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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

REVENUE DEPARTMENT

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GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

29th June 1877, No. 121 I.

Irrigation.
Account.

Read the following paper :—

No. 63 I.

No. 130.

Note by the Chief Engineer for Irrigation.

THE following estimates from the Tinnevely and Northern Ranges are forwarded by the Officiating District Engineer, Tinnevely, with his letter marginally noted :—
No. 9, dated 7th April 1877.

Taluq.	Village.	Work.	Amount.
			RS.
Tenkarai	Seithunganallur	Iyanarputty Tank ...	2,380
Ottapidaram	Manthikulam	Puliankulam do. ...	820
Sankaranainarcovil ...	Puliankudi	Paupankulam do. ...	200
	Neelithanallur	Periakulam do. ...	2,490
	Chinthamoney	Vannanery do. ...	790
Total ...			6,680

2. The financial and hydraulic details of the Irrigation works concerned are exhibited in the following statement :—

I.—Financial Details.

Name of Work.	Aysut Area.	Assessment.	Average Revenue for five Years.	Highest Revenue for five Years.	OUTLAY				
					During the previous four Years.	PROPOSED ORDINARY AGRICULTURAL IRRIGATION.			PERCENT.
						Original Works.	Repairs.	Average Annual Proportion of Charges to Revenue.	
	ACRES.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	
Iyanarputty Tank	199	1,336	1,280	1,587	181	802	1,578	40.0	
Puliankulam do.	39	198	104	198	30	465	355	163.4	
Paupankulam do.	26	143	58	70	72	70	130	93.7	
Periakulam do.	227	1,154	983	1,380	...	525	1,965	50.6	
Vannanery do.	59	297	288	329	463	790	...	87.0	
Total ...	550	3,128	2,713	3,564	746	2,652	4,028	54.7	

II.—Hydraulic Details.

Name of Work.	Catchment Basin Area.	MAXIMUM SUPPLY.		LENGTH OF ESCAPE OR AREA OF SURPLUS SLUICE VENT.		AVERAGE HEIGHT OF BUND.		Surplus discharged at M.T.L. per Second.	Tanks above.
		Catchment per Second.	Channels per Second.	Total.	Effective.	Above F.T.L.	Above M.T.L.		
Iyanarputty Tank	SQ. M.	C. FT.	C. FT.	FT.	FT.	FT.	FT.	C. FT.	NO.
Iyanarputty Tank	6.5	1,400	..	C 33 W 33	27	2.30	0.30	243.0	1
Puliankulam do.	0.5	148	..	W 100 NIL	133	4.5	2.5	1263.8	1
Paupankulam do.	0.25	102	183	W 17.5 NIL	17.5	Not stated	Not stated	0.0	NIL
Periakulam do.	7.5	2,549	..	W 45 S 133.5	45 133.5	3.75	2.25	277.7	NIL
Vannanery do.	0.25	106	252	W 139 S 139.5	139 139.5	6.0	3.0	3977.3	8
				W 36 NIL	36	4.5	2.5	342.6	1

NOTE.—The proposed dimensions of escapes and heights of bund are printed in large type. The existing dimensions in small type. The following abbreviations are used:—C.—Calingulah with dam stones. W.—Weir with overfall. E.—Escape at ground level. B.—Bund of tank. V.—Village. S.—Surplus sluice vent area.

3. The following is a summary of the work proposed to be carried out in each case:—

Iyanarputty Tank.—This tank receives, in addition to its direct local drainage, the surplus waters of the Muthur and Sevanthipatty Tanks, and was breached last year for the want of proper surplus works.

The bund is in very bad order, and one of the irrigation sluices is damaged. The estimates provide for—

- 1st.—Raising and repairing the bund.
- 2nd.—Converting the calingulah into a weir.
- 3rd.—Reconstructing the damaged irrigation sluice.
- 4th.—Constructing a masonry weir.

During floods a portion of the surplus will be discharged over high rocky ground north of the existing calingulah left unbanked for the purpose.

The "report" which accompanies the estimates speaks of only one existing calingulah, whilst from the longitudinal section there appear to be two; this needs explanation. In one part of the "report," also, the tank is said to receive surplus surplusing into this tank" is one. Inconsistencies such as these should be detected and corrected before estimates are despatched from the District Engineer's office.

The co-efficient used for calculating the maximum flood discharge is 400, which is rather low for the Tenkarai Taluq. The high rocky ground over which part of the surplus is to discharge in heavy floods should have been shown on the longitudinal section. There is no information in the papers as to the level or extent of this ground. Again, if there be ground so situated, it must be not much above F.T.L., and be placed when the ground is $4\frac{1}{2}$ feet below F.T.L. What evidence there is indicates means of discharging surplus be provided for a sufficient length to F.T.L., and so the have been shown on the longitudinal section. The site of the proposed new weir should continued to ground above M.W.L.

The plans and estimates appear suitable and are recommended for sanction, but the District Engineer should see whether any modifications are necessary or desirable with reference to the foregoing remarks.

Puliankulam Tank.—The bund of this tank is low and weak and the tank has no means of discharging its surplus. The irrigation sluices are temporary structures, constructed of palmirah timber.

The estimates provide for—

1st.—Repairing and raising the bund to a uniform level of 4.5 feet above F.T.L. with a top width of 4.5 feet and side slopes of 2 to 1.

2nd.—Constructing a masonry irrigation sluice.

3rd.—Constructing a masonry weir.

The sluice need not have the length of barrel shown, viz., 33 feet 9 inches; about 23½ feet will be enough as shown by the dotted lines. The part of the bund above the wing level can be sloped back. This will reduce the estimate by about Rs. 25, making it Rupees 230, which is recommended for sanction.

The design for the weir shows the ends of the body wall prolonged 12 feet into the bank (the length of the crest being only 17½ feet) and raised 4 feet 6 inches above the crest. They need not be more than 4½ feet long and 3 feet high, and the revetted ends of the bank may well be 1½ to 1 instead of 2 to 1 slope; these alterations, which are shown by dotted lines, will reduce the estimate for this work from Rupees 210 to Rupees 120, which amount is recommended for sanction.

The estimate for the repair of the bund is recommended for sanction as it stands.

Paupankulam Tank.—This tank is supplied by means of a channel taken off the Varuttar, and by the drainage off a catchment basin of ¼ square mile.

The tank has no surplus work, and owing to the bund being very low and weak it breaches almost every year. The irrigation sluice, constructed a few years ago, is in good order.

The estimates provide for—

1st.—Raising and repairing the bund.

2nd.—Constructing a masonry weir.

When the proposed works are carried out, an additional area of 20 acres, it is stated, will be brought under cultivation.

It should have been stated whether the supply channel has a head sluice or any permanent work to regulate the quantity of water passing down it to the tank.

The sections of the weir show that it is proposed to take the foundations down only 1 foot 6 inches below the ground surface, and the word "rock" is written immediately under those foundations; but in the note on the plan the "nature of surface soil" is stated to be "gravel 3 feet deep." It is possible that the depth of gravel is from crest of weir to bottom of foundations, though this is hardly consistent with the position of the toe of the front slope of the bund on the section. The District Engineer must take care that the foundations are laid on good rock or at a suitable depth with adequate protection in the shape of a rough-stone apron.

The estimate is recommended for sanction as it stands.

Periakulam Tank.—The bund of this tank is weak and low in parts, which are to be strengthened and raised to 3 feet above M.W.L. The front slope is revetted to the extent of 380 yards to protect it from the action of the water, but the revetment is in bad order and requires to be repacked with partly new stone-backed with gravel.

The front retaining walls and cisterns of the two irrigation sluices require to be rebuilt.

The two calingulahs situated at the north and south ends of the bund are to be converted into weirs, the northern one will be extended from 54 to 102 feet, and shutters will be provided to the vents of the surplus sluice at the end of it, and also to the vents in the body wall of the south calingulah.

The estimates provide for these repairs and improvements.

This tank is one of a group, and it is stated that there are eight tanks lying above it, of which only two are provided with efficient surplusings works. The District Engineer should report what steps are being taken to make the other six safe.

The top of the body wall of the south weir need not be more than 3 feet wide instead of 4 feet 6 inches as shown on the plan with a rear face batter of 1 in 6, the width at base will be 4 feet 3½ inches when the height may be 7 feet 9 inches as at Section C.D. Judging from the longitudinal section it would be cheaper and preferable to have the 54 feet weir at its present length, and to make an additional escape near the end of the bund where the ground is at or near F.T.L.

It appears that an estimate of Rupees 1,280 for the repairs to this tank was locally sanctioned in March 1875, on which an expenditure of Rupees 888 has already been incurred, and this is included in the present estimates. It seems, therefore, that all the requirements of the tank were not duly considered when the former estimate was prepared. The instructions on this subject contained in Circular No. 68 should have been attended to.

The work already done to the bund is much of it a great deal too high and very irregular. The ends of the bund should not terminate abruptly, but be sloped to ground, say, 1½ feet above M.W.L.

From the section and estimate it appears that there are four unconnected pieces of revetment and it is not worth while to repack these at a cost of about 950 Rupees for 1,140 feet in length, out of about 1¼ miles. The items on this account have, therefore, been struck out in the absence of any explanation of special reasons for revetting these parts of the bund.

The co-efficient on which the flood discharge has been calculated is 665, which is unusually high.

The estimates are recommended for sanction.

Vannanery Tank.—This tank, in addition to the supply it receives from its catchment basin of ½ square mile, is supplied by a channel from the Kotaymalayaur.

The bund of this tank was repaired and an irrigation sluice constructed last year, but an additional high-level sluice and weir are required to make the tank efficient, and the estimates now submitted provide for their construction.

The expenditure on this tank during the previous four years is stated to have been Rupees 463, which is considerably more than the average revenue derived from the tank. None of the work appears to have received the sanction of Government, and the District Engineer will be careful that the rules are not again transgressed. The instructions contained in Circular No. 68 as to the necessity for making estimates for tank repairs complete for all the requirements of the tank have also in this case been ignored. The works now stated to be necessary must have been equally so "last year" when the bund was repaired and the irrigation sluice built.

The design for the weir being suitable, the estimate* is recommended for sanction; but it must be noticed that it is an expensive work owing to the ground at site

being 6 feet below F.T.L., and the papers are silent as to the necessity for selecting this site.

The interior dimensions of the *Irrigation sluice* must not be less than 2 feet broad by 2 feet 6 inches high. The increase to these dimensions will add but little to the estimate. Rupees 170 are recommended for sanction.

The report which accompanies the estimate states that "the tank being held under Arthamanibum tenure, a moiety of the cost of the proposed work is to be defrayed by the villagers."

There are several inaccuracies in the scales of the plans signed by Mr. McNair, which is remarkable, as the plans are very neatly drawn.

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The following statement shows the proposed distribution of the outlay recommended for sanction to the debit of the several heads of account involved:—

Name of Tank.	Items of Estimate.	FUND, ORDINARY AGRICULTURAL. MAIN-HEAD IRRIGATION.		Total for each Tank, &c.
		Original Works.	Repairs.	
		RS.	RS.	RS.
Iyanarputty Tank	Raising and repairing the bund ...	...	1,515	2,380
	Converting calingulah into wier ...	...	63	
	Reconstructing an irrigation sluice ...	262	...	
	Constructing a weir ...	540	...	
Puliankulam Tank	Raising and repairing the bund ...	230	...	710
	Constructing an Irrigation sluice.	125	...	
	Constructing a weir ...	...	130	
Paupankulam Tank	Raising and repairing the bund ...	70	...	200
	Constructing a weir ...	...	...	
Periakulam Tank	Repairing bund and two irrigation sluices ...	...	963	1,540
	Converting the southern calingulah into weir ...	...	52	
	Converting the Northern calingulah into weir and bunding it.	525	...	
Vannanery Tank	Constructing an irrigation sluice...	170	...	795
	Constructing a weir ...	625	...	

(Signed) G. T. WALCH,
Ag. Deputy Chief Engr. for Irrigation,
for Chief Engineer for Irrigation.

Fort St. George,
20th June 1877.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

No. 131. ORDER THEREON, 29th June 1877, No. 121 I.
The following estimates for Irrigation Works in the Tinnevely and Northern Ranges, Tinnevely District, forwarded by the Chief Engineer for Irrigation with his memorandum marginally noted, are sanctioned:—

Name of Tank.	Provision of Estimate.	Fund, Ordinary Agricultural. Main-Head, Irrigation.	Amount.	Irrigation Registry No.
		CLASS.	RS.	
Iyanarputty Tank	Repairing bund ...	Repairs	1,515	74 I.
	Converting calingulah into weir ...	Do.	63	
	Irrigation sluice ...	Original Works.	262	
	Constructing a weir ...	Do.	540	
Puliankulam Tank	Repairing bund ...	Repairs	355	75 I.
	Irrigation sluice ...	Original Works.	230	
	Constructing a weir ...	Do.	125	
Paupankulam Tank	Repairing bund ...	Repairs	130	76 I.
	Constructing a weir ...	Original Works.	70	

Irrigation—(Continued).

Name of Tank.	Provision of Estimate.	Fund, Ordinary Agricultural. Main Head, Irrigation.	Amount.	Irrigation Registry No.
Periakulam Tank	Repairing bund and two sluices.	CLASS.	RS.	
	Southern weir	Repairs	963	1
	Northern weir	Do.	52	2
		Original Works.	525	3
Vannanery Tank	Irrigation sluice	Do.	170	1
	Weir	Do.	625	2
				78 I.

2. These sanctions are registered as shown above.

3. The sanction for the Periakulam Tank cancels the Collector's sanction, dated 16th March 1875.

4. Rupees 397-8-0 will be deducted from the amount sanctioned for the Vannanery Tank, as it is Arthamanibum or partly Inam.

(True Extract.)

W. S. S. S.

Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the District Engineer, Tinnevely.
" Collector of Tinnevely.
" Chief Engineer for Irrigation.
" Examiner of Public Works Accounts.
" Revenue Department.

Exd. T. D. Ryan.

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Revenue Department

No 3295

IRRIGATION.
ACCOUNT. ✓

Govt. of 1877 Madras.

PUBLIC WORKS.

To

THE DISTRICT ENGINEER,
TINNEVELLY
&c., &c., &c.

Vide C.N. 3224/98.

Dated June 29th.

Issued

Recd.

16 July

Encl.

G. O., 29th June 1877, No. 121 I.

JUNE

Nos. 130-131.

No. 3998

Comm'd to the

Board of Revenue

17 July 1877

Tanks, Tinnevely District. — The estimates
for repairs to certain —, sanctioned.

23. 11. 77 Revenue (1877-78)