M.R.O. 1—77,006—8-6-37.

(1) Number of pages 10

(2) Date of repair 9 - 9 - 15

(3) Initials of the Referencer

CK

MADRAS RECORD OFFICE.

Government of Madras.

Financial DEPARTMENT.

G.O. No. 678	Press / Mis.
	255-256
Dated 31-3-	18 75.

5/6

Not to be folded or roughly handled

Municipal—Water-Supply.

No. 255. Read the following letter from C. J. LYALL, Esq., Under Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce, (Municipalities), to the Secretary to the Government of Fort St. George, dated Calcutta, 11th March 1875, No. 1-32 :—

I am directed to forward herewith forty-four copies of a report received from the Government of Bombay regarding the construction of Water-works for the town of Bhewndy in the Tanna Collectorate, and to request that they may be circulated for the information of Municipal Committees in the Madras Presidency.

SUMMARY of Correspondence relating to the Construction of Water-Works for the Town of Bhewndy, in the Tanna Collectorate, Bombay Presidency.

In 1851 works were constructed out of funds made up of a Government grant and voluntary contributions from the people to supply a portion of the town of Bhewndy with water from the Waralla Tank, which is situated in the vicinity, and contains an ample supply of good water. The works consisted of an earthen conduit pipe connecting the tank with cisterns constructed in the town. Owing, however, to the small diameter of the conduit, the supplies it furnished were wholly inadequate to the wants of the town, which contains, according to the last census, 11,907 inhabitants. This was especially the case during the months of March, April, and May, when the inhabitants were reduced to the greatest straits for water. To remedy the evil it was proposed in 1867 to lay down a new 5-inch iron main, the cost of which was variously estimated at from Rupees 17,700 to Rupees 25,000 in round numbers. To meet this expenditure the Municipality of the town had only an annual balance of some 4,000 Rupees to be expended on works of improvement, and it was considered unadvisable to devote this balance for a number of years to a single object, to the neglect of many other important works involving large outlays which awaited the attention of the Municipality. It was, therefore, resolved by that body, in November 1869, after futile negociations with the Collector of Tanna, during the interval, to obtain a grant from the Local Funds towards carrying out the proposed water-works, to raise a loan of Rupees 25,000 for the purpose on the security of the municipal revenues. They requested the loan, in the first instance, from Government, since it would have been impossible for them to obtain the sum required, at any other than an extremely heavy rate of interest, in the bazaar. At the same time, to meet the increased outlay, consequent upon the carrying out of the project, they solicited the sanction of Government to an octroi duty calculated to yield about Rupees 3,000 per annum.

2. In May 1870 the tax was sanctioned, and orders were issued by Government for the preparation of a careful estimate of the proposed work. Captain Maunsell, the Executive Engineer, Northern Konkan, who prepared the estimate, provided, besides a 5-inch iron main and distributing pipes, for sundry repairs to the old dam of the Waralla Tank, a new settling reservoir with filtering apparatus inside the tank, and four new reservoirs in the town itself, at a cost of Rupees 29,479. In submitting this estimate, the Superintending Engineer, Northern Division, expressed his opinion—upon which the Municipality determined to act—that a 6-inch main would be preferable, if the case could afford it, to one of a 5-inch diameter. The cost of the additional inch, he remarked, would amount only to Rupees 1,500, thus raising the total estimate of the work to the sum of Rupees 31,979. This latter estimate was sanctioned by Government towards the end of May 1872, and the Municipality were informed that, if Government aid was given, the work

must be carried out under the superintendence of the Executive Engineer of the Northern Konkan. At the same time permission was given, as solicited by the Municipality, to commence the head-works from the funds at their disposal; but, the monsoon being close at hand, the works had to be deferred till the hot season of 1873, as a low level of the water in the tank was necessary to their commencement.

3. Meanwhile, to assist in covering the cost of the new work, the Tanna District Committee had voted in September 1871 a grant of Rupees 15,000 from the unexpended Local Funds balances. And the Municipality, who had in hand a balance of between six and seven thousand Rupees, had laid a fresh proposal before the Government in the beginning of the following year for a loan of Rupees 15,000 only. In reply the Municipality were informed, at the same time that the estimate of the cost of the proposed water-works was sanctioned, that Government were prepared to listen favorably to their proposals on their submitting an application for the loan according to rules.

4. A formal application was accordingly submitted by the Municipality about the beginning of August 1872, under the provisions of the Local Public Works Act XXIV. of 1871. The terms put forward in the application were generally the same with those previously approved of by Government. They were that the total municipal revenue from all sources, amounting in the previous year to nearly Rupees 11,000, should be mortgaged as security for the loan; and that the loan should be repaid by fifteen half-yearly instalments of Rupees 1,000 each, the first instalment falling due six months after the full amount of Rupees 15,000 was paid down in a lump sum to the Municipality.

5. Towards the close of 1872 the Local Funds Committee also requested the sanction of Government to the proposed contribution of Rupees 15,000 from Local Funds. It was found, however, that the amount which could be contributed was only Rupees 11,303, as Section IX. of Bombay Act III. of 1869 prevents the Committee assigning a larger sum to a Municipality than the net amount levied from the inhabitants of that town. But as the Municipality had already expended more than Rupees 4,000 on the work, there was no occasion to apprehend that a Government loan of Rupees 15,000 only might not suffice for the purpose for which it was required, nor any to doubt the capability of the Municipality to repay the amount. Accordingly on the 20th August 1873 the application for the loan was granted on the terms proposed, and in the November following, orders were issued for the payment of the Local Funds contribution of Rupees 11,303 to the Municipality. Interest was to be charged on the loan at 4½ per cent. per annum.

6. The Municipality had, while gladly accepting the Resolution of Government that the proposed work should be carried out under the superintendence of the Public Works Department, insisted upon making it a condition of their acceptance of the loan that the purchase of materials and the giving of contracts for the execution of the work should rest with themselves, subject to the approval of the Executive Engineer of the district. This was tantamount, practically, to maintaining that the conduct of the work should rest with them and not with the Public Works Department. Their reason was that the charge of 20 per cent. on the total cost of the work, which the Public Works Department would make for carrying out the work, was heavier than the Municipality could bear. Moreover, they stated they could themselves execute the work with the assistance of a competent Overseer at a less cost, both of time and money, than the Executive Engineer could do on behalf of the Public Works Department, since that officer would have to pay divided attention to the work, and would be obliged to order the requisite quantity of iron piping through the Secretary of State—a process which the Municipality believed was productive of considerable expense and still more delay. A question was hereupon raised by the Public Works Department whether it was competent for the Municipality to procure stores from England otherwise than through the Secretary of State. The Government of India, having been applied to on this point, decided that the rule regarding the purchase of European stores being applicable only to stores paid for from the public revenues, Government could not direct a Municipality to procure stores from England only through a particular channel. Accordingly, in

the Resolution of Government sanctioning the loan of Rupees 15,000, the Municipality were left to carry out the work by themselves, though, of course, under the *inspection* of the Public Works Department, which reservation was necessary under the rules for ascertaining and securing that the loan was duly applied to the purposes for which it was made.

7. From the commencement of 1872 till late in 1873 it was the late Mr. F. Birkbeck, C. S., the Assitant Collector, who, in his official capacity of Vice-President of the Municipality, pushed the proposed scheme forward with a zeal to which its early accomplishment is chiefly due. For it was he who, by his pressing and repeated communications to the authorities, quickened the course of official correspondence; and, unwilling to wait for another hot season to commence the water-works, set them a going towards the close of April 1873, notwithstanding the question of the loan and of the contribution from the Local Funds was still undecided. He had previously arranged that Mr. F. B. Maclaran, A.I.C.E., the Tanna Local Funds Engineer, should direct the works; and, to carry them out on the spot, had also engaged the services of an experienced European Overseer.

8. The work at first progressed satisfactorily. The puddle wall was seen safely in. The excavation for the settling reservoir was also completed; and it was hoped that the masonry work would be above the level of the ground formation before the setting in of the monsoons. For with the rains the water in the tank would rise, and, if sufficient progress were not made by the workmen, would not only endanger the new work but also the old dam, the consequences of a breach in which might well be feared. The work, however, soon began to flag for want of stones. For supplying these, the Water-Works Committee of the Municipality, had without consulting the Engineer, entered into a most injudicious contract with a common Native mason. They had agreed to advance him Rupees 1,100, to let him have Rupees [illegible] the property of the Municipality always in hand, and had in no way bound him to supply the [illegible] contracted for within a given time, or even as required. The contractor, a man without any means, finding that he had it all his own way, was so little attentive to the demands made upon him that for days together he did not supply a single stone for the masons to be going on with. The delay caused exclusively on this account prevented the works from being sufficiently advanced at the commencement of the rains not to give rise to serious apprehensions. It was, therefore, found necessary to construct, at a considerable cost, temporary earth-works, strengthened by piles and planking, to protect the parts exposed to the danger in question. The difficulty of doing so was greatly increased by the Municipal Commissioners having, at a time when the works were rather in a critical condition, abruptly dispensed with the services of their Overseer. In consequence Mr. Birkbeck was obliged to convene a general meeting of the Municipality, at which it was determined to place the work entirely in the hands of Mr. Maclaran, leaving him, of course, to employ Overseers and Contractors as he thought fit. The work then remained in Mr. Maclaran's hands till it was finished.

9. In November 1873 the work was resumed, the rains being over. A contract was given for the construction, at a few hundred Rupees below the estimate, of the four new reservoirs in the town. A fifth was also constructed in a wealthy quarter of the town by the residents of the locality at their own expense, the Municipality having agreed to lay a branch pipe to it from their new main. The pipes, which Mr. Birkbeck had ordered out from England through a mercantile firm in Bombay, arrived in March 1874, and no time was lost in proceeding to connect the reservoirs in the tank with those in the town, both old and new. Wherever practicable, pipes with a new description of joint—termed the turned and bored joint—were used. The connections of these could be effected much more easily than in the case of the old form of socket pipes, red-lead paint mixed to about the consistency of putty being used instead of molten lead. The cost of material for filling up the turned and bored joints was found to be nearly one-ninth of the cost of the molten lead joint. The comparative rates for laying down the two descriptions of pipes were as seventy to thirty, the advantage being on the side of pipes with the turned and bored joint.

10. By July 1874 the whole work was completed, and soon after the old earthen conduit was closed in such a manner that it might be opened again when necessary. The estimated

and actual costs of the work, with the difference between the two, are shown in the following table :—

Items.	Estimated Cost.	Actual Cost.	Excess of actual over estimated Cost.	Excess of estimated over actual Cost.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cost of piping and valves, including carriage to Bhewndy ...	18,640 0 0	21,898 12 4	3,258 12 4	.....
Carriage to trench and laying ...	500 0 0	1,449 7 11	949 7 11	.....
Reservoir in tank, puddle wall, and repairs to old dam	6,886 0 0	8,087 12 7	1,201 12 7	.....
Four reservoirs in the Town of Bhewndy	5,453 0 0	4,786 13 7	.....	666 2 5
To Public Works Department, &c., for plans and estimates, and copies of the same	.....	411 1 2	411 1 2	.....
Stand-pipe in main thoroughfare and laying pipes to three houses to which water was supplied by the old main	.....	196 4 9	196 4 9	.....
Total ...	31,479 0 0	36,830 4 4	6,017 6 9	666 2 5

The total actual cost was greater than the total estimated, by Rupees 5,351-4-4. Of the actual cost, Rupees 11,303 having been contributed from the Local Funds, the payment of the remaining Rupees 25,527, with interest at 4½ per cent. on the Government loan of Rupees 15,000, has fallen on the Municipality.

11. The excess of the actual over the estimated cost for the different items has been accounted for as under :—

The excess of—

RS. A. P.

3,258 12 4 was due to excess in the cost of pipes, owing to a rise in the price of iron.

949 7 11 was due to the cost of laying down the pipes having been under-estimated, *viz.*, at ·643 Anna per foot. The actual cost per foot was 1·79 Annas, which compares favorably with the cost at the great Khurruck Wasla works near Poona—2½ Annas per foot, and with that prevailing in England, which varies from nine pence to a shilling per foot.

1,201 12 7 was due to the construction of temporary works, the necessity for which was brought about by the injudicious agreement made by the Municipality for the provision of stone. The first two items of excess added to the last two items in the table in paragraph 10, give the total unavoidable excess at Rupees 4,815-10-2. This sum subtracted from the actual cost gives Rupees 32,014-10-2, which is in excess of the estimate by Rupees 535-10-2 only.

12. Mr. Maclaran winds up his report on the completion of the water-works with the following remarks :—

"In the estimate prepared by the Public Works Department it is stated that the tank has been carefully surveyed and found to contain an ample supply of good water, and provision is made for supplying 1,20,000 gallons per diem to the town. Should this daily supply be exceeded, it is possible that there may be a scarcity of water at the end of the dry season. It will, therefore, be the duty of the Executive Members of the (Municipal Water-Works) Committee to see that this daily supply is not exceeded. According to the present arrangement of valves the

3 M

kept up to whatever the demand may be ; for, as the water in the reservoirs in the rawn up, the ball valve, with which each reservoir is provided, opens and admits a f water equal to that which has been drawn. What the demand may be, experience alone but should it be found that more water is being used daily than will admit of the supply ntained throughout the dry season, the Committee have it in their power to regulate the her to each reservoir separately or to the whole collectively, and to this special attention paid ; for, although formerly the tank water has been found sufficient, now with greater t is possible and probable that the water will be more wastefully used, and it should, e impressed upon the Committee and the inhabitants that, although the means by which is supplied has been *improved* and enlarged, the actual source whence it is obtained is "

In reviewing the above proceedings, Government recorded the following resolution :—

overnment are glad to learn that Mr. Maclaran has brought this useful and important successful conclusion.

.) It is to be hoped that other municipal towns, where the water-supply is bad, will e example set by Bhewndy, and avail themselves of the provisions of the Local Public oan Act in order to improve it. There is usually no other object so worthy of the expendi- unicipal Funds.

.) The history of this undertaking affords another proof of how necessary it is that this nature should be carried out by qualified and responsible professional men.

.) The Collector should communicate with the officers of the Public Works Department, iew to their certifying that the work has been properly carried out. [The Executive , Northern Konkan, has since certified accordingly that "the project of supplying with water appears to have been satisfactorily completed."]

. Mr. Maclaran's caution to prevent waste of water should be commended to the careful ation of the Municipality.

. ORDER THEREON, 31st March 1875, No. 678.

dered to be communicated to all Presidents of Municipal Commissions.

(True Extract.)

W. HUDLESTON,
Chief Secretary.

residents of Municipalities.
President of the Municipal Commission, Madras.

. J. Lewis.

and actual costs of the work, with the difference between the two, are shown in the following table :—

Items.	Estimated Cost.	Actual Cost.	Excess of actual over estimated Cost.	Excess of estimated over actual Cost.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Cost of piping and valves, including carriage to Bhewndy ...	18,640 0 0	21,898 12 4	3,258 12 4	.....
Carriage to trench and laying ...	500 0 0	1,449 7 11	949 7 11	.....
Reservoir in tank, puddle wall, and repairs to old dam	6,886 0 0	8,087 12 7	1,201 12 7	.....
Four reservoirs in the Town of Bhewndy	5,453 0 0	4,786 13 7	.....	666 2 5
To Public Works Department, &c., for plans and estimates, and copies of the same	.....	411 1 2	411 1 2	.....
Stand-pipe in main thoroughfare and laying pipes to three houses to which water was supplied by the old main	.....	196 4 9	196 4 9	.....
Total ...	31,479 0 0	36,830 4 4	6,017 6 9	666 2 5

The total actual cost was greater than the total estimated, by Rupees 5,351-4-4. Of the actual cost, Rupees 11,303 having been contributed from the Local Funds, the payment of the remaining Rupees 25,527, with interest at 4½ per cent. on the Government loan of Rupees 15,000, has fallen on the Municipality.

11. The excess of the actual over the estimated cost for the different items has been accounted for as under :—

The excess of—

RS. A. P.

3,258 12 4 was due to excess in the cost of pipes, owing to a rise in the price of iron.

949 7 11 was due to the cost of laying down the pipes having been under-estimated, *viz.*, at ·643 Anna per foot. The actual cost per foot was 1·79 Annas, which compares favorably with the cost at the great Khurruck Wasla works near Poona—2½ Annas per foot, and with that prevailing in England, which varies from nine pence to a shilling per foot.

1,201 12 7 was due to the construction of temporary works, the necessity for which was brought about by the injudicious agreement made by the Municipality for the provision of stone. The first two items of excess added to the last two items in the table in paragraph 10, give the total unavoidable excess at Rupees 4,815-10-2. This sum subtracted from the actual cost gives Rupees 32,014-10-2, which is in excess of the estimate by Rupees 535-10-2 only.

12. Mr. Maclaran winds up his report on the completion of the water-works with the following remarks :—

"In the estimate prepared by the Public Works Department it is stated that the tank has been carefully surveyed and found to contain an ample supply of good water, and provision is made for supplying 1,20,000 gallons per diem to the town. Should this daily supply be exceeded, it is possible that there may be a scarcity of water at the end of the dry season. It will, therefore, be the duty of the Executive Members of the (Municipal Water-Works) Committee to see that this daily supply is not exceeded. According to the present arrangement of valves the

3 M

supply is kept up to whatever the demand may be ; for, as the water in the reservoirs in the town is drawn up, the ball valve, with which each reservoir is provided, opens and admits a quantity of water equal to that which has been drawn. What the demand may be, experience alone can tell ; but should it be found that more water is being used daily than will admit of the supply being maintained throughout the dry season, the Committee have it in their power to regulate the supply either to each reservoir separately or to the whole collectively, and to this special attention should be paid ; for, although formerly the tank water has been found sufficient, now with greater facilities it is possible and probable that the water will be more wastefully used, and it should, I think, be impressed upon the Committee and the inhabitants that, although the means by which the water is supplied has been *improved* and enlarged, the actual source whence it is obtained is the same."

13. In reviewing the above proceedings, Government recorded the following resolution :—

Government are glad to learn that Mr. Maclaran has brought this useful and important work to a successful conclusion.

(2.) It is to be hoped that other municipal towns, where the water-supply is bad, will follow the example set by Bhewndy, and avail themselves of the provisions of the Local Public Works Loan Act in order to improve it. There is usually no other object so worthy of the expenditure of Municipal Funds.

(3.) The history of this undertaking affords another proof of how necessary it is that works of this nature should be carried out by qualified and responsible professional men.

(4.) The Collector should communicate with the officers of the Public Works Department, with a view to their certifying that the work has been properly carried out. [The Executive Engineer, Northern Konkan, has since certified accordingly that "the project of supplying Bhewndy with water appears to have been satisfactorily completed."]

(5.) Mr. Maclaran's caution to prevent waste of water should be commended to the careful consideration of the Municipality.

No. 256. ORDER THEREON, 31st March 1875, No. 678.

Ordered to be communicated to all Presidents of Municipal Commissions.

(True Extract.)

W. HUDLESTON,
Chief Secretary.

To All Presidents of Municipalities.
,, President of the Municipal Commission, Madras.

Exd. W. J. Lewis.

Govt. of Madras.

FINANCIAL.

To

All Presidents of
Municipalities
&c., &c., &c.

Dated March, 31st.

Issued.

Read.

Rec.

G.O., 31st March 1875, No. 678.

MARCH.
Nos. 255-256.

Municipal Water-supply.—Report regarding the construction of Water-works for the Town of Bhewndy in the Tanna Collectorate, Bombay Presidency, communicated to all Presidents of Municipal Commissions.

FROM

C. J. LYALL, Esq.,
Under Secretary to the Government of India,

To the Secretary to the Government of Madras.

Dept. of Revenue,
Agriculture, and Commerce.

Municipalities.

Calcutta, the 11th March 1875.

Sir,

I am directed to forward herewith 44 copies of a report received from the Government of Bombay regarding the construction of Water-works for the town of Bhewndy in the Tanna Collectorate, and to request that they may be circulated for the information of Municipal Committees in the Madras Presidency.

I have the honour to be,
Sir,
Your most obedient servant,

Chas. Jno. Lyall

Under Secretary to the Government of India.

Financial 1875. Department

GOVERNMENT OF INDIA.

DEPARTMENT OF REVENUE,
AGRICULTURE AND COMMERCE.

MUNICIPALITIES.

To

No. 1.

Dated Calcutta, the 11th March 1875.

Received 22 "

No 705

31st March /75; No 678.

SUBJECT.

FORWARDING for circulation to District Municipalities copies of a report regarding the Bhewndy Water-works.

All Prests. of Municipalities.
Prests. of the Board of Comm.rs - Madras.

O. S. G. P.—No. 1852, R., A., & C.—12-3-75.—70.

Govt. of {1875} Madras.

13-3-88
7-2-90

Jail

G. O., 31st March, 1875, No. 678

Nos. 255-256.

Mun.l - Water Supply.

Report ~~read from the~~ ~~Collector~~ regarding the construction of Water works for the town of Bhewndy in the Tanna Collectorate, Bombay Presidency, comd. to all Presidents of Municipal Commrs.