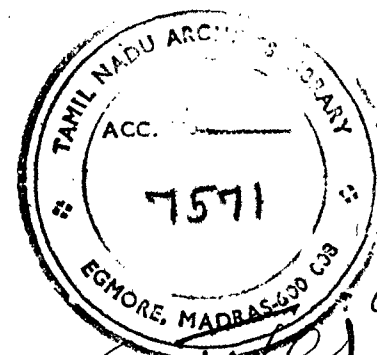




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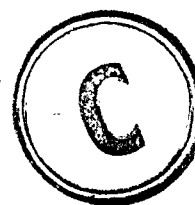
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DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS

IN THE

SATYAMANGALAM MINOR BASIN



OF THE

BHAVANI RIVER BASIN.

THE Satyamangalam minor basin, a sub-division of the Bhavani river basin, is called after the town of that name situated in it. It lies partly in the Satyamangalam taluk and partly in the Bhavani taluk, Coimbatore district, and covers an area of 384 square miles : comprising all that portion of the country which drains into the Bhavani on its left bank, between its junction with the Cauvery river on the east and the junction of the Maiyar river with the Bhavani on the west.

Position and the extent of the Minor Basin.

The principal source of supply to the irrigation works in this minor basin, besides the local rainfall, is a jungle stream rising in the Bargur hills in Bhavani taluk.

Source of supply.

The average rainfall at Satyamangalam and Bhavani, as registered by the Revenue Department during the ten years 1874 to 1883, is 25.81 and 28.54 inches, respectively.

Rainfall.

The formula $D = c.m.^{\frac{2}{3}} - c.m.^{\frac{2}{3}}$ has been adopted for calculating the discharges from the catchment areas within the minor basin, the value of C (as a working co-efficient) being taken at 300, and that of c at 60 for the area of basins of upper tanks which operate as moderators of flood discharges.

Maximum flood discharge.

In this minor basin there are 10 different irrigation works (two of which have not been investigated, one being a private work and the other a work for which a continuous record of expenditure is kept), having a total irrigable ayacut of 1,384 acres. These works have been grouped for professional treatment as shown on the group irrigation map, plate I, and their financial details are given in the following statement in the order of grouping.

Grouping and financial details of irrigation works.

The capacities of the tanks as given in the memoirs are only approximate.

Statement of financial details of the Irrigation Works

GROUPING FOR PROFESSIONAL TREATMENT.										
Group.	Sub-group.	Number in group or of isolated work.	Name and description of irrigation work.	Number in District Irrigation register.	Items of irrigation, whether Government, Zemindari or Inam.	Total irrigable ayacut.	Full assessment on land and water.	First crop.		
1	2	3	4	5	6	7	8	Extent.	Land.	Water.
Appakudal Tank.	Appakudal Tank.	1	Appakudal tank ..	.. {	Government .. Inam ..	ACRES. 56 1	RS. 349 9	ACRES. 54 1	RS. 69 ..	RS. 196 1
					Total ..	57	358	55	69	197
		2	Vembatti tank and channel.	.. {	Government .. Inam ..	180 9	1,103 64	166 9	202 1	607 2
					Total ..	189	1,167	175	203	609
		3	Brimmathesam tank ..	.. {	Government .. Inam ..	119 8	727 57	104 9	128 1	383 3
					Total ..	127	784	113	129	386
		4	Anthiyur tank ..	.. {	Government .. Inam ..	415 21	2,792 168	375 21	514 6	1,531 13
					Total ..	436	2,960	396	520	1,544
		5	Gettisamudram tank ..	.. {	Government .. Inam ..	224 6	1,566 35	240 6	307 4	922 26
					Total ..	230	1,601	246	311	948
		6	Ennamangalam tank ..	.. {	Government .. Inam ..	113 1	842 3	113 1	146 ..	619 3
					Total ..	114	845	114	146	622
		7	Rajankulam ..	..	The restoration of this work has been deferred until the result of					
Isolated.	I	I	Andikulam ..	.. {	Government .. Inam ..	61 2	328 16	61 2	65 .3	197 9
					Total ..	63	344	63	68	206
	II III	II III	Nagalur tank .. Arakankottai channel.	.. ..	Private work. This being a work for which a continuous record of expenditure					
Grand Total ..						1,216	8,059	1,162	1,446	4,512

in the Satyamangalam Minor Basin—(continued on next page from Col. 22).

AVERAGE CULTIVATION DURING THE FIVE YEARS, 1884 TO 1888—(continued).

Second crop.		Gross assessment.			Deductions and remissions.				
Extent.	Water-rate.	Land.	Water 11 + 13.	Total 14 + 15.	Fixed.	Temporary.	Occasional.		Total.
12	13	14	15	16	17	18	Extent.	Amount.	21
ACRES.	RS.	RS.	RS.	RS.	RS.	RS.	ACRES.	RS.	RS.
49 1	61 1	69 ..	257 2	326 2	.. ..	.. ..	.. ..	.. ..	.. ..
50	62	69	259	328	..	..	..	..	..
166 9	202 2	202 1	809 4	1,011 5	.. ..	.. ..	114 ..	812 ..	812 ..
175	204	203	813	1,016	..	..	114	812	812
104 9	127 2	128 1	610 5	638 6	.. ..	.. ..	11 ..	63 ..	63 ..
113	129	129	515	644	..	..	11	63	63
375 21	512 10	514 6	2,043 23	2,557 29	.. ..	.. ..	10 ..	45 ..	45 ..
396	522	520	2,066	2,586	..	..	10	45	45
239 6	307 4	307 4	1,229 30	1,536 34	.. ..	.. ..	136 ..	780 ..	780 ..
245	311	311	1,259	1,570	..	..	136	780	780
57 ..	77 ..	146 ..	696 3	842 3	.. ..	.. ..	83 ..	531 ..	531 ..
57	77	146	699	845	..	..	83	531	531

the repairs to the Gettisamudram tank is known—*vide* report, page 15.

61 2	66 3	65 3	263 12	328 15	.. ..	.. ..	22 ..	114 ..	114 ..
63	69	68	275	343	..	..	22	114	114

is kept, it was not investigated by the Tank Restoration Scheme.

1,099	1,374	1,446	5,886	7,332	..	..	376	2,345	2,345
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DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS,

Statement of financial details of the Irrigation

GROUPING FOR PROFESSIONAL TREATMENT.				Items of irrigation, whether Government, Zemindari or Inam.	AVERAGE CULTIVATION DURING THE FIVE YEARS, 1884 to 1888.		PROPOSED		
Group.	Sub-group.	Number in group or of isolated work.	Name and description of irrigation work.	Number in District Irrigation register.	Net revenue due to irrigation including working expenses, 18-21.	Do. per acre irrigated, 22-9.	Increase over present extent of irrigation, column 9.	Land unfit for cultivation.	Ultimate extent of irrigation.
					22	23	24	25	26
Appakudal Tank.	Appakudal Tank.	1	Appakudal tank ..	{ Government .. Inam ..	RS. 326 2	RS. 6 2	ACRES. 2 ..	ACRES.	ACRES. 56 1
			Total ..		328	5.9	2	..	57
		2	Vembatti tank and channel ..	{ Government .. Inam ..	199 5	1.2 .55	61 ..	..	227 9
			Total ..		204	1.16	61	..	236
		3	Brimmathesam tank.	{ Government .. Inam ..	575 6	5.53 .66	15 ..	..	119 9
			Total ..		581	5.15	15	..	128
		4	Anthiyur tank ..	{ Government .. Inam ..	2,512 29	6.7 1.38	40 ..	..	415 21
			Total ..		2,541	6.41	40	..	436
	Isolated.	5	Gettisamudram tank.	{ Government .. Inam ..	756 34	3.15 5.6	4 ..	..	244 6
			Total ..		790	3.21	4	..	250
		6	Ennamangalam tank.	{ Government .. Inam ..	311 3	2.75 3	100 ..	..	213 1
			Total ..		314	2.75	100	..	214
		7	Rajankulam ..	..	The restoration of this work has been deferred until the result of				
Isolated.	I	Andikulam ..	{ Government .. Inam ..		214 15	3.5 7.5	.. ..	.. ..	61 2
		Total ..			229	3.63	..	..	63
	II III	Nagal6r tank Arakankottai channel.	..	Private work. This being a work for which a continuous record of expenditure					
			..	Grand Total ..	4,987	4.3	222	..	1,384

SATYAMANGALAM MINOR BASIN.

Works in the Satyamangalam Minor Basin.

CULTIVATION.				ESTIMATED OUTLAY TO SECURE STANDARD OF EFFICIENCY.					Remarks.
Expected net revenue from do. including working expenses.			of increase revenue 29—22.	Original works.	Repairs.	Total.	Outlay percentage on ulti- mate Net Revenue $33 \times 100 \div 29$.	Expected increase of Revenue, percentage of outlay $30 \times 100 \div 33$.	
Land.	Water.	Total.							
27	28	29	30	31	32	33	34	35	
RS. 69 ..	RS. 266 2	RS. 335 2	RS. 9 0	RS.	RS.	RS.	PER CENT.	PER CENT.	
69	268	337	9	708	150	858	254.6	1.05	
202 1	1,102 4	1,304 5	1,105 ..	.. ..	.. ..	.. ..	.. ..	.. ..	
203	1,106	1,309	1,105	8,484	..	8,484	648.1	13	
128 1	584 5	712 6	137 0	.. ..	.. ..	.. ..	.. ..	.. ..	
129	589	718	137	2,210	514	2,724	379.3	5	
514 6	2,259 23	2,773 29	261 ..	.. ..	.. ..	.. ..	.. ..	.. ..	
520	2,282	2,802	261	6,326	..	6,326	225.7	4.1	
307 4	1,249 30	1,556 34	800 ..	.. ..	.. ..	.. ..	.. ..	.. ..	
311	1,279	1,590	800	4,017	..	4,017	252	19.9	
146 ..	1,306 3	1,452 3	1,141 ..	.. ..	.. ..	.. ..	.. ..	.. ..	
146	1,309	1,455	1,141	..	38	38	2.6	3002.6	

the repairs to the Gettisamudram tank is known—vide report, page 15.

65	263	328	114	..	..	..	..	..
3	12	15	..	..	..	..	..	..
68	275	343	114	..	114	114	33.2	100

is kept, it was not investigated by the Tank Restoration Scheme.

1,446	7,108	8,554	3,567	21,745	816	22,561	263.8	15.8
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(Signed) J. H. TREMENHEERE, Ag. Collector, Coimbatore. (Signed) C. H. T. NORFOR, Executive Engineer, No. IV Party, Tank Restoration Scheme.

APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. 1, IRRIGATION WORK.

APPAKUDAL TANK.

PLATE II.

THIS tank, situated about a mile north of Appakudal village in Bhavani taluk, is the terminal tank of the group of the same name. It receives the surplus of 6 upper tanks through a jungle stream which drains into it, and surpluses into the Bhavani river. The tank has three roughstone escapes and two natural byewashes, affording an aggregate length of escape of 361 feet. Escape No. 1 at the left flank is in good order. Escape No. 2 will be provided with a masonry skin wall in front at F.T.L. to prevent its leaking. The pavement of escape No. 3 at the right flank being out of order, the work will be removed and replaced by a weir, 100 feet long. The natural byewash over a rocky bed at the left end of the bund being uneven and below F.T.L., will be brought up to that level by a wall of roughstone in mortar, and the end of the bund at it will be revetted. The soil at the natural escape at the right flank of the bund being loose, the site will be paved with roughstone, 6 feet $\times$ $1\frac{1}{2}$ feet, and the end of the bund at it revetted. There are two masonry sluices in the tank. Sluice No. 1 is in good order. Sluice No. 2 requires sundry repairs, provision for which is made in the estimate. The bund is in fair order and sufficiently high throughout except in places where it will be raised to 3 feet above M.W.L., with a top width of 4 feet and slopes $1\frac{1}{2}$ to 1. The existing revetment is in fair order, requiring but slight repairs in places.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	...	63.50 feet.
Maximum water-level	dq.	...	...	65.60 „
Level of top of bund	do.	...	...	68.60 „

BENCH MARKS.

I.—B.M. on crest of escape No. 1 at left flank	...	63.50 feet.
II.—B.M. on demarcation stone at 2,100 feet from the left flank	...	68.81 „
III.—B.M. on demarcation stone near byewash at right flank	...	69.55 „

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficients for maximum discharge in formula

$D = CM^{\frac{2}{3}} - c. m^{\frac{2}{3}}$	...	...	...	$C = 300$; $C = 60$.
Area of free basin	...	...	...	16.50 sq. miles.
Number of tanks above	...	...	...	6.
Combined catchment area	...	...	...	49.40 sq. miles.
Maximum flood discharge from combined catchment area	...	...	...	3,422 cub. ft. per sec.
Do. do. from supply channel	...	...	...	Nil.
Total do. to be provided for	...	...	...	3,422 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	C. ft. per sec.
Existing escape No. 1 at left flank, effective at	63.50	84	2,614
Do. do. 2 from do. do.		67	
Proposed weir in place of existing ruined escape No. 3 at left flank, effective at		130	
Existing byewash at right flank with proposed improvements. Do. at left flank with do. do.		50	842
(Vide plate II, figs. 1 to 3 and plate III, figs. 1 and 2).		60	
Total maximum discharge provided for	..	..	3,456

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	5.50 mills. sq. ft.
Greatest width of do. do. from bund	2,200 feet.
Class of bund	3rd class.
Capacity of tank at F.S.L.	16.50 mills. cub. ft.
Total annual storage	49.50 ,, ,,

DETAILS OF IRRIGATION.

Ayacut area	57 acres.
Average cultivation during the past 5 years	55 ,,
Proposed ultimate area of irrigation	57 ,,
Water stored per acre of do.	86 mill. cub. ft.
Ultimate irrigation per square mile of free catchment	3.4 acres.
Level of sill of sluice No. 1, existing above datum. Do. do. ,, 2 do. do.	53.88 feet. 53.99 ,,

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. 2, IRRIGATION WORK.

SEMBATTI TANK AND CHANNEL.

PLATE II.

THIS tank is situated about a quarter of a mile north-east of Vembatti village in Bhavani taluk. In addition to the drainage from its free catchment basin, it receives a supply by a channel from a jungle stream (which finally drains into No. 1, Appakudal tank) across which a dam (formed of a bund with revetted faces) exists to divert the supply. This dam having been breached and partly washed away in 1877-78, the tank since then has had but a scanty supply. It is proposed to replace the dam by a masonry anicut, 100 feet long; with a sand-sluice, 6 feet $\times$ 3 feet at each end, and to build a head-sluice of two vents, each 6½ feet $\times$ 3 feet, to regulate the supply to the tank (vide plate II, fig. 4).

General description.

Channel.

The channel, 5,400 feet long, has no direct irrigation under it being intended only to supply the Vembatti tank. It will be cleared to a bottom width of $10\frac{1}{2}$ feet, side slopes $1\frac{1}{2}$ to 1, depth 3 feet and fall 6 feet in 5,000, to discharge 128 cubic feet per second so as to fill in the tank having a capacity of 33 millions cubic feet in about 3 days. The top of bank will be 3 feet above M.W.L. with a top width of 4 feet and slopes $1\frac{1}{2}$ to 1.

Masonry works
in the channel.

There is an old loose roughstone escape, 107 feet long, in the right bank of the channel at about 900 feet from the head which being unsafe to use as a surplus work will be closed by a masonry wall being built on it to 1 foot above M.W.L.

Tank.

The tank has two roughstone escapes, 42 feet and 91 feet long, at the right and left flank, respectively, and a natural byewash at the left end of the bund. The stones in the apron of the escape at the right flank being displaced will be repacked, and masonry wings will be provided at the ends. The escape at the left flank will be provided with a masonry skin wall in front and wings at the ends. The natural byewash at the left end of the bund will be closed as it is not required. The tank has three sluices. Sluices Nos. 1 and 3 are in fair order, requiring but petty repairs, provision for which is made in the estimate. Sluice No. 2 will be provided with a new head to facilitate regulation. The bund will be raised to 3 feet above M.W.L. with a top width of 4 feet and slopes $1\frac{1}{2}$ to 1. The revetment, where low, will be raised to 1 foot above M.W.L.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	...	57.50 feet.
Maximum water-level do.	...	...	...	58.50 "
Level of top of bund do.	...	...	...	61.50 "

BENCH MARKS.

I.—B.M. on demarcation stone near left flank	...	59.37 feet.
II.—B.M. on plugstone of sluice No. 1	...	50.30 "
III.—B.M. do. do. No. 3	...	45.52 "

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficient for maximum discharge in formula				
$D = CM^{\frac{2}{3}}$	...	...	...	$C = 300.$
Area of free basin	...	...	...	1.20 sq. miles.
Number of tanks above	...	...	...	<i>Nil.</i>
Combined catchment area	...	...	...	1.20 sq. miles.
Maximum flood discharge from combined catch-	...	...	...	...
ment area	...	...	...	339 cub. ft. per sec.
Do.	do.	from supply channel (under regulation).	...	...
Total	do.	to be provided for	...	339 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing surplus escape at right flank, effective at..	57.50	42	} 355
Do. do. at left flank do. ..	57.50	91	
(Vide plate II, figs. 5 and 6).			
Total maximum discharge provided for ..	..	..	355

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	...	...	8.30 mills. sq. ft.
Greatest width of do. from bund	...	...	...	2,770 feet.
Class of bund	...	...	...	3rd class.
Capacity of tank at F.S.L.	...	...	...	33.20 mills. cub. ft.
Total annual storage	...	...	...	99.60 " "

DETAILS OF IRRIGATION.

Ayacut area	...	...	...	189 acres.
Average cultivation during the past 5 years	...	...	...	175 "
Proposed ultimate area of irrigation	...	...	...	236 "
Water stored per acre of do.	...	...	...	.42 mill. cub. ft.
Ultimate irrigation per square mile of free catchment	...	...	...	196.6 acres.
Level of sill of sluice No. 1, existing above datum.	...	...	...	47.70 feet.
Do. do. 2 do. do.	...	...	...	41.70 "
Do. do. 3 do. do.	...	...	...	42.92 "

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. 3, IRRIGATION WORK.

BRIMMATHESAM TANK.

PLATE II.

THIS tank is situated about half a mile east of Brimmathesam village in Bhavani taluk. It receives the surplus of four upper tanks and surpluses into a jungle stream which drains into No. 1, Appakudal tank. The tank has two roughstone escapes, 60 feet and 220 feet long, and a natural escape. Escape No. 1 at the left flank will be provided with a masonry skin wall in front and masonry wings. Escape No. 2 at the right flank, being entirely out of order, will be removed and replaced by a weir, 331 feet long, to discharge the whole of the surplus of the tank. The natural escape at the left flank end of the bund will be closed as the water from it damages the cultivation. The tank has two masonry sluices. Sluice No. 1 from the left flank is in good order. Sluice No. 2, being damaged beyond repairs, will be replaced by a new one. The bund will be raised to 3 feet above M.W.L., with a top width of 4 feet and slopes 1½ to 1.

General description.

An anicut and channel from a jungle stream formerly afforded a small supply to the tank, but they have long been out of order, and not being required by the ryots, will not be restored.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	...	59.50 feet.
Maximum water-level do.	...	...	...	61.00 "
Level of top of bund do.	...	...	...	64.00 "

BENCH MARK.

On head wall of sluice, No. 2	...	...	...	55.40 feet.
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DESCRIPTIVE MEMOIRS OF IRRIGATION WORKS,

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficients for maximum discharge in formula

$D = CM^{\frac{2}{3}} - c.m^{\frac{2}{3}}$	...	...	...	$C = 300 ; C = 60$
Area of free basin	...	...	...	4.60 sq. miles.
Number of tanks above	...	...	...	4
Combined catchment area	...	...	...	31.70 sq. miles.
Maximum flood discharge from combined catchment area	...	...	...	2,462 cub. ft. per sec.
Do.	do.	from supply channel...	...	Nil.
Total	do.	to be provided for	...	2,462 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	C. ft. per sec.
Existing surplus escape at left flank, effective at	59.50	60	2,463
Proposed surplus weir at right flank (in place of the damaged one) effective at	59.50	331	
(Vide plate III, figs. 4 and 5.)	..	..	2,463
Total maximum discharge provided for ..	..	..	2,463

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	...	5.50 mills. sq. ft.
Greatest width of do. from bund	...	...	2,900 feet.
Class of bund	...	...	3rd class.
Capacity of tank at F.S.L.	...	...	16.50 mills. cub. ft.
Total annual storage	...	...	33.00 „ „

DETAILS OF IRRIGATION.

Ayacut area	...	...	127 acres.
Average cultivation during the past five years	...	...	113 „
Proposed ultimate area of irrigation	...	...	128 „
Water stored per acre of do.	...	...	.26 mill. cub. ft.
Ultimate irrigation per square mile of free catchment	...	...	28 acres.
Level of sill of proposed sluice above datum (vide plate III, fig. 3)	...	...	47.38 feet.
Do. of existing sluice above datum	...	...	52.87 „

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. 4, IRRIGATION WORK.

ANTHIYUR TANK.

PLATE II.

General description.

THIS tank is situated about a quarter of a mile north-east of Anthiyur village in Bhavani taluk. It receives the surplus of three upper tanks and surpluses into No. 3, Brimmathesam tank. The tank has three escapes of the aggregate length of 351 feet. The body wall of escape No. 1 at the left flank, being in disorder, will be dismantled to ground level and rebuilt; a wing wall will also be provided at its right flank. The crest of escape No. 2, not being uniformly at F.T.L., will be raised accordingly and a wing will be added at the left flank



of the work. Escape No. 3 at the right flank needs to have the top layers of its body wall rebuilt in mortar, and the apron repacked. There are three masonry sluices in the tank. Sluice No. 1 from the left flank will be provided with a new head to facilitate regulation. Sluice No. 2, being damaged beyond repairs, will be replaced by a new one. Sluice No. 3 is in good order, requiring but petty repairs, provision for which is made in the estimate. The bund will be raised to 5 feet above M.W.L. in the centre and to 4 feet at the ends with a top width of 4½ feet throughout and slopes 1½ to 1.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	52.00 feet.
Maximum water-level do.	...	...	53.50 "
Level of top of bund do.	...	...	58.50 "

BENCH MARK.

On demarcation stone at the left flank	...	...	54.58
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MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficients for maximum discharge in formula

$D = CM^{\frac{2}{3}} - c.m.^{\frac{2}{3}}$	...	...	...	$C = 300 ; C = 60.$
Area of free basin	...	...	...	17.00 sq. miles.
Number of tanks above	...	...	...	3
Combined catchment area	...	...	...	27.10 sq. miles.
Maximum flood discharge from combined catchment area	...	...	...	2,430 cub. ft. per sec.
Do. do. from supply channel	...	...	...	Nil.
Total do. to be provided for	...	...	...	2,430 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing escape No. 1 at left flank, effective at ..	52.00	119	} 2,450
Do. „ 2 at the centre of bund, effective at ..	52.00	150	
Do. „ 3 at the right flank, effective at ..	52.00	82	
(Vide plate IV, figs. 1, 2 and 3.)			
Total maximum discharge provided for ..	..	..	2,450

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	...	8.36 mills. sq. ft.
Greatest width of do. from bund	...	...	3,400 feet.
Class of bund	...	...	2nd class.
Capacity of tank at F.S.L.	...	...	41.80 mills. cub. ft.
Total annual storage	...	...	125.40 „ „

DETAILS OF IRRIGATION.

Ayacut area	...	...	436 acres.
Average cultivation during the past five years	...	...	396 „
Proposed ultimate area of irrigation	...	...	436 „
Water stored per acre of do.	...	...	28 mill. cub. ft.
Ultimate irrigation per square mile of free catchment	...	...	25.6 acres.
Level of sill of sluice No. 1, existing, above datum.	...	...	32.62 feet.
Do. do. „ 2, proposed do.	...	...	34.50 „
(Vide plate III, fig 6).			
Level of sill of sluice No. 3, existing do.	...	...	40.85 „

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. 5, IRRIGATION WORK.

GETTISAMUDRAM TANK.

PLATE II.

General
description.

THIS tank is situated about 2 miles north of Anthiyur village in Bhavani taluk. In addition to the drainage from its free basin, it receives the right flank surplus of No. 6, Ennamangalam tank, and surpluses partly into No. 4, Anthiyur tank, and partly into No. 7, Rajankulam tank. The tank has 4 roughstone escapes of the aggregate length of 211 feet. Escape No. 1, 31 feet long, at the left flank is usually bunded across to about $1\frac{1}{4}$ feet above M.W.L. by the ryots to save their cultivation in rear; it is not, however, proposed to close it permanently as it may be useful on emergency, and the present arrangement will therefore be allowed to continue. The other three escapes affording 180 feet of water-way are in good order and capable of discharging the whole surplus, except 300 cubic feet per second, for which a weir, 100 feet long, will be provided in the right bank of the drainage channel at the site where breaches constantly occur. The tank is provided with two sluices. Sluice No. 1 will be provided with a new head to facilitate regulation. Sluice No. 2 is in good order. The bund will be raised to 4 feet above M.W.L. throughout with a top width of 4 feet and slopes $1\frac{1}{2}$ to 1, except the portion that carries a road-way, where the top width will be 18 feet.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level	above datum	...	...	...	63.50 feet.
Maximum water level	do.	...	...	...	64.70 "
Level of top of bund	do.	...	...	...	68.70 "

BENCH MARKS.

I.—B.M. on west wing of escape No. 1 at left flank	66.51 feet.
II.—B.M. on demarcation stone near escape No. 4 at right flank	69.53 "

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficients for maximum discharge in formula

$D = CM^{\frac{2}{3}} - \text{c.m.}^{\frac{2}{3}}$	...	...	...	...	$C = 300; C = 60.$
Area of free basin	...	...	...	...	2.40 sq. miles.
Number of tanks above	...	...	...	...	1
Combined catchment area omitting that portion from which the drainage is allowed to pass into the Sittar through upper tank	...	...	...	...	9.40 sq. miles.
Maximum flood discharge from combined catchment area	...	...	...	...	1,113 cub. ft. per sec.
Do. do. from supply channel.	...	...	...	...	Nil.
Total do. to be provided for	...	...	...	...	1,113 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing escape No. 1 at left flank (not taken into account) ..			
Do. roughstone escape No. 2 from left flank, effective at.	63.50	54	813
Do. do. „ 3 do.	63.50	55	
Do. do. „ 4 do.	63.50	71	
Proposed weir in the right bank of the drainage channel .. (Vide plate III, figs. 7 to 11.)	..	100	300
Total maximum discharge provided for ..	..	..	1,113

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	2.70	mills. sq. ft.
Greatest width of do. from bund ...	1,320	feet.
Class of bund ...	2nd	class.
Capacity of tank at F.S.L.	10.80	mills. cub. ft.
Total annual storage ...	54.00	„ „

DETAILS OF IRRIGATION.

Ayacut area	230	acres.
Average cultivation during the past 5 years ...	246	„
Proposed ultimate area of irrigation ...	250	„
Water stored per acre of do. ...	21	mill. cub. ft.
Ultimate irrigation per square mile of free catchment.	10.4	acres.
Level of sill of sluice No. 1, existing above datum.	45.90	feet.
Do. „ 2 do. do. ...	50.38	„

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. 6, IRRIGATION WORK.

ENNAMANGALAM TANK.

PLATE II.

THIS tank, the uppermost in the group, is situated immediately west of Ennamangalam village in Bhavani taluk, Coimbatore district. It receives its supply from the Bargur hills, and surpluses partly into the Sittar river at its left flank, and partly into a jungle stream (draining into No. 5, Gettisamudram tank) at its right flank. The tank has two weirs, 90 feet and 150 feet long, at the right and left flank, respectively, the crest of the latter being very slightly above that of the former at F.T.L. The weirs are adequate and in fair order, requiring but petty repairs, provision for which is made in the estimate. There are two masonry sluices in the tank; they are in good order and answer their purpose. The bund is strong and sufficiently high and needs nothing to be done to it.

General
description.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	...	55.30 feet.
Maximum water-level	do.	...	...	57.00 „
Level of top of bund	do.	...	...	61.50 „

BENCH MARKS.

I.—B.M. on rock at right flank	...	...	73.50 feet.
II.—B.M. on demarcation stone at left flank	...	...	62.07 „

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficient for maximum discharge in formula

$D = CM^{\frac{2}{3}}$	...	...	...	C = 300.
Area of free basin	...	...	...	14.50 sq. miles.
Number of tanks above	...	...	...	Nil.
Combined catchment area	...	...	...	14.50 sq. miles.
Maximum flood discharge from combined catchment area	...	...	...	1,782 cub. ft. per sec.
Do. do. from supply channel.	...	...	...	Nil.
Total do. to be provided for	...	...	...	1,782 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cub. ft. per sec.
Existing surplus weir at right flank, effective at	55.30	90	1,782
Do. do. at left flank do. (Vide plate III, figs. 12 and 13).	55.43	150	
Total maximum discharge provided for ..	..	..	1,782

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	...	8.30 mills. sq. ft.
Greatest width of do. do. from bund	...	...	2,860 feet.
Class of bund	...	...	2nd class.
Capacity of tank at F.S.L.	...	...	25.00 mills. cub. ft.
Total annual storage	...	...	50.00 „ „

DETAILS OF IRRIGATION.

Ayacut area	...	...	114 acres.
Average cultivation during the past 5 years	...	...	114 „
Proposed ultimate area of irrigation	...	...	214 „
Water stored per acre of do.	...	...	28 mill. cub. ft.
Ultimate irrigation per square mile of free catchment	...	...	14.7 acres.
Level of sill of sluice No. 1, existing above datum.	...	...	43.81 feet.
Do. do. „ 2 do. do.	...	...	43.81 „

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

APPAKUDAL TANK GROUP.

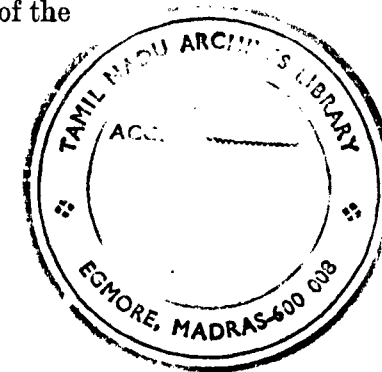
Appakudal Tank Sub-Group.

NO. 7, RAJANKULAM TANK.

PLATE II.

THIS tank is situated about 2 miles north-east of Anthiyur village in Bhaváni taluk, Coimbatore district. In addition to the drainage from its free catchment basin of 0.7 square mile, it receives the left flank surplus of No. 5, Gettisamudram tank, and surpluses into No. 4, Anthiyur tank. It has a masonry escape, 37 feet long, at the left flank and an irrigation sluice. The escape is inadequate and the sluice unserviceable, being blocked up. The bund is low and the revetment needs repacking. The area of cultivation under the tank, about 86 acres, is included in the ayacut of the Gettisamudram tank ; no separate financial account being kept for it in the Revenue Department.

An estimate of Rs. 2,290 for repairing this long neglected tank was prepared by the Tank Restoration Scheme, but it was not sanctioned, as the Executive Engineer of the Coimbatore division was of opinion that the bed of the tank, as also the cultivation under it, could be irrigated by the Gettisamudram tank and that, therefore, the subject of the restoration of the work should be postponed until the result of the repairs to the Gettisamudram tank was known.



APPAKUDAL TANK GROUP.

Appakudal Tank Sub-Group.

No. I, IRRIGATION WORK.

ANDIKULAM (Isolated).

PLATE IV.

THIS isolated, rainfed tank lies about 2 miles north-west of Bhaváni and east of the road from that place to Anthiyur. It surpluses into the Bhaváni river. The tank has a weir, 95 feet long, at the right flank, and a masonry sluice. These works are in good order and answer their purpose. The bund will be raised to 3 feet above M.W.L., with a top width of 3 feet and slopes $1\frac{1}{2}$ to 1. The existing revetment, where displaced, will be repacked.

General description.

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

STANDARD LEVELS TO BE MAINTAINED.

Full supply level above datum	...	...	...	64.80 feet.
Maximum water-level	do.	...	...	66.00 "
Level of top of bund	do.	...	...	69.00 "

BENCH MARKS.

I.—B.M. on pillar stone of sluice	...	...	59.82 feet.
II.—B.M. on demarcation stone at right flank	...	...	69.07 "

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficient for maximum discharge in formula				
D = CM ²	...	...	...	C = 300.
Area of free basin	...	...	...	1.40 sq. miles.
Number of tanks above	...	...	...	Nil.
Combined catchment area	...	...	...	1.40 sq. miles.
Maximum flood discharge from combined catchment area	...	...	...	375 cub. ft. per sec.
Do.	do.	from supply channel.	...	Nil.
Total	do.	to be provided for	...	375 cub. ft. per sec.

SURPLUS ARRANGEMENTS.

	Height above datum.	Length.	Maximum discharge.
	Feet.	Feet.	Cubic ft. per sec.
Existing surplus weir at right flank, effective at (Vide plate III, fig. 14.)	64.80	95	380
Total maximum discharge provided for ..	..	..	380

DETAILS OF STORAGE.

Area of waterspread at F.S.L.	...	...	2.78 mills. sq. ft.
Greatest width of do. do. from bund	...	...	1,320 feet.
Class of bund	...	...	3rd class.
Capacity of tank at F.S.L.	...	...	8.34 mill. cub. ft.
Total annual storage	...	...	25.02 " "

DETAILS OF IRRIGATION.

Ayacut area	...	...	63 acres.
Average cultivation during the past five years	...	...	63 "
Proposed ultimate area of irrigation	...	...	63 "
Water stored per acre of do.	...	...	39 mill. cub. ft.
Ultimate irrigation per square mile of free catchment	...	...	45 acres.
Level of sill of existing sluice, above datum	...	...	52.79 feet.

FINANCIAL DETAILS.

The financial details of this work are given in the statement at page 2.

No. II, IRRIGATION WORK.

NAGALUR TANK (Isolated).

PLATE I.

THIS tank lies about a mile north of Nagalur village in Bhavani taluk. Being an isolated private work, it was not investigated by the Tank Restoration Scheme beyond being grouped.

No. III, IRRIGATION WORK.

ARAKANKOTTAI CHANNEL (Isolated).

PLATE I.

THE channel is taken off the left bank of the Bhavani river above an anicut situated about two miles south-west of Arakankottai village in Satyamangalam taluk. Being a work for which a continuous record of expenditure is kept, it was not investigated by the Tank Restoration Scheme beyond being grouped.

CHEPÂK, MADRAS,
August 1891.

(Signed) W. C. LEWIS,
Asst. Chief Engineer for Irrigation,
in charge Tank Restoration Scheme.

