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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

G.O. No.	1221.	Press
B.P. No.		Mis.
Dated	9-6-1875	196

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*Proceedings of the Madras Government, Public Works Department,
2nd June 1875.*

Read the following papers :—

No. 58. Read again letter from the Government of India, No. 3 A.I., dated 7th January 1875, recorded in G. O., No. 1,289, dated 5th May 1875.

No. 271.

MEMORANDUM.

Madras Water Works Project.

IN their letter, No. 854 I., of the 9th December 1873, the Government of India asked for certain information regarding the Madras Water Works Project, in connection with a despatch from the Secretary of State. The points on which information is desired are—

- 1st.—Why in the revised estimate provision was not made for Establishment and Tools and Plant.
- 2nd.—What will be the eventual cost of the project, including charges for simple accumulated interest, and capitalization of the revenue lost by the land taken up for the work.
- 3rdly.—What immediate prospect there is of getting the small return expected from the large outlay invested.

Also in paragraphs 3 to 6 of the letter certain orders were passed for the transfer to ordinary of a part of the outlay which had been charged to Loan funds, and proposals were made for the adjustment of the remainder. These were that of such outlay, as estimated in paragraph 2 at Rupees 10,17,748, Rupees 5,70,000 should in the accounts of 1872-73 be charged to Ordinary, and that as regards the difference Rupees two lakhs were to be made good from Provincial funds by annual instalments of Rupees 50,000, while the rest was to be recovered in three instalments from the ordinary grant under Agricultural.

2. A complete reply to the reference made by the Government of India is not yet practicable, but the following particulars of the information obtained up to date will show how the matter stands :—

3. 1st.—The reason why no special provision was made for Establishment and Tools and Plant in the revised estimate of Rupees 12,25,558 appears to have been that it was intended only to show what the cost of completing certain works provided for in the original and subsequent estimates would be. It was as may be gathered from Proceedings, Madras Government, of the 23rd August 1871, drawn up by the late Major Ryves, though the abstract, appendix B, comparing this estimate with its predecessor is not signed by him. He made, however, an addition of Rupees 32,000 thereto, and the total then became that of the estimate submitted to the Government of India with letter, No. 2,172, of the 23rd August 1871, with which was transmitted among other papers a copy of the Proceedings containing this abstract. The allowance therein for Contingencies and Superintendence was Rupees 47,745, and it must be evident that this could have provided for nothing more than petty superintendence, as the regular Public Works Establishment has usually cost from 25 to 30 per cent. on the

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outlay supervised, and taking half the above sum as the allowance for superintendence this would be 2.38 per cent.* There would seem to have been therefore nothing misleading about the estimate in respect of establishment. It is believed that the project has paid for all tools and plant used upon it, and the share of general charges for the Presidency had not up to the time referred to been taken into account.

4. 2nd.—The ultimate total cost of the project cannot be stated at present in the way which the Government of India desire, it being uncertain to some extent what further outlay will be required on works, and in the second place when the capital account will be closed, and upon this latter point will depend the charges for interest which are to be included in the total.

In paragraph 2 of their letter the Government of India estimate the outlay up to the end of 1872-73 at, exclusive of interest, the following figures:—

	RS.
Works	11,40,605
Establishment	2,44,261
Tools and Plant	15,901
Total ...	14,00,767

The Controller of Public Works Accounts in his letter as per margin points out No. 8,112, 12th March 1874.

that the statements upon which the Government of India based the foregoing figures were approximate, and to a considerable extent, owing to the way in which the indirect charges were assessed, inaccurate. He puts the outlay in that letter as follows, the outlay on works being taken as stated by the Government of India, the Controller not having made any remark upon it:—

	RS.
Works	11,40,605
Establishment	1,49,220
Tools and Plant	4,771
	12,94,596
Showing a difference of ...	1,06,171

The Controller adds that the figures thus given may be liable to some slight modifications within a limit of perhaps 5,000 Rupees. As regards outlay up to a later date the Controller furnished with his letter of the 29th May 1874, No. 1,797, a statement up to the end of 1873-74 giving the following particulars:—

	RS.
Works including expenditure by Civil Officers (land compensation)	11,65,938
Tools and Plant	4,771
Establishment.	
Construction, actual share of range	76,254
Direction, Superintending and District Engineers	27,955
" Secretariat	26,286
Accounts	14,479
	7,872
	1,52,846
Total ...	13,23,555

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The outlay of the year 1873-74 is also given as—

	RS.
Works	25,333
Establishment	3,626
Tools and Plant	...
Total...	28,959

Deducting this from the total the outlay up to the end of 1872-73 agrees with that before given.

In this statement interest charges are shown to be to date Rupees 1,53,838. Under date the 25th August 1874, No. 4,579, the Controller forwarded the general return of capital expenditure on Irrigation works for March 1874, which gives, therefore, the outlay up to the end of 1873-74. This return will be found in Proceedings, Madras Government, 17th September 1874, No. 2,643, and in this the figures are altogether different, and would seem from some of the entries to have been based on the approximate statements of an earlier date; the incorrectness of which has been admitted. According to this return the outlay to the end of that official year had been on—

	RS.	Difference.
Works	11,65,938	...
Establishment	2,44,943	92,097
Tools and Plant	14,174	9,403
	14,25,055	1,01,500
Interest...	3,01,823	1,47,985
Total Difference...	...	2,59,485

It appears, therefore, to be probable that material corrections are required in the later returns. The outlay on works in 1874-75 has been almost nominal. Regarding the amount to be added for capitalization of the revenue lost by the land taken up, the

Controller says there is no information available. The orders require that particulars of assessment of lands acquired shall be exhibited in the land registers. Some 81,543 Rupees have been expended since June 1872 for land compensation, and for this outlay, as well as for that previously made on this account, the requisite particulars should be obtainable from the Collector under whose orders the disbursements appear to have been made. For want of more definite information that given in paragraph 6 of the Committee's letter, Proceedings, Madras Government, 23rd August 1871, No. 2,171, may be taken. There this assessment is said to be Rupees 4,895, and this capitalized at 25 years' purchase comes to Rupees 1,22,375.

5. As regards the probable cost of the works of the project, or amount of expenditure against the amount of the estimate of Rupees 12,25,558, the Superintending Engineer, Chingleput, gives his reasons for being unable to afford this information. This officer is doubtful as to the cost of—

1st, the supply channel from the Cortiliar to the Cholaveram Tank.—For widening this the revised estimate provides an additional 32,000 Rupees. In February 1873, after considering the subject, it appeared to the undersigned that widening, as

contemplated by the late Major Ryves, was unnecessary, and so far experience has confirmed this view. Important modifications of the arrangements of the channel as regards the disposal of upland drainage are absolutely necessary, the surplus weirs for the two streams called the Katankal and Boosykal being altogether inadequate, and the revision ought to have been determined and carried out long since. Detailed instructions on the subject have recently been given to the Superintending Engineer, and probably within a short time this matter will be settled; and on the treatment of the channel generally this officer has long since been furnished with instructions. He refers to the opinion of the villagers near the channel as to the results to them of making the channel banks secure from breaching, and he thinks that their fears of being drowned are reasonable. This view of the case is, it is thought, founded on a misconception. In 1872 the Cortiliar turned the head works and rose several feet above the crests of the surplus weirs already referred to. What it is proposed to do is to exclude Cortiliar flood waters altogether by the head works and channel bank on the one hand, and by modification of the weirs, which will be furnished with self-acting shutters on the other hand; 2ndly, to so lengthen the weirs as to enable them to discharge with facility all upland drainage when the river is not in high flood, and such part as may be practicable, as due to difference of water level, even in that case. The position of affairs will then be this. The channel works will in themselves offer but little obstruction to the discharge of upland flood water, indeed in the extreme case of very high floods in the Cortiliar probably no obstruction at all, and the channel below the Boosykal into the Cholaveram tank will afford a relief which was non-existent before the channel was constructed.

What the alterations will cost cannot at the present moment be stated, but the 32,000 Rupees provided in the estimate for widening the channel should go a long way towards making it in all respects efficient.

6. On the two principal works of the project, viz., the Cholaveram and Red Hills tanks the Superintending Engineer is of opinion that very little difference between expenditure and estimated cost will occur. He has not, however, stated what savings are available as a set off against the heavy outlay incurred in rendering the southern part of the Cholaveram tank* bund safe after the serious slips of 1872, and for lengthening the anicut† across the Cortiliar; without some assurance on this point, it is doubtful whether the opinion expressed is reliable. Moreover, it is proposed to construct sluices at the north end of the Red Hills tank, to afford the power of lowering the water when necessary, and these sluices, if finally deemed necessary, will cost 10 to 12 thousand Rupees.

7. Distribution is the next item regarding which there are no data for estimating the probable ultimate cost. Investigations are in progress, and as distributaries are essential to the spread of irrigation beyond the limits of the greatest extent of cultivation under the tanks in past years, they should be pushed on, and the channels should be decided upon as soon as possible. In the estimate Rupees 25,000 on this account have been provided, and but little, if any, expenditure against this sum has been incurred.

8. Looking to the Controller's statement, it appears that the expenditure under the estimate up to the end of 1873-74 had

Letter, No. 1,797, 29th May 1874.	amounted to Rupees	11,65,938
	In 1874-75 it will have been about Rupees.	1,000*
* Exclusive of land compensation if any.	The unexpended balance of land compensation at end of 1873-74 was Rs. 1,75,917	
	—1,35,182 = Rupees	40,735
	The provision for widening supply channel which will be required for its improvement	Rs. 32,000
	Distribution	25,000
		12,64,673
	To which may have to be added the sluices referred to, say	12,000
	Total	12,76,673

9. It would therefore appear, first, that the works already executed including no doubt the restoration of the tank bunds at slips and the lengthening of the anicut have cost more than the last revised estimate; secondly that probably at the lowest computation about half a lakh will have to be spent on works in excess of the 12,25,558 of the estimate.

10. In the next place the charges other than for works and exclusive of interest up to 1873-74 amounted to 14 per cent. on works outlay. This appears to be a somewhat low estimate, and under recent orders the addition to be made for establishment will be about 3.0 per cent. Consequently the approximate total cost becomes:—

Past outlay (1873-74)	Rs. 11,65,938
Establishment, &c., charges	1,57,617
Total past	13,23,555
Subsequent outlay	1,10,735
Establishment charges, 30 per cent.	33,220
	1,43,955
	14,67,510
Capitalized assessment	1,22,375
	15,89,885

The only comparison is between the Rupees 12,25,558 of the revised estimate and the approximate estimate of Rupees 12,76,673 above given; both are for the same objects. Interest manifestly cannot be calculated up to the final closure, and the Controller gives two very different statements* of it up to the end of 1873-74; indeed one account is but little more than half the other.

11. Thirdly, the last question in the form in which it has been put by the Government of India would be very easily answered thus. There is no immediate prospect of getting the small return expected from the large outlay upon this project.

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No. 59, 10th July 1873.

In the Secretary of State's despatch, paragraph 6, the return from the project under irrigation is shown as Rupees		29,772
Adding town supply	...	32,000
Gross revenue	...	61,772
Cost of maintenance	...	11,500
Net revenue	...	50,272

This sum differs from that shown in paragraph 15 of letter, No. 2,172, of the 23rd August 1871, to the Government of India, inasmuch as in the latter loss of assessment was deducted from revenue, while now it has been added to capital.

12. However, as regards irrigation revenue, the little information hitherto made available is not encouraging. Proceedings, Madras Government, Revenue Department, 27th November 1873, No. 1,313, indicate that up to fasli 1282 (1872-73) there had been no marked increase of area irrigated, and that, if Mr. W. T. Blair's report and the later returns were to be accepted, the irrigation of that year fell short considerably of the average of a former period. Thereupon the Board of Revenue was requested to obtain detailed statements enabling the real state of the case to be understood, since which time no fresh information has been received. No doubt the requisite facilities for extending irrigation have not as yet been afforded, but the supply of water has been abundant, and at any rate every acre up to the greatest extent of former years and as much double crop as has ever been cultivated might without difficulty have been irrigated. If the returns under preparation by the Board give other results, it may be well to ascertain the reason.

13. Next comes the Municipal water-supply which was expected to yield about 32,000 Rupees. On this account, so far as is known, no payment has been made. As yet no complete statement of the total issues of water to the Municipality from the time that the town sluice was first opened has been received. It was asked for* in

this office memorandum, No. 312, of the 9th May 1874, required by G. O., No. 1,386, of the 23rd May 1874, and again called for in G. O., No. 108,† miscellaneous, of the 12th February 1875. Moreover

as yet no report has been made by the Superintending Engineer of the quantity of water received by the tanks, of that discharged to waste, of the quantity used for irrigation, &c., and of that to be accounted for by evaporation and absorption. The necessary instructions were given in Proceedings, Madras Government, 13th October 1873, No. 2,503.

14. As regards the current year, the President of the Municipal Commission reports, in a letter now under the consideration of Government, that the quantity of water taken by the Municipality from the 1st April to 31st December 1874 amounted to only 4 millions of cubic yards. The estimate of the year was 10 millions, and this being less than one-third of the quantity which had been supposed to be required for the city of Madras, inquiry was made with the result of showing that the estimate of 10 millions was about double the actual supply. Without the Superintending Engineer's

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report, and a review of the receipts and issues of water; the undersigned cannot offer an opinion on the subject; but if the Municipality does not require more than 5 or 6 millions of cubic yards, the sooner the quantity reserved for them is reduced and made available for irrigation or other purposes the better possibly the explanation of the vast discrepancy between actual and estimated required supply is not far to seek. First the Municipal distribution works are not complete; secondly it was, it is believed, assumed that nearly 600,000 inhabitants of Madras would need 20 gallons each per day, a probably excessive average, as the purer water would be fetched from a distance only for drinking and cooking; in round numbers the 32 millions would give 20 gallons a head to 583,500 people. It becomes a matter of importance that the future and ultimate demands of the Municipality should be carefully determined. There has been a good deal of road and tree watering out of the 5 or 6 millions of cubic yards and, as there must be, some waste. It is not known in this office to what proportion of the people of Madras water has been supplied; but probably the Commission possesses information on this point, and from it something fairly reliable could be deduced as to the future wants of the town.

15. It may, it is thought, be taken for granted that there is no necessity for restricting irrigation under the Cholaveram and Red Hills tanks; and that at any rate G.O., No. 2,173-F, 29th August; and No. 2,503, 13th October 1873, until it has been extended very much

beyond its present limits and until the town demand shall have very greatly increased, there will be a great deal of water annually which will not be turned to any useful account, and it is highly desirable, in the present eminently unsatisfactory financial condition of the Madras Water Works Project, to secure as much as may be possible.

16. No reliable estimate of the average cost of repairs can as yet be given, but the experience hitherto indicates that the allowance of Rupees 11,500 considered sufficient in 1871 may not be enough. The actual outlay charged to Repairs in the last three years has been as follows:—

	1871-72.	1872-73.	1873-74.
	RS.	RS.	RS.
Works ...	21,153	6,667	93,642
Conservancy Establishment ...	* 477	636	853
Total ..	21,630	7,303	94,495

* NOTE.—No charge for conservancy previous to 1871-72.

In his Budget Estimate for 1875-76 the Superintending Engineer, Chingleput, has made no separate provision for the maintenance of the Madras Water Works. In future years for this work and for the Chembrambaukum tank also, distinct items should be shown.

It would manifestly be useless, under the circumstances noticed in the foregoing paragraphs, to attempt a calculation of the probable future returns for the outlay on this project. For the next few years at any rate the net returns will be nominal. All that can be done is to take care that irrigation is extended as rapidly as may be practicable up to the limits of the water-supply available, and if under ordinary

arrangements the lands capable of being irrigated are not taken up, it will become necessary to devise other means of bringing such lands under cultivation. It is in the highest degree improbable that cultivators will not be forthcoming if the lands are thrown open to all-comers.

17. Lastly, with regard to the proposal of the Supreme Government to charge part of the cost of the project to Provincial funds, it would seem that these should fairly take their share of the burden. It can hardly be doubted that the project would not have been sanctioned but for the advantages which the abundant supply of good water to Madras was expected to secure to that city. It may be admitted that the idea would have been given up as too costly had not a considerable return from irrigation been likewise expected, but the fact that disappointment will be experienced in this direction also is perhaps the greater reason why Agricultural funds should not have to bear the entire loss and outlay. With the town supply Agricultural funds have properly nothing to do, and Provincial funds appear to be the only other source from which this share of the cost can be defrayed. What that share should be cannot be determined until the quantity of water which the Municipality will take and pay for has been settled, but on this being known a decision may easily be arrived at. The additional quantity of storage provided in the tanks

NOTE.—Paragraph 11, Proceedings of Madras Government, 26th April 1870, No. 1,100.

of the project is 85·439 millions of cubic yards, say 85½ millions, and the quantity appertaining to the town supply will be the 15 millions below the sill of the Municipal sluice added to the supply to be reserved above that level for the use of the town. Supposing this latter to be 15 millions instead of 32 as before supposed, and that also 14¼ lakhs of Rupees will be the cost of the scheme exclusive of interest, the Provincial share would be in round numbers 5 lakhs, and perhaps the only feasible way of adjusting the account would be to get the Government of India to make an additional grant of this, or of any amount which may ultimately be fixed to Provincial. The money will have been spent and, as it is not an agricultural charge rightly, it would seem to be desirable that it should not appear as such in the Capital and Revenue accounts of Irrigation works.

CAMP AT KAVALLI,
8th March 1875.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 59. Note by the Honorable the Governor, dated 7th May 1875.

No. 60. ORDER THEREON, 2nd June 1875, No. 1,548.

IRRIGATION, No. 3.

THE Honorable the Governor in Council has learnt with much dissatisfaction from the foregoing memorandum, drawn up by the Chief Engineer for Irrigation, that the information required by the Government of India regarding the Madras Water Works Project is still so far from being forthcoming that on no single important particular can a reliable report be submitted.

2. Whatever may be the conclusion to be drawn as to the returns from this project in the future, and as to the outlay on work at present unforeseen which may ultimately

be required, it is highly discreditable that the facts of the past have not yet been ascertained conclusively and beyond all liability to serious error. The Governor in Council must therefore insist upon expenditure under Capital and Revenue respectively up to the end of 1874-75, and Revenue particulars from 15 years before the commencement of improvements, and for each year subsequent thereto up to fasli 1283 (1873-74) being determined without further delay.

3. The first part of the foregoing information has to be prepared in the Controller's Office, as also particulars of outlay on repairs during the 15 years from which the net standard revenue will have to be deduced. The Controller will take care that it is made the special duty of some portion of his office establishment to work steadily at these statements until they have been properly completed, and it is expected that no more discrepancies like those shown in the interest charges, and no more grave errors like those in the statement of revenue charges for 1873-74 will be allowed to appear in the accounts which may be submitted in the future.

4. The detailed statements of revenue derived from the land under the tanks must be similarly taken up by the Revenue Officers and completed, and the Revenue Board are requested to see that this is done without delay. As yet even the marked discrepancies pointed out 1½ years ago have not been explained, and up to the present time the Government have absolutely no information whatever with regard to the effect on cultivation and revenue, of the storage of an amount of water so greatly in excess of that before available.

5. It is clearly a most important duty of the Collector of a district to see what the results of large expenditure on Irrigation works have been, and he should from year to year take care that the irrigation statistics of every village affected are brought before him, and that all peculiarities which the returns may exhibit are fully investigated.

6. The Superintending Engineer, Chingleput, will take immediate steps for submitting at the earliest possible date a statement showing what further outlay on works will be required to complete this project. It is understood that the requirements of the several parts of the scheme, as indicated by the high floods and freshes of 1872 and 1874, have been ascertained, so that there is nothing now to prevent a final estimate being prepared, and Colonel Moberly will be particular to report in detail upon all savings or excesses exhibited in the statement, so that there may be no need for further references. It is expected also that the details of distribution works required for the utilization of the water stored for irrigation purposes in the Cholaveram and Red Hills tanks shall be determined at an early date, and thereafter the additional channels required should be pushed forward as rapidly as possible.

7. Colonel Moberly will inform the Collector as soon as his scheme of distribution has been fairly made out, and the latter should then depute either an Assistant or a Deputy-Collector to go over all the villages and ascertain what modifications, if any, will be desirable, and what the prospects of extension of irrigation are.

8. The Collector of Chingleput will furnish the Controller of Public Works Accounts immediately with particulars of the assessment of lands taken up for the project in order that the addition to Capital outlay on this account may be calculated and included in the accounts. It is believed that the compensation payable for the land has not yet been fully disbursed, and the Collector will send to the Controller a

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memorandum showing for what area compensation remains to be paid, reporting at the same time when the final payment will be made.

9. There has now been considerable experience of the requirements of the channels and tanks of this project as regards repairs, and the Superintending Engineer, Chingleput, will therefore draw up as accurate an estimate as possible of the probable annual outlay on maintenance, exclusive of conservancy establishment. He will be careful to explain what part of the estimated cost is for ordinary, and what for extraordinary repairs.

10. These papers will be referred to the Board of Revenue through the Revenue Department with a view to prompt measures being taken for the settlement of all questions relating to the disposal of waste lands commanded by the tanks. They will report whether the right of occupancy of waste should be sold as has been done in Tinnevely, whether any revision of Inam settlements is expedient, and lastly determine a fair assessment for newly irrigated land. Mr. R. K. Puckle, whose experience of matters of this kind is great, will be able to render valuable service in effecting a speedy settlement of these questions.

11. The Honorable the Governor in Council expects that with the exception of the distribution arrangements and the settlement of the questions referred to in the foregoing paragraph, all the information required by this order will be ready within three months, and should any of the several officers concerned be unable to submit his portion of this information within that time he will afford full explanation of the probable cause of delay at the earliest possible moment.

12. Information regarding the immediate and ultimate demands of the Madras Municipality for water has been already called for, and should be furnished as soon as possible. Both the Municipal and the Superintending Engineer's accounts of water actually taken up to the 31st March last are awaited.

13. Ordered that a copy of these Proceedings be transmitted for the information of the Government of India with reference to their letters recorded above.

(True Extract.)

R. E. Shunk

Major, R.E.,

Offg. Joint Secretary to Government.

To the Revenue Department.

- „ Controller of Public Works Accounts.
- „ Superintending Engineer Chingleput.
- „ Chief Engineer for Irrigation.
- „ Public Department.

Exd. E. C. Shunker.

20 Spare Copies will be sent for *Madras office*

Recd. 18/5. 2166.

Gobt. of [1875] Madras.
PUBLIC WORKS.

To

THE REVENUE DEPARTMENT.

&c., &c., &c.

Dated June 2nd.

Issued

Recd. 4 8th

Encl.

G. O., 2nd June 1875, No. 1,548.

JUNE.

Nos. 58-60

No 1221-9th June 1876

Madras Water Works Project.—Passing orders on the memorandum of the Chief Engineer for Irrigation affording some information as to points noticed by the Government of India relative to the —.

Let the order

Vide B^o Hoq. 23 July/75 N^o 2058
V^o 1818/77

V^o 8049/79

14 State Boarding Office, Sec. 14 June

Revenue, with the request
will be good enough to say
at an early date, on the points
referred to in paras 4, and 10 of
the foregoing Order.
9 June/75