	
IV.—B. M. on top of demarcation stone east of calingulah, Left flank	54.38	
Height of Datum above Mean Sea Level...	917.75	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	1,385,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	...	950 ft.	
Class of bund corresponding to do.	...	...	Third class.	
Approximate capacity of tank at F. S. L.	...	...	5,194,000 c. ft.	
Approximate annual storage at do.	...	...	15,582,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	...	115.84 acres	Details of Irrigation.
Proposed ultimate area of irrigation	...	...	100.54 "	
Water stored per acre of do.	...	...	153,000 c. ft.	
Ultimate irrigation per sq. mile of catchment	...	...	...	
Cill of existing irrigation sluice No. 1 above datum...	...	...	40.07	
Do. do. No. 2 do.	...	...	46.24	

Sketches of the masonry works, as well as a longitudinal section of the bund are given on Plate III. **Plans & Sections.**

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

VARAGHA NADDI GROUP.
NUNDIAPURAM ANICUT CHANNEL
SUB-GROUP.

NO. 47, IRRIGATION WORK.

NUNDIAPURAM CHANNEL.

The Nundiapuram anicut channel has its point of off take immediately below the confluence of the Pambaur and the Kukalar streams, and 2 miles north of the town of Periyakulam. **General.**

The conjoint drainage area of the Pambaur and Kukalar above the anicut is 34 sq. miles; and the maximum flood discharge over the anicut is calculated to amount to 7,343 cub. ft. per second. The maximum quantity of water the supply channel is capable of discharging, is estimated to be 110 cubic feet per second. **Source of supply.**

Bench Marks.

I.—B. M. on crest of Nandiapuram Anicut at east end ... 94.96

Height of Datum above Mean Sea Level... 833.84

Head Works.

An anicut formed of a brickwork face wall, backed by a flush apron composed of large loose stones, with overfall almost vertical has been constructed across the bed of the Pambaur, and a sketch of this work is given on Plate V, Fig. 1.

The apron has been thoroughly repaired and this will in a measure obviate the possibility of the anicut being breached.

The open head of the channel is at the left flank of the anicut; and its bottom width at this place is 9 feet.

Main Channel.

The total length of the main channel from its head to the Nedoorkulam tank (which is the terminal tank of the Sub-Group) is 2 miles 3,940 feet. The area irrigated directly by the channel, and by the five tanks of which it is the source of supply, amounts to 456.95 acres (*vide* statement of financial details).

The channel has an average bottom width of about 6 feet and a bed fall of 7.17 feet per mile. Throughout its length, this irrigation work is in fairly good condition, and the periodical clearance of silt should be performed by the ryots interested in the maintenance of the channel.

Branch Channels.

There are no branch channels of any importance. The channels supplying the tanks are of short length, and are in fairly good repair.

Masonry Works along the Main Channel.

At a distance of 2,450 feet from the head of the channel, a brickwork escape has been constructed in the right bank (*vide* sketch Plate IV, Fig 2). The object of this work is to discharge into the Pambaur the cross drainage water which flows into the channel.

Between this point and the Nundiapuram tank head sluice there are two minor sluices which supply water to land irrigated direct from the channel.

At 1 mile 100 feet, a sluice has been constructed in the right bank at the head of Nundiapuram tank supply channel; and at 1 mile 2500 feet there is a dam for regulating the water supply to the Pottaikulam tank (*vide* sketches Plate IV, Figs. 3 and 4.)

Gross Drainage.

The drainage area intercepted by the channel from its commencement up to the supply channel to Nundiapuram Tank is small, and the drainage water is passed across the channel by means of the escape already alluded to, as well as by numerous natural outlets. At 1 mile 4000 feet from its head, the main channel is crossed by a nullah having a drainage area of $\frac{3}{4}$ square mile and calculated flood discharge of 410 cubic feet per second. This flood water escapes by an outlet roughly formed of loose stone, and is eventually discharged into the Luckiamputty tank.

Below this point the channel receives a small quantity of surface drainage, which is carried down and discharged into the Nedoorkulam tank.

VARAGHA NADDI GROUP. NUNDIAPURAM ANICUT CHANNEL SUB-GROUP

NO. 48, IRRIGATION WORK.

NUNDIAPURAM TANK.

This is a third class tank receiving its principal supply from the Pambaur through the Nundiapuram 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	...	...	100.00	Standard Levels.
Maximum water level above do.	...	...	101.00	
Level of top of bund above do.	...	...	104.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

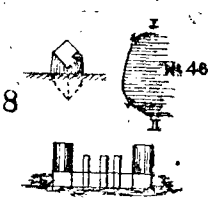
Area of free basin	...	...	$\frac{1}{2}$ sq. mile.	Maximum Flood Discharges.
Maximum flood discharge from do.	...	...	68 c. ft.	
Number of tanks above ...	...	...	Nil.	
Maximum flood discharge through do.	...	...	Nil.	
Maximum flood discharge from supply channel	...	...	20 c. ft.	
Total maximum discharge to be provided for ...	...	...	88 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	
	Feet.	Feet.	Cub. ft. per sec.	
Veir at the left flank effective at ...	100.00	11.25	33	Surplus Arrangements.
Hambohy in do. do. ...	98.50	5	59	
Total maximum discharge provided for ...			92	

The position of the mamul breach which may be opened in cases of emergency is at 500 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank	...	...	104.38	
II.—B. M. on foot of front return of South wing of the calingulah, left flank...	...	...	99.96	
Height of Datum above Mean Sea Level...	...	...	817.70	

DETAILS OF STORAGE.

Area of waterspread at F.S.L. ...	...	1,459,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	950 ft.	
Class of bund corresponding to do.	...	Third Class.	
Approximate capacity of tank at F. S. L.	...	5,836,000 c. ft.	
Approximate annual storage at do. ...	...	17,508,000 c. ft.	

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	126.41 acres.
	Proposed ultimate area of irrigation	124.40 „
	Water stored per acre of do.	141,000 c. ft.
	Ultimate irrigation per sq. mile of catchment	„
	Cill of existing irrigation sluice No. 1, above datum: 89.65	
Plans & Sections.	Do do. do. „ 2 do.	89.38
	Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate IV.	
Financial Details.	The financial details of this work are shown in the statement at page 14.	

VARAGHA NADDI GROUP.
NUNDIAPURAM ANICUT CHANNEL
SUB-GROUP.
NO. 49, IRRIGATION WORK.
POTTAIKULAM TANK.

General Description.	This is a third class tank receiving its principal supply from the Pambaur through the Nadiapuram anicut 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	102.00
	Maximum water level above do	103.50
	Level of top of bund above do	106.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	$\frac{1}{2}$ sq. mile.
	Maximum flood discharge from do.	95 c. ft.
	Number of tanks above	1
	Maximum flood discharge through do.	88 c. ft.
	Maximum flood discharge from supply channel	20 c. ft.
	Total maximum discharge to be provided for	203 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per. Sec.
Weir at the left flank effective at	100.00	5.5	108
Proposed Bye-wash at the left flank... ..	102.00	27	99
Total maximum discharge provided for			207

The position of the mamul breach which may be opened in cases of emergency is at 1,900 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, left flank	104.65
Height of Datum above Mean Sea Level... ..	816.01

DETAILS OF STORAGE.

Area of water spread at F. S. L.	960,000 sq. ft.	Details of Storage
Greatest width of do from bund	725 ft.	
Class of bund corresponding to do	Third Class.	
Approximate capacity of tank at F. S. L.	1,680,000 c. ft.	
Approximate annual storage at do	5,040,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	30.91 acres.	Details of Irrigation.
Proposed ultimate area of irrigation	30.44 „	
Water stored per acre of do.	163,000 c. ft.	
Ultimate irrigation per sq. mile of catchment	„	
Cill of existing irrigation sluice above datum	93.71	

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate IV. Plans & Sections.

The financial details of this work are shown in the statement. Financial Details
at page 14.

VARAGHA NADDI GROUP.
NUNDIAPURAM ANICUT CHANNEL
SUB-GROUP.
NO. 50, IRRIGATION WORK.

LUCKIAMPUTTY TANK.

This is a third class tank receiving its principal supply from the Pambaur the Nundiapuram anicut channel. General Description.

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	98.00	Standard Levels.
Maximum water level above do.	100.00	
Level of top of bund above do.	103.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin ...	1 sq. mile.
	Maximum flood discharge from do....	500 c. ft.
	Number of tanks above ...	2
	Maximum flood discharge through do. ...	203 c. ft.
	Maximum flood discharge from supply channel ...	15 c. ft.
Total Maximum flood discharge to be provided for ...		718 c. ft.

SURPLUS ARRANGEMENTS.**Surplus Arrangements.**

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash effective at ...	98.00	24	135
Mamul breach at right flank ...	...	36	583
Total discharge provided for ...			718

There is no other mamul breach for the tank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank ... 102.85

Height of Datum above Mean Sea Level... 807.47

DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F. S. L. ...	720,000 sq. ft.
	Greatest width of do. from bund ...	750 ft.
	Class of bund corresponding to do. ...	Third Class.
	Approximate capacity of tank at F. S. L. ...	1,440,000 c. ft.
	Approximate annual storage at do. ...	4,320,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	28.43 acres.
	Proposed ultimate area of Irrigation ...	28.15 acres.
	Water stored per acre of do. ...	153,000 c. ft.
	Ultimate irrigation per sq. mile. of catchment ...	"
	Cill of existing irrigation sluice above datum ...	91.64

Plans & Sections.

A longitudinal section of the bund showing the position and Cill level of the sluice is given on Plate IV.

Financial Details.

The financial details of this work are shown in the statement at page 14.

VARAGHA NADDI GROUP.
NUNDIAPURAM ANICUT CHANNEL
SUB-GROUP.

NO. 51 IRRIGATION WORK.**POTTAIVANNANKULAM TANK.**

This is a third class tank receiving its principal supply from the Pambaur through the Nundiapuram 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 ...	95.32	Standard Levels.
Maximum water level above do. ...	96.32	
Level of top of bund above do. ...	99.32	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin ...	1/10 sq. miles.	Maximum Flood Discharges.
Maximum flood discharge from do. ...	68 c. ft.	
Number of tanks above ...	3	
Maximum flood discharge through do. ...	135 c. ft.	
Maximum flood discharge from supply channel ...	15 c. ft.	
Total Maximum discharge to be provided for ...	218 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Weir 1090 ft. from the right flank effective at ...	94.32	2	18
Proposed bye-wash at the left flank ...	95.32	100	200
Total Maximum discharge provided for ...			218

The position of the mamul breach which may be opened in cases of emergency is at 150 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone in rear of bund, right flank ... 94.74

Height of Datum above Mean Sea Level... 806.62

DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F. S. L.	...	380,000 sq. ft.
	Greatest width of do. from bund	...	375 ft.
	Class of bund corresponding to do.	...	Third class.
	Approximate capacity of tank at F. S. L.	...	1,235,000 c. ft.
	Approximate annual storage at do.	...	3,705,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area	...	27.26 acres.
	Proposed ultimate area of irrigation	...	27.11 "
	Water stored per acre of do.	...	144,000 c. ft.
	Ultimate Irrigation per sq. mile of catchment	...	...
	Cill of existing Irrigation sluice above datum	...	89.14

Plans & Sections. Sketch of the masonry work, as well as a longitudinal section of the bund are given on Plate IV.

Financial Details. The financial details of this work are shown in the statement at page 14.

VARAGHA NADDI GROUP. NUNDIAPURAM ANICUT CHANNEL SUB-GROUP.

NO: 52 IRRIGATION WORK. NEDOONKULAM TANK.

General Description. This is a second class tank receiving its principal supply from the Pambaur through the Nandiapuram anicut 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	...	99.50
	Maximum water-level above do.	...	101.00
	Level of top of bund above do.	...	105.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	2 sq. mile
	Maximum flood discharge from do.	...	795 c. ft.
	Number of tanks above	...	Nil.
	Maximum flood discharge through do.	...	Nil.
	Maximum flood discharge from supply channel	...	105 c. ft.
	Total Maximum discharge to be provided	...	900 c. ft.

SURPLUS ARRANGEMENTS.

Height above datum.	Length.	Maximum Discharge.	Surplus Arrangements.
Feet	Feet.	Cub. ft. per sec.	
99.50	160	587	
...	25	320	
Total Maximum discharge provided for			907

Proposed Byewash at the left flank

Mamul breach at do

Total Maximum discharge provided for

There is no other mamul breach for this tank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank	...	101.76	
II.—B. M. on foot of rear parapet of 2nd Sluice	...	89.81	
III.—B. M. on basement of Northside of Iyanaurcoil in rear of bund	...	94.91	
IV.—B. M. on top of stone on bund, left flank	...	104.41	
Height of Datum above Mean Sea Level...		806.75	

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	4,700,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	1,100 ft.	
Class of bund corresponding to do.	...	Second class.	
Approximate capacity of tank at F.S.L.	...	11,750,000 c. ft.	
Approximate annual storage at do.	...	23,500,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	160.98 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation	...	151.12 acres.	
Water stored per acre of do.	...	153,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...	...	
Cill of existing Irrigation sluice No. 1 above datum	94.88		
do do No. 2	do. 90.37		
do do No. 3	do. 94.44		

A longitudinal section of the bund showing the position and cill level of the sluices is given on Plate IV.

The financial details of this work are shown in the statement at page 14.

VARAGHA NADDI GROUP.
MELAMANGALAM ANICUT CHANNEL
SUB-GROUP.

NO. 53. IRRIGATION WORK.

MELAMANGALAM ANICUT CHANNEL.

General.

The Melamangalam Anicut channel is the second channel which receives its supply from the Varagha Naddi River; and the head of the channel is situated at 5,000 feet below the confluence of the Varagha Naddi and Pambaur.

Source of Supply.

The Varagha Naddi River has above the channel a drainage area of 111 sq. miles, inclusive of the areas drained by its affluents. The maximum flood discharge of the river at this point is calculated to amount to 11,550 cub. ft. per second. The supply of water available for the lands directly irrigated from the channel and also for storage in the two tanks of the sub-group, is generally ample; and the quantity drawn off by the channel is estimated to vary between 20 and 175 cub. ft. per second during the cultivation season.

Bench Marks.

I.—B. M. cut with chisel on top of stone

to the west of Melmangalam anicut 103.11

II.—B. M. on crest of anicut ... 99.59

Height of Datum above Mean Sea Level... 788.68

Head works.

Immediately below the head of this important channel a masonry anicut, 580 ft. in length, has been constructed across the bed of the river, (vide sketch Fig: 8, Plate V.) The anicut is suitable, and is in need of no alteration; but care has been taken to place the work in thorough repair. The head of the channel is open and its bottom width is about 20 ft.

Main Channel.

The length of the channel is 2 miles 4,240 ft, its bottom width varies from 20 to 9 ft, and its average bed fall is about 6 ft. per mile. The total area of wet cultivation supplied directly from the channel is 686.89 acres; and the area irrigated by means of the two tanks of the sub-group is 160.76 acres. The direct irrigation is supplied by numerous distributary channels all of which have open heads. Any extensive repairs that may be required to this channel will be executed at the cost of Government, but minor repairs, such as closing small breaches in the channel banks should be carried out by the villagers.

- The only masonry work is a surplus escape at 1,500 ft. from the commencement of the channel (vide sketch Plate IV, Fig: 9). This work should be maintained as indicated in the sketch. Masonry works along the Main Channel.

This drainage area intercepted by the channel is 5 sq. miles, the maximum flood discharge from which is calculated to be 1,460 cub. ft. per second. The land lying above the channel is to a considerable extent under wet cultivation, and the drainage water becoming distributed over this land finally escapes across the channel by natural outlets, and also by the numerous minor field channels. As these fields, or distributary channels, are of considerable use in providing for the escape of cross drainage water, it is not desirable that they should be provided with head sluices. Disposal of Cross Drainage.

VARAGHA NADDI GROUP.

MELAMANGALAM ANICUT CHANNEL
SUB-GROUP.

NO. 54. IRRIGATION WORK.

NARAMEN TANK.

This is a third class tank receiving its principal supply from the Varagha Naddi through the Melamangalam anicut channel. General Description.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	100.00	Standard Levels.
Maximum water level above do.	...	...	101.50	
Level of top of bund above do.	...	...	104.50	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	...	...	...	1/2 sq. mile.	Maximum Flood Discharges.
Maximum flood discharge from do.	...	...	...	125 c. ft.	
Number of tanks above	...	...	...	Nil.	
Maximum flood discharge through do.	...	...	...	Nil.	
Maximum flood discharge from supply channel	...	...	...	25 c. ft.	
Total maximum discharge to be provided for	...	...	...	150 c. ft.	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	
	Feet.	Feet.	cub. ft. per sec.	Surplus Arrangements.
Proposed bye wash at left flank	100.00	42	154	
Total Maximum discharge provided for	...	...	154	

The position of the mamul breach which may be opened in cases of emergency is at 2,900 ft. from right flank.

Bench Marks.

I.—B. M. on top of demarcation stone on the channel bank and inside of the tank right flank ...	105.01		
II.—B. M. on top of demarcation stone on bund, left flank ...	102.30		
Height of Datum above Mean Sea Level...	778.94		

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F. S. L. ...	1,102,500 sq. ft.
	Greatest width of do. from bund. ...	600 ft.
	Class of bund corresponding to do. ...	Third class.
	Approximate capacity of tank at F. S. L. ...	3,859,000 c. ft.
	Approximate annual storage at do. ...	11,576,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation	Ayacut area ...	82.52 acres.
	Proposed ultimate area of irrigation ...	79.48 acres.
	Water stored per acre of do. ...	150,000 c. ft.
	Ultimate irrigation per sq. mile of catchment ...	93.69.
	Cill of existing irrigation sluice above datum ...	

Plans & Sections. A longitudinal section of the bund showing the position and cill level of the sluice is given on plate IV.

Financial Details. The financial details of this work are shown in the statement at page 16.

VARAGHA NADDI GROUP. MELAMANGALAM ANICUT CHANNEL SUB-GROUP.

NO. 55, IRRIGATION WORK.

SILIVARPUTTY TANK.

General Description. This is a third class tank receiving its principal supply from the Varagha Naddi through the Melamangalam anicut 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 ...	101.50
	Maximum water level above do. ...	103.00
	Level of top of bund above do. ...	106.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin ...	2½ sq. miles.	Maximum Flood Discharges.
Maximum flood discharge from do. ...	860 c. ft.	
Number of tanks above ...	Nil.	
Maximum flood discharge through do. ...	Nil.	
Maximum flood discharge from supply channel ...	20 c. ft.	
Total maximum discharge to be provided for ...	880 c. ft.	

SURPLUS ARRANGEMENTS.

Height above datum.	Length.	Maximum discharge.	Surplus Arrangements.
Feet.	Feet.	Cub. ft. per. sec.	
Proposed byewash at the right flank ...	101.50	240	882
Total maximum discharge provided for			882

The position of the mamul breach which may be opened in cases of emergency is at 750 ft. from the right flank.

Bench Marks.

I.—B. M. on top of demarcation stone in rear of bund, left flank ...	106.10		
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Height of Datum above Mean Sea Level... 777.72

DETAILS OF STORAGE.

Area of waterspread at F. S. L. ...	2,777,000 sq. ft.	Details of Storage
Greatest width of do. from Bund ...	1,470 ft.	
Class of Bund corresponding to do. ...	Third Class.	
Approximate capacity of Tank at F. S. L. ...	4,000,000 c. ft.	
Approximate annual storage at do. ...	12,000,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area ...	78.83 acres.	Details of Irrigation
Proposed ultimate area of irrigation ...	72.60 acres.	
Water stored per acre of do. ...	160,000 c. ft.	
Ultimate irrigation per square mile of catchment ...		
Cill of existing irrigation sluice above datum ...	93.82	

A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate IV.

The financial details of this work are shown in the statement at page 16.

VARAGHA NADDI GROUP.
KILAMANGALAM ANICUT CHANNEL
SUB-GROUP.

NO. 56, IRRIGATION WORK.

KILAMANGALAM ANICUT CHANNEL.

General.

The Kilamangalam anicut channel is the third offtake from the Varagha Naddi, and its head is situated on the left bank of that river, at a distance of 2 miles 2,000 ft. below the Melamangalam channel anicut.

Source of Supply.

The drainage area of the Varagha Naddi and its affluents above the channel is 120 sq. miles, and the calculated maximum flood discharge of the river at this point is 12,165 cub: ft: per second. Even when the water level in the river is below the crest of the Melamangalam anicut, an ample supply from the numerous springs in the river bed is available; and the quantity of water drawn off by the Kilamangalam channel, during the irrigation season, may be considered to vary from 25 to 150 cub: ft: per second.

Bench Marks.

I.—B. M. on top of stone on right bank

south of Kilamangalam anicut ... 102.08

II.—B. M. on crest of 3rd portion of Kil-

mangalam anicut ... 99.40

Height of Datum above Mean Sea Level... 766.43



Head Works.

A masonry anicut 1,215 ft. in length and of irregular section and alignment, has been built across the river immediately below the point where the channel takes off. A sketch of this is given on Plate V, Fig: 10. No improvements are required, but the work, as it exists, is maintained in good repair.

The head of the channel is open, and its bottom width at this place is 18 feet.

Main Channel.

The channel, which terminates at the Vettuvankulam tank, is 1 mile 4,970 ft: in length, and the direct irrigation under it amounts to 539.54 acres. The total irrigated area supplied by the works included in this sub-group is 872.51 acres (*vide* statement of financial details).

The bottom width of the channel varies from 18 ft. and its head to about 9 ft.; and the average bed fall is about 4 ft: per mile. Any considerable repairs that may be required to this work will be carried out at the cost of Government, but minor repairs should be left to the ryots to execute.

There are numerous field channels taken off from the main channel for the purpose of supplying the direct irrigation. Field Channels.

Of these channels seven are provided with small head sluices apparently constructed by the villagers themselves. The construction of similar sluices is discouraged, as these open channels are of considerable utility in providing for the escape of cross drainage water.

At 1,200 ft: from the commencement of the channel a surplus escape has been provided in the right bank (*vide* sketch Plate IV, Fig: 11). This work is of use in allowing water to escape from the channel during floods; and it is therefore maintained in repair. There are no other masonry works along the main channel with the exception of the head sluices above mentioned. Masonry Works along the Channels.

The main channel intercepts a drainage area of $3\frac{1}{2}$ sq: miles having a calculated maximum flood discharge of 1,150 cub: ft. per second. As in the Melamangalam channel, this flood water gets distributed over the irrigated land lying above, and passing across the channel through the natural outlets and minor channels, is finally discharged into the river. Disposal of Cross Drainage.

VARAGHA NADDI GROUP.
KILAMANGALAM ANICUT CHANNEL
SUB-GROUP
 NO. 57, IRRIGATION WORK.

VETTUVANKULAM TANK.

This is a first class tank receiving its principal supply from the Varagha Naddi through the Kilamangalam anicut channel. General Description.

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...	...	100.00.	Standard Levels.
Maximum water level above do.	...	101.50.	
Level of top of bund above do.	...	107.50 & 106.00.	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin ...	...	$6\frac{1}{4}$ sq. miles.	Maximum Flood Discharges.
Maximum flood discharge from do.	...	1,695 c. ft.	
Number of tanks above ...	...	Nil.	
Maximum flood discharge from do.	...	Nil.	
Maximum flood discharge from supply channel ...	...	75 c. ft.	
Total maximum discharge to be provided for...	...	1,770 ,,	

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing surplus at left flank, 2 vents	95.37	7.0	333
Existing mamul breach over hard rock just east of surplus sluice	97.00	50	1,067
Proposed bye-wash east of mamul breach	100.00	75	370
Total maximum discharge provided for			1770

Bench Marks.

I.—B. M. on top of stone east of Byewash left flank	112.08	
II.—B. M. on top of stone in rear of bund between right and left flanks	94.90	
III.—B. M. on top of stone on bund, right flank	110.12	
Height of Datum above Mean Sea Level...	758.13	

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F.S.L.	6,400,000 sq. ft.
	Greatest width of do. from bund	2,200 ft.
	Class of bund corresponding to do.	1st class.
	Approximate capacity of tank at F.S.L....	25,600,000 c. ft.
	Approximate annual storage at do.	51,200,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area... ..	209.76 acres.
	Proposed ultimate area of irrigation	208.39 acres.
	Water stored per acre of do.	154,000 c. ft.
	Ultimate irrigation per square mile of catchment	"
	Cill of existing irrigation sluice No. 1 above datum ...	95.45.
	Do. do. do. No. 2 do.	86.19.

Plans & Sections Sketches of the masonry works, as well as a longitudinal section of the bund, are given on Plate IV.

Financial Details The financial details of this work are shown in the statement at page 16.

Care has been taken not to raise the temporary bund over the mamul breach, above M. W. L. or 101.50. And no bank is ever to be placed on the bye-wash,

VARAGHA NADDI GROUP.
KILAMANGALAM ANICUT CHANNEL
SUB-GROUP.

NO. 58, IRRIGATION WORK.

OTTAIKULAM TANK.

This is a third class tank receiving its principal supply through the Vettuvankulam tank. General Description.

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	92.50	Standard Levels.
Maximum water level above do.	94.00	
Level of top of bund above do.	97.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	1/4 sq. mile	Maximum Flood Discharges.
Maximum flood discharge from do.	195 c. ft.	
Number of tanks above	Nil.	
Maximum flood discharge through do.	Nil.	
Maximum flood discharge from supply channel	75 c. ft.	
Total maximum discharge to be provided for	270 "	

SURPLUS ARRANGEMENTS.

	Height above Datum.	Length.	Maximum discharge.	
	Feet.	Feet.	Cub. ft. per sec.	Surplus Arrangements.
Existing bye-wash at the left flank	92.50	10	275	
Proposed extension of do.	92.50	65		
Total maximum discharge provided for			275	

The position of the mamul breach which may be opened in cases of emergency is at 700 feet from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank	100.96	
II.—B. M. on do. do. left flank	97.68	
Height of Datum above Mean Sea Level...	759.04	

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F. S. L. ...	337,500 sq. ft.
	Greatest width of waterspread from bund ...	430 ft.
	Class of bund corresponding to do. ...	Third Class.
	Approximate capacity of tank at F. S. L. ...	675,000 c. f.
	Do. annual storage at do. ...	4,050,000 „

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	46.10 acres.
	Proposed ultimate area of irrigation ...	46.10 „
	Water stored per acre of do. ...	89,400 c. ft.
	Ultimate irrigation per sq. mile of catchment ...	„
	Cill of proposed irrigation sluice above datum ...	86.00.

Plans & Sections. A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate IV.

Financial Details. The financial details of this work are shown in the statement at page 16.

VARAGHA NADDI GROUP, KILAMANGALAM ANICUT CHANNEL SUB-GROUP.

NO. 59, IRRIGATION WORK.

PUDUKULAM TANK.

General Description. This is a third-class tank receiving its principal supply from the Kilamangalam Anicut Channel through the Ottakulam Tank.

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 ...	100.00
	Maximum water level above do. ...	102.00
	Level of top of bund above do. ...	105.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin ...	1 sq. mile
	Maximum flood discharge from do. ...	500 c. ft.
	Number of tanks above ...	1
	Maximum flood discharge through do. ...	270 c. ft.
	Maximum flood discharge from supply channel ...	„
	Total maximum discharge to be provided for ...	770 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. feet per sec.
Proposed bye-wash at right flank ...	100.00	140	791
Total maximum discharge provided for ...			791

The position of the mamul breach which may be opened in cases of emergency is at 1,900 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right

flank ... 102.76

II.—B. M. on do. do. left

flank ... 104.47

Height of Datum above Mean Sea Level... 752.59

DETAILS OF STORAGE.

Area of water-spread at F. S. L. ...	2,559,000 sq. ft.	Details of Storage.
Greatest width of do. from bund ...	1,650 ft.	
Class of bund corresponding to do. ...	Third class.	
Approximate capacity of tank at F. S. L. ...	3,850,000 c. ft.	
Approximate annual storage at do. ...	11,550,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area ...	77.25 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation ...	76.38 acres.	
Water stored per acre of do. ...	150,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment ...	„	
Cill of existing Irrigation sluice above datum ...	89.07	

A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate IV. **Plans & Sections.**

The financial details of this work are shown in the statement **Financial Details** at page 16.

VARAGHA NADDI GROUP, GULLAPURAM ANICUT CHANNEL SUB-GROUP.

NO. 60, IRRIGATION WORK.

GULLAPURAM ANICUT CHANNEL.

The Gullapuram Anicut Channel is the fourth and last offtake **General.** from the Varagha Naddi; and its head is about 4 miles above the point where the latter river flows into the Vaigai.

The drainage area of the Varagha Naddi River above the Gullapuram Anicut is 126 miles, giving a calculated maximum flood discharge of 12,570 cub. ft. per second. The quantity of water drawn off by the channel is estimated to vary between 20 and 200 cub. ft. per second during the season for cultivation. **Source of supply.**

Bench Marks

I.—B. M. on top of stone to west of Gullapuram anicut, right flank ...	104.57	
II.—B. M. on crest of Gullapuram anicut. ...	100.00	
Height of Datum above Mean Sea Level...	731.72	

Head Works.

An anicut, similar in construction to those higher up the river, has been built just below the point of offtake of the channel. The plan of this work is given on Plate V, Fig. 13; and is maintained as indicated therein.

The head of the channel is open, with a bottom width of about 16 ft.

Main Channel.

The length of the channel from its head to the Gullapuram Tank is 3 miles 960 ft. The total Irrigation under the channel, and the two tanks supplied by it, is 860.24 acres, of which 348.71 acres are directly irrigated from the channel, (vide statement of Financial Details). The channel has an average bottom width of about 12 ft. and bed fall of 7 ft. per mile. The repairs necessary to maintain this Irrigation work in an efficient condition have been carried out by Government.

Field Channels.

There are several minor channels for the purpose of supplying the land directly irrigated from the channel; and of these, three are provided with head sluices.

Masonry Works
along the Channel.

At 2,380 ft. from the head of the channel there is a masonry outlet in the right bank, the object of which is to discharge surplus water entering the channel during floods. A sketch of this work is given on Plate IV, Fig. 14. At 2 miles 1,140 ft., another outlet has been constructed in order to pass the surface drainage from the high ground lying to the left of the channel. This work is also sketched on Plate IV, Fig. 15.

Disposal of Cross
Drainage.

In the first two miles of its course the channel intercepts a drainage area of about 10 sq. miles. The flood water is evenly distributed, and passes across the channel without causing any very great damage. The drainage area intercepted by the channel in the last mile of its course is of small extent.

VARAGHA NADDI GROUP. GULLAPURAM ANICUT CHANNEL SUB-GROUP.

NO. 61, IRRIGATION WORK.

PERIYAKULAM TANK.

This is a first class tank receiving its principal supply from the Varagha Naddi through the Gullapuram anicut channel. General Description.

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 ...	99.50	Standard Levels.
Maximum water level above do. ...	101.50	
Level of top of bund above do. ...	107.50	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR

Area of free basin ...	1½ sq. miles	Maximum Flood Discharges.
Maximum flood discharge from do. ...	580 c. ft.	
Number of tanks above ...	Nil	
Maximum flood discharge from do. ...	Nil	
Maximum flood discharge from supply channel ...	100 c. ft.	
Total maximum discharge to be provided for ...	680 „	

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	
	Feet.	Feet.	Cubic feet per sec.	Surplus Arrange- ments.
Existing bye-wash at the left flank ...	99.50	100	} 680	
Proposed extension of do. ...	99.50	20		
Total Maximum discharge provided for ...			680	

The position of the mamul breach which may be opened in cases of emergency is at 7,100 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank... ..	104.95	
II.—B. M. on do do at the 1st sluice	107.61	
III.—B. M. on top of stone in rear of bund between 1st and 2nd sluices	99.73	
IV.—B. M. on top of stone on bund, left flank... ..	104.30	
Height of Datum above Mean Sea Level...	710.72	

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F.S.L. ...	6,755,000 sq. ft.
	Greatest width of do. from bund ...	2,250 ft.
	Class of bund corresponding to do. ...	First class
	Approximate capacity of tank at F.S.L. ...	28,709,000 c. ft.
	Approximate annual storage at do. ...	86,126,000 „

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	451.80 acres
	Proposed ultimate area of irrigation ...	493.80 „
	Water stored per acre of do. ...	150,000 c. ft.
	Ultimate irrigation per sq. mile of catchment ...	
	Cill of existing irrigation sluice No. 1 above datum ...	96.52
	Do. do do „ 2 do. ...	84.83
	Do. do do „ 3 do. ...	89.37

Plans & Sections. A longitudinal section of the bund showing the position and cill level of the sluices is given on Plate IV.

Financial Details. The financial details of this work are shown in the statement at page 18.

VARACHA NADDI GROUP.

GULLAPURAM ANICUT CHANNEL SUB-GROUP.

NO. 62, IRRIGATION WORK.

SERUKULAM TANK.

General Description. This is a third class tank receiving its principal supply from the Gullapuram anicut channel through the Periyakulam tank No. 61.

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 ...	100.00
	Maximum water level above do. ...	101.00
	Level of top of bund above do. ...	104.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin ...	¼ sq. mile
	Maximum flood discharge from do ...	195 c. ft.
	Number of tanks above ...	Nil
	Maximum flood discharge through do. ...	Nil
	Maximum flood discharge from supply channel ...	25 c. ft.
	Total Maximum discharge to be provided for ...	220 c. ft.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.	Surplus Arrangements.
	Feet.	Feet.	Cubic feet. per sec.	
Existing bye-wash at the right flank ...	100.00	110	220	
Total maximum discharge provided for ...			220	

The position of the mamul breach which may be opened in cases of emergency is at 250 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right

flank... 105.91

II.—B. M. on do do left

flank... 106.11

Height of Datum above Mean Sea Level... 692.35

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F. S. L. ...	775,500 sq. ft.
	Greatest width of do from bund ...	850 ft.
	Class of bund corresponding to do. ...	Third Class.
	Approximate capacity of tank at F.S.L. ...	2,130,000 c. ft.
	Approximate annual storage at do. ...	10,650,000 „

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	59.03 acres
	Proposed ultimate area of irrigation ...	58.31 „
	Water stored per acre of do. ...	150,000 c. ft.
	Ultimate irrigation per sq. mile of catchment ...	„
	Cill of new irrigation sluice above datum ...	94.43

A longitudinal section of the bund is given on Plate IV.

Plans & Sections.

The financial details of this work are shown in the statement at **Financial Details** page 18.

VARATTAR GROUP.
SEEKOADAI SUB-GROUP.
NO. 1, IRRIGATION WORK.
JEVAKAMMA URANI.

General Description.

This is a third class rain-fed tank.

Hydraulic Details

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

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

Full supply level above datum	...	...	101.50
Maximum water level above do	...	...	102.50
Level of top of bund above do	...	...	105.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.**Maximum Flood Discharges.**

Area of free basin...	...	...	$\frac{1}{8}$ sq. mile.
Maximum flood discharge from do	...	...	95 c. ft.
Number of tanks above do	...	...	Nil.
Maximum flood discharge through do	...	...	Nil.
Do. do. from supply channel	...	...	Nil.
Total maximum discharge to be provided for	...	...	95 c. ft.

SURPLUS ARRANGEMENTS.**Surplus Arrangements.**

	Height above datum.	Length.	Maximum discharge.
	Fect.	Fect.	Cub. feet per. sec.
Existing Byewash at the left flank	101.50	50	100
Total maximum discharge provided for			100

There is no mamul breach for this tank.

Bench Marks.

I.—B. M. on top of stone on bund right

flank... .. 106.18

Height of Datum above Mean Sea Level... 898.50

DETAILS OF STORAGE.

Area of waterspread at F.S.L. ...	...	108,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	300 ft.	
Class of bund corresponding to do.	...	Third class.	
Approximate capacity of tank at F. S. L. ...	...	378,000 c. ft.	
Approximate annual storage at do.	...	756,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area ...	...	0.55 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation	...	5.83 "	
Water stored per acre of do.	...	130,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...		
Cill of Irrigation sluice above datum	...	69.96	

A longitudinal section of the bund is given on plate VII.

Plans & Sections.

The financial details of this Work are given in statement at **Financial Details.** page 18.

VARATTAR GROUP.
SEEKOADAI SUB-GROUP.
NO. 2, IRRIGATION WORK.
SEEKOADAI ANICUT CHANNEL.

This is a small channel irrigating only 7.32 acres. It has its **General.** offtake on the left side of the Seekoadai, across which stream a loose stone dam has been thrown in order to raise the water level at the head of the channel. A sketch of this is given on plate VII, Fig. 1. The channel which is only 500 ft. in length, and 2 ft. in bottom width, is kept in repair by the interested ryots.

VARATTAR GROUP.
SEEKOADAI SUB-GROUP.
NO. 3, IRRIGATION WORK.
SEEKOADAI ANICUT CHANNEL.

This is the second, and last channel supplied from the Seekoadai **General.** and it irrigates only 1.25 acres. The construction of the earthen dam across the Seekoadai, as well as the general repairs to the channel should be carried out by the villagers concerned.

VARATTAR GROUP.
VARATTAR SUB-GROUP.
NO. 4, IRRIGATION WORK.
RAMANPALANI ANICUT CHANNEL.

General.

This channel branches from the right bank of the Varattar across the bed of which a rough stone dam (*vide* sketch Plate VII Fig. 2) has been constructed just below the head of the channel. The channel is 800 ft. in length and its bottom width is 3 ft. This small work should continue to be maintained in repair by the villagers.

VARATTAR GROUP.
VARATTAR SUB-GROUP.
NO. 5, IRRIGATION WORK.

MOOTHUSAMI DUFFADAR ANICUT
CHANNEL AND SOKKAMANAIKAN
URANI TANK.

General.

This irrigation work includes a third class tank and the short channel from the Varattar which supplies it. The channel is about 500 ft. in length with a bottom width of 3 ft. and it should be maintained by the ryots. A sketch of the masonry dam at the head of the channel is given on Plate VII Fig. 3.

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	...	...	100.00
Maximum water level above do.	...	...	101.00
Level of top of bund above do.	...	...	104.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.

Area of free basin	...	...	...	1/2 sq. mile
Maximum flood discharge from do.	...	...	...	125 c. ft.
Number of tanks above	...	...	...	1
Maximum flood discharge through do	...	...	...	110 c. ft.
Maximum flood discharge from supply channel	...	...	...	30 "
Total maximum discharge to be provided for...	...	...	...	265 "

SURPLUS ARRANGEMENTS.

	Height above Datum.	Length.	Maximum Discharge.	Surplus Arrangements.
	Feet.	Feet.	Cub. ft. per sec.	
Existing Bye wash at the right flank	100.00	150	300	
Total maximum discharge provided for	...	...	300	

The position of the mamul breach which may be opened in cases of emergency is at 250 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone in rear of bund right flank	...	...	97.96	
II.—B. M. on top of stone on bund, left flank...	...	...	113.32	
III.—B. M. on top of rock at northern side of the Varattar river near Muthusami Dafadar anicut	...	...	102.31	
Height of Datum above Mean Sea Level...	...	...	825.38	

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	272,000 sq. ft.	Details of Storage
Greatest width of do. from bund	...	...	360 ft.	
Class of bund corresponding to do.	...	...	Third Class.	
Approximate capacity of tank at F. S. L.	...	...	816,000 c. ft.	
Approximate annual storage at do.	...	...	2,448,000 "	

DETAILS OF IRRIGATION.

Ayacut area	...	...	21.77 acres.	Details of Irrigation.
Proposed ultimate area of irrigation	...	...	31.77 "	
Water stored per acre of do.	...	...	80,000 c. ft.	
Ultimate irrigation per sq. mile of catchment	...	...	"	

A longitudinal section of the bund is given on Plate VII.

The financial details of this work are shown in the statement at page 18.

Plans & Sections.**Financial Details.**

VARATTAR GROUP.
VARATTAR SUB-GROUP.
NO. 6, IRRIGATION WORK.

VARATTAR SPRING CHANNEL AND
GOVINDAMUDALI KULAM TANK.

General Description. This irrigation work includes a third class tank and the short channel from the Varattar which supplies it. The channel is about 600 feet long with a bottom width of 3 feet, and it should be maintained by the ryots. A sketch of the masonry dam at the head of the channel across the Varattar is given on Plate VII, Fig. 4.

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	...	...	95.66
	Maximum water level above do.	...	...	96.66
	Level of top of bund above do.	...	...	99.66

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	$\frac{1}{16}$ sq. mile.
	Maximum flood discharge from do.	...	...	78 c. ft.
	Number of tanks above	...	...	Nil.
	Maximum flood discharge through do.	...	...	Nil.
	Maximum flood discharge from supply channel	...	...	32 c. ft.
Total maximum discharge to be provided for 110 c. ft.				

SURPLUS ARRANGEMENTS.

Surplus Arrangements.	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. feet per sec.
Existing Byewash at the right flank	95.66	200	400
Total maximum discharge provided for			400

There is no mamul breach for this tank.

Bench Marks.

I.—B. M. on top of stone on bund right
flank... .. 100.57
Height of Datum above Mean Sea Level... 849.38

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	...	490,000 sq. ft.	Details of Storage
Greatest width of do from bund	...	...	650 ft.	
Class of bund corresponding to do.	...	...	Third class.	
Approximate capacity of tank at F.S.L.	...	...	980,000 c. ft.	
Approximate annual storage at do.	...	...	2,940,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	...	23.24 acres.	Details of Irrigation.
Proposed ultimate area of irrigation	...	...	26.43 acres.	
Water stored per acre of do.	...	...	111,000 c. ft.	
Ultimate irrigation per sq. mile of catchment	...	...	"	
Cill of existing irrigation sluice above datum	...	...	92.25	

A longitudinal section of the bund showing the position and cill level of the sluice is given on Plate VII. Plans & Sections.

The financial details of this work are shown in the statement at page 18. Financial Details

VARATTAR GROUP.
VARATTAR SUB-GROUP.
NO. 7, IRRIGATION WORK.

JEKKAMA REDDI URANI TANK.

This is a third class rain-fed tank. General Description.

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	...	...	101.00	Standard Levels.
Maximum water level above do.	...	...	102.00	
Level of top of bund above do.	...	...	105.00	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

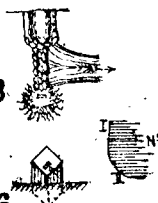
Area of free basin	...	...	$\frac{1}{20}$ sq. mile	Maximum Flood Discharges.
Maximum flood discharge from do.	...	...	68 c. ft.	
Number of tanks above	...	...	Nil	
Maximum flood discharge through do.	...	...	Nil	
Maximum flood discharge from supply channel	...	...	"	
Total maximum discharge to be provided for				68 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing bye-wash at left flank	101.00	35	70
Total maximum discharge provided for			70

Bench Marks.

I.—B. M. on top of rock at south of calingulah, right flank ...	102.58
II.—B. M. on top of stone on bund left flank... ..	104.76
Height of Datum above Mean Sea Level...	875.17



DETAILS OF STORAGE.

Details of Storage.	Area of waterspread at F.S.L. ...	245,000 sq. ft.
	Greatest width of do. from bund ...	300 ft.
	Class of bund corresponding to do. ...	Third class.
	Approximate capacity of tank at F.S.L. ...	490,000 c. ft.
	Approximate annual storage at do. ...	980,000 c. ft.

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	0.87 acres
	Proposed ultimate area of irrigation ...	3.86 acres
	Water stored per acre of do. ...	235,000 c. ft.
	Ultimate irrigation per sq. mile of catchment ...	"
	Cill of irrigation sluice above datum ...	83.20

Plans & Sections.

A longitudinal section of the bund is shown on Plate VII

Financial Details.

The financial details of this work are shown in the statement at page 20.

VARATTAR GROUP.

VARATTAR SUB-GROUP.

NO. 8, IRRIGATION WORK.

KULUVAIKULAM TANK.

General Description.

This is a third class rain-fed tank.

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 ...	99.00
	Maximum water level above do. ...	100.00
	Level of top of bund above do. ...	103.00

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin ...	1 sq. mile
	Maximum flood discharge from do ...	125 c. ft.
	Number of tanks above ...	1
	Maximum flood discharge through do ...	152 c. ft.
	Maximum flood discharge from supply channel ...	"
	Total maximum discharge to be provided for ...	277 c. ft.

SURPLUS ARRANGEMENTS.

Height above datum.	Length.	Maximum discharge.	Surplus Arrangements.
Feet.	Feet.	Cub. ft. per sec.	
Existing bye-wash at the right flank ...	99.00	200	400
Total maximum discharge provided for ...			400

The position of the mamul breach which may be opened in cases of emergency is at 900 ft. from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund, right flank... ..	101.18
II.—B. M. on do. do. left flank... ..	100.22
Height of Datum above Mean Sea Level...	888.13



DETAILS OF STORAGE.

Area of waterspread at F. S. L. ...	163,000 sq. ft.	Details of Storage
Greatest width of do. from bund ...	250 ft.	
Class of bund corresponding to do. ...	Third Class	
Approximate capacity of tank at F. S. L. ...	326,000 c. ft.	
Approximate annual storage at do. ...	652,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area ...	1.73 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation ...	1.73 acres.	
Water stored per acre of do. ...	370,000 c. ft.	
Ultimate Irrigation per. sq. mile of catchment ...	"	
Cill of Irrigation sluice above datum ...	13.84	

A longitudinal section of the bund is given on plate VII.

Plans & Sections.

The financial details of this work are shown in the statement at page 20.

VARATTAR GROUP.
VARATTAR SUB-GROUP.

NO. 9, IRRIGATION WORK.

MUDDIAKAVANDAN URANI TANK.

General Description. This is a third class rain-fed tank.

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	...	...	...	99.50
	Maximum water level above do.	...	...	...	100.50
	Level of top of bund above do.	...	...	...	103.50

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin	...	...	...	1/8 sq. mile.
	Maximum flood discharge from do.	...	...	...	152 c. ft.
	Number of tanks above	...	...	...	Nil
	Maximum flood discharge through do.	...	...	...	Nil
	Maximum flood discharge from supply channel	...	...	...	"
Total maximum discharge to be provided for...					152 c. ft.

SURPLUS ARRANGEMENTS.

Surplus Arrangements.	Height above datum	Length.	Maximum discharge.
			Cub. ft. per sec.
	Feet.	Feet.	
Existing bye-wash at the right flank	99.50	80	160
	Total maximum discharge provided for		160

The position of the mamul breach which may be opened in cases of emergency is at 420 feet from the right flank.

Bench Marks.

I.—B. M. on top of stone on bund left
flank... 102.15

Height of Datum above Mean Sea Level... 888.13

DETAILS OF STORAGE.

Area of waterspread at F. S. L.	...	...	490,000 sq. ft.	Details of Storage.
Greatest width of do. from bund	...	...	330 ft.	
Class of bund corresponding to do.	...	...	Third Class.	
Approximate capacity of tank at F. S. L.	...	...	980,000 c. ft.	
Approximate annual storage at do.	...	...	1,960,000 c. ft.	

DETAILS OF IRRIGATION.

Ayacut area	...	...	5.29 acres.	Details of Irrigation.
Proposed ultimate area of Irrigation	...	...	5.29 acres.	
Water stored per acre of do.	...	...	370,000 c. ft.	
Ultimate Irrigation per sq. mile of catchment	...	...	"	
Cill of Irrigation sluice above datum	...	...	31.74	

A longitudinal section of the bund is given on plate VII. Plans & Sections.

The financial details of this work are shown in the statement at page 20. Financial Details.

VARATTAR GROUP.
VARATTAR SUB-GROUP.
NO. 10, IRRIGATION WORK.

PUVILACHERIKULAM TANK.

This is a third class tank receiving its principal supply from the Varattar through a channel having its offtake at the foot of the hills. At the head of the channel large boulders have been arranged across the Varattar so as to form a suitable dam. The total length of the supply channel is 1 mile 4,800 ft. and its average bottom width is about 12 ft. General Description.

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	...	...	100.00	Standard Levels.
Maximum water level above do...	...	...	101.50	
Level of top of bund above do...	...	...	104.50	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Area of free basin	...	...	1 1/8 sq. miles.	Maximum Flood Discharges.
Maximum flood discharge from do.	...	...	684 c. ft.	
Number of tanks above	...	...	Nil.	
Maximum flood discharge through do.	...	...	Nil.	
Maximum flood discharge from supply channel	...	...	173 c. ft.	
Total maximum discharge to be provided for				820

SURPLUS ARRANGEMENTS.

Surplus Arrangements.

No. 1 weir 200 ft. from the right flank effective at ...	...
Thamboghy in do. do. do. ...	...
No. 2 weir at the left flank effective at ...	...
Thamboghy in do. do. do. ...	...
Proposed bye-wash at the right flank ...	...

Height above datum.	Length.	Maximum Discharge.
Feet.	Feet.	Cub. ft. per sec.
100.00	12.75	70
97.00	6.00	172
98.67	7.00	109
95.47	3.00	132
100.00	100.00	367
Total maximum discharge provided for ...		850

Bench Marks

- I.—B. M. on top of upright stone of calingulah close to east wing, right flank...
 II.—B. M. on top of stone in rear of bund at 1st sluice ...
 III.—B. M. on top of upright stone of calingulah close to east wing, left flank...

103.01

101.06

100.96

Height of Datum above Mean Sea Level... 917.28

DETAILS OF STORAGE.

Details of Storage

Area of waterspread at F. S. L. ...	1,824,000 sq. ft.
Greatest width of do from bund ...	750 ft.
Class of bund corresponding to do. ...	Third class.
Approximate capacity of tank at F. S. L. ...	5,960,000 c. ft.
Approximate annual storage at do. ...	17,880,000 „

DETAILS OF IRRIGATION.

Details of Irrigation.

Ayacut area ...	118.93 acres.
Proposed ultimate area of Irrigation ...	112.13 „
Water stored per acre of do. ...	150,000 c. ft.
Ultimate Irrigation per sq. mile of catchment ...	„
Cill of existing Irrigation sluice No. 1 above datum	86.48
Do. do. do. No. 2 do. ...	88.25

Plans & Sections.

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate VII.

Financial Details.

The financial details of this work are shown in the statement at page

VARATTAR GROUP.

VARATTAR SUB-GROUP.

NO. 11, IRRIGATION WORK.

VARATTAR CHANNEL.

This is the third channel receiving its supply from the Varattar, General, but the first under which there is direct Irrigation.

The length of the channel is approximately 4,200 ft.; and the total wet cultivation supplied by it amounts to 63.77 acres. There is no masonry work at the head of the channel, but the ryots place an earthen koramboos across the Varattar for the purpose of increasing the supply to the channel and this is all that is required.

The only masonry work along the channel is an outlet, near its head formed of loose rough stone (*vide* sketch Plate VII, Fig. 7).

VARATTAR GROUP.

VARATTAR SUB-GROUP.

NO. 12, IRRIGATION WORK.

SIVANANDI TEVAN ANICUT CHANNEL AND KANNIMARKULAM TANK.

This irrigation work includes a third class tank and the channel General, from the Varattar which supplies it. The channel is the last off-take from the Varattar, and its length from the anicut to the Kannimarkulam tank is 2,000 feet. A sketch of the anicut which is constructed across the Varattar and Seekoadai at the point of their junction is given on Plate VII, Fig. 8. A large and deep breach having recently occurred in the earthen bank at the left flank of the anicut, a wing wall has been constructed to this end of the anicut.

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 ...	102.00	Standard Levels.
Maximum water level above do. ...	103.50	
Level of top of bund above do. ...	106.50	

MAXIMUM FLOOD DISCHARGES PROVIDED FOR.

Maximum Flood Discharges.	Area of free basin ...	1 1/4 sq. miles.
	Maximum flood discharge from do. ...	580 c. ft.
	Number of tanks above ...	Nil.
	Maximum flood discharge through do. ...	Nil.
	Maximum flood discharge from supply channel ...	40 c. ft.
	Total maximum discharge to be provided for ...	620 "

SURPLUS ARRANGEMENTS.**Surplus Arrangements.**

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Proposed weir at the left flank ...	102.00	75	636
Total maximum discharge provided for ...			636

The position of the mamul breach which may be opened in case of emergency is at 1,800 ft. from the anicut:—

Bench Marks.

I.—B. M. on crest of Sivanandi Thevan anicut close to the north wing, right flank ...	100.00	
II.—B. M. on top of stone in rear of bund at the northern end of 1st tank ...	99.81	
III.—B. M. on top of stone in rear of bund at the 1st sluice ...	102.34	
IV.—B. M. on top of 1st step of north wing of calingulah, left flank ...	101.76	
Height of Datum above Mean Sea Level...	782.72	

DETAILS OF STORAGE.

Details of Storage	Area of waterspread at F. S. L. ...	408,000 sq. ft.
	Greatest width of do. from bund ...	330 ft.
	Class of bund corresponding to do. ...	Third class.
	Approximate capacity of tank at F. S. L. ...	1,624,000 c. ft.
	Approximate annual storage at do. ...	4,872,000 "

DETAILS OF IRRIGATION.

Details of Irrigation.	Ayacut area ...	29.53 acres.
	Proposed ultimate area of Irrigation... do. ...	51.44 "
	Water stored per acre of do. ...	95,000 c. ft.
	Ultimate Irrigation per sq. mile of catchment ...	"
	Cill of existing Irrigation sluice above datum ...	{ 94.67 93.58

Plans & Sections.

Sketches of the masonry works as well as a longitudinal section of the bund are given on Plate VII.

Financial Details.

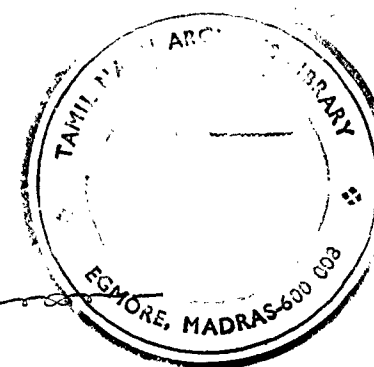
The financial details of this work are shown in the statement at page 20.

VARATTAR GROUP.**VARATTAR SUB-GROUP.****NO. 13, IRRIGATION WORK.****VANNARARAMAN ANICUT CHANNEL.**

The anicut at the head of this channel having been washed General away, the work has been abandoned, and the ultimate extent (0.58 acres) of irrigation under it, has been brought under No. 12 Irrigation work.

(Signed) C. J. USSHER,
Officer in charge of
No. 1, TANK DIVISION.

(Signed) S. MAHADEVA IYER,
Officer in charge,
PERIYAKULAM TANK SUB-DIVISION



D2. 21195

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