(1) பக்கங்களின் எண்ணிக்கை _____

(2) புதுக்கித் திருப்பிய நாள் October.90

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் Losa

(6)

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

PWD துறை

அரசாணை எண். 372 அச்சகம் பலவகை

மு. கோப்புத் தாள் எண்.

நாள் : 6-2-1992 19 .

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

11 Sheets

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GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—again the following papers:—

G.O., dated 4th May 1891, No. 671 M., Local and Municipal.

ABSTRACT.—Referring, with remarks, to the Chief Engineer, Public Works Department, for scrutiny, the revised scheme of water-supply for the town of Trichinopoly recommended by the Sanitary Engineer; communicating the papers to the Municipal Council for suggestions as to how the increased initial outlay and working expenses can be met; requesting the Military Department and the South Indian Railway Company to place their shares of the capital cost at the disposal of the Council as soon as possible; and stating that the advisability of introducing a Bill for the enhancement of the maximum rate of taxation on buildings and lands and of the water-tax prescribed in section 47 of Act IV of 1884 will be considered in the Legislative Department.

G.O., dated 24th July 1891, No. 1151 M., Local and Municipal.

ABSTRACT.—Sanctioning, with remark, the scheme of water-supply for the town of Trichinopoly, which is estimated to cost Rs. 4,56,000.

READ—also the following papers:—

From M.R.Ry. S. T. RUNGASWAMI AIYAR, Avargal, B.A., B.L., Rao Bahadur, Chairman, Municipal Council, Trichinopoly, to the Chief Secretary to Government (through the Revenue officer in charge of the Trichinopoly taluk), dated Trichinopoly, 10th August 1891, No. 21.

With reference to paragraph 2 of G.O., No. 671 M., dated 4th May 1891, I have the honour to forward herewith, for the information of Government, an extract from the Proceedings of the Council passed thereon at a special meeting held on the 27th ultimo.

2. The Council take it they are now called upon to suggest ways and means for an extra sum of between Rs. 6,000 to 7,000 over and above the Rs. 28,000 which they had to make provision for by G.O., dated 19th May 1890, No. 808 M. In paragraph 2 of the Government Order under reply, Government has evidently taken the working charges to be borne by the Municipality at Rs. 34,500 *plus* Rs. 5,500 for repairs of pipes, fountains, &c. It will be seen from paragraphs 37 and 39 of Mr. Jones' letter that it is the total working charges that amount to Rs. 34,500, while the share to be borne by the Municipality is only Rs. 21,500. The annual cost of the scheme to the Council will therefore be as worked out below:—

	RS.
Proportion of initial cost to be borne by Municipality	3,58,000
Deduct half grant by Government	1,79,000
	1,79,000
Deduct savings available ..	15,500
What the Council will have to borrow	1,63,500
The yearly sum required to clear off this debt	9,713
Add proportionate working charges	21,500
Add proportionate cost of wear and tear out of Rs. 5,500 which Government has fixed for the purpose in paragraph 2 of its order	3,427
Total ..	34,640

which is Rs. 6,640 more than the original estimate.

3. From G.O., dated 19th May 1890, No. 808 M., it will be seen the Council confessed themselves unable to provide anything beyond Rs. 23,500 out of the Rs. 28,000 required. The yielding power of the municipal revenues fell short of the required amount by Rs. 5,000 and now they have to find an extra sum of Rs. 7,000 (in round figures), in all the Council have to find out Rs. 12,000. The Council believe that without special legislation they would not be able to provide for this sum at all. The last three classes of schedule A of the Act are not at present in operation in this Municipality, and the Council would beg permission to enforce the same. This, however, even in the eye of the most sanguine councillor, cannot yield more than Rs. 2,000 in the year.

4. A majority of the councillors was for reiterating the request about contribution from tolls contained in paragraph 6 of the Chairman's letter quoted in G.O., No. 808 M., dated 19th May 1890. It appeared to them that the chief reason why Government had refused the extra contribution was because Government believed that the scheme was possible without it (*vide* paragraph 5 of G.O., No. 808 M., dated 19th May 1890), and they argued that *now* that the scheme is becoming impracticable without it, perhaps Government might change its view and be pleased to give a favorable hearing to our cause; but the words in which the refusal was couched by Government are so plain and peremptory that they thought better over the matter and concluded there was no alternative left to them in the case.

5. With regard to the raising of the maximum rate of taxation on buildings and lands, the Council beg once more to draw the kind attention of Government to paragraph 6 of the Chairman's letter quoted in G.O., No. 808 M., dated 19th May 1890. The Council now beg to add that the state of things is now no better.

6. The Council are of opinion that, in order to enable them to raise funds, Government should be pleased to allow them to open fresh sources of income. They have ventured upon suggesting certain modifications in the professional tax rates. A good number of residents are drawing salaries under Rs. 200 and they enjoy perfect freedom just now from profession tax calls. The Council are of opinion that it is but just and equitable that they should also contribute towards securing for this town the inestimable benefits of a good water-supply. The rates suggested, everything considered, seem also very fair. Just to take one instance, an artisan or trader making not more than Rs. 40 per mensem has now to pay Rs. 6 to the Municipality, being placed in class V. It is submitted that a person making from Rs. 50 to 100 as holder of an appointment should also be called upon to pay not less than the other, and when the risks which the trader who begins with a capital has to run from adverse seasons and bad debts are considered, the proposal of the Council that the appointment holder should also be taxed will not, it is believed, appear in any way unreasonable. It is expected that this will bring in about Rs. 3,000 in the year.

7. The last source of income which the Council can think of at present is the levying of Octroi duties on certain articles of consumption entering municipal limits. They are very reluctant to take up this ground, especially in view of the G.O., Nos. 1000, 1001 M. of 2nd July 1891, disallowing this kind of taxation. But there is no help for it and the Council could not suggest any other method of taxation which would be so little felt as this. A consumer having to pay Rs. 3 for a bag of paddy will not feel it any burden at all to have to pay 3 pies more. This duty will ultimately fall upon the consumer resident within the Municipality, and it is but just and proper that the resident enjoying the comfort of good and copious water should pay for it too. The Octroi duties are estimated to bring in a net revenue of not less than seven or eight thousand rupees in the year. This seems to be the only solution which the Council could suggest. It will thus be seen that the additional Rs. 12,000 necessitated be the Government Order is proposed to be met by the Council as follows:—

	RS.
Additional revenue by introducing the last three classes of the profession tax schedule	2,000
Additional revenue by revising the profession tax on salaries ..	3,000
Octroi duties	7,000
Total ..	12,000

8. Before concluding I beg to add that the Council feel extremely thankful to C. J. Weir, Esq., Acting Collector, for the very great interest he takes in this matter. He was present throughout the meeting, took part in the proceedings, and rendered considerable assistance with his valuable advice.

EXTRACT from the Proceedings of the Municipal Council, Trichinopoly Town, passed at the special meeting held on the 27th July 1891.

* * * * *

Read G.O., No. 671 M., dated 4th May 1891, communicating the revised scheme of water-supply recommended by the Sanitary Engineer for suggestions as to how the increased initial outlay and working expenses can be met.

The Act as it stands at present, the rules thereunder, and G.O., No. 808 M., dated 19th May 1890, refusing the extra contribution of tolls collected by the District Board, place it beyond the power of the Council to find the additional amount required by the Government Order under reference. Even by working out the last three classes under schedule A, the Council do not expect to realize anything over Rs. 2,000 per annum.

The Council considers that it would be very inadvisable to raise the maximum rate of taxation on buildings and lands to 10 per cent. The Council is unanimously of opinion that the utmost point of taxation has already been reached under these heads in this Municipality.

The Council would crave for special legislation to enable it to find means. It is respectfully suggested that schedule A should be amended in a way to make all persons holding salaried appointments from Rs. 30 and upwards pay higher rates of profession tax. The following rates are proposed:—

	RS.
Appointments and salaries—	
From Rs. 30 to 50 rupees	3
" " 50 to 100 "	6
" " 100 to 200 "	12
" " 200 to 500 "	25
" " 500 to 1,000 "	50
" " 1,000 to 2,000 "	75
" " 2,000 and upwards	100

Government is also solicited to legislate with a view to enable the Council to levy Octroi duties on the following articles entering municipal limits:—

Paddy and rice, horse-gram, dholl, cotton seeds, coriander seeds, oil-seeds, dry fish, &c.

In this connection the Council would beg to represent that the granting of the prayer of the petitioners in G.O., Mis. No. 357 M., dated 13th March 1891, claiming exclusion for their lands from within municipal limits and consequent exemption from municipal taxation, would materially cripple the resources of the Council already slender.

(Signed) S. T. RUNGASWAMI,
Chairman.

Camp No. 15.

Forwarded to Government.

2. As regards the calculations, I have these remarks to offer.

The Council have taken no account of the accumulation of the extra income they are now in possession of for the two years intervening before they will have to borrow—*vide* paragraph 5, G.O., No. 808, Municipal, dated 19th May 1890. They have also left out of their calculation the contribution from general revenues which was estimated at Rs. 3,300 by Mr. Fawcett in his endorsement No. 98-2, dated 28th November 1890, read with G.O., No. 62 M., dated 17th January 1891. No reason is given for omitting this sum. If it is allowed to remain, the calculation of the annual amount to be provided by the Municipality would work out as follows:—

	Rs.
Half cost of original outlay to be paid by Municipality	1,79,000
Deduct savings available now	19,500
Deduct accumulation of extra income for 2 years at Rs. 15,700 * per annum	31,400
	50,900
Amount remaining to be borrowed by Municipality	1,30,000
Annual payment required to clear this off	7,800
Add proportionate working charges	21,500
Add cost of repair of pipes	5,000
Total ..	34,300

* *I.e.*, the additional income of the Municipality as estimated in papers read with G.O., No. 62 M., dated 17th January 1891, less water cess.

I have written to Mr. Jones as to the annual cost to Municipality of the repair of pipes, and he tells me that it cannot be safely taken as less than Rs. 5,000, as the length of piping for the sole use of the Railway and Sepoy lines is practically nothing and that of the joint line will be small.

To meet this the Council have arranged to improve their income by Rs. 22,900 and to provide Rs. 3,300 from General Revenues—in all Rs. 26,200. This leaves an annual deficiency of Rs. 8,100. I have carefully considered the possible means of making good this deficiency and have come to the conclusion that beyond Rs. 2,000, the estimated receipts by extending the profession tax to the last three classes of the schedule, nothing can be done until the Legislature has conferred additional powers of taxation.

It is unnecessary for me to discuss here the proposals of the Municipality as to the manner in which this taxation should be imposed. In the interval, however, we have to face the fact that the adoption of the scheme in its entirety would create a yearly deficit of about Rs. 6,000 in the municipal finances.

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The only feasible proposals under the circumstances seem to me to be—

1*st.* That Government should make a larger grant towards the project from Provincial funds.

2*nd.* If Government does not see its way to doing so, I would propose that the loan to the Municipality should be limited to a sum, the repayment of which, with interest together, with the working charges could be undertaken by the Municipality with the income it can now properly estimate on. When the amount thus borrowed from Government together with the sums received from Government, the Military Department and the Railway are expended, it is hoped that power to the Municipality to raise a larger income will have been granted by the Legislature and the remaining sum necessary to carry out the work could then be borrowed.

If, however, the law should then be still unaltered, I presume that some portion of the scheme could remain for the time unexecuted or the pumping charges might be kept down by providing at first a smaller supply of water than 15 gallons per head.

(Signed) C. J. WEIR,
Acting Collector.

Kulitalai,
18*th August* 1891.

From Colonel J. M. SMITH, Inspector-General of Jails, to the Chief Secretary to Government, Judicial Department, dated Cuddapah, 3rd August 1891, No. 286.

With reference to G.O., No. 1672 W.,* dated 20th June 1891, in which the Superintendent of the Geological Survey expresses a very strong opinion that it is no use going on boring wells near the Trichinopoly Jail, and thinks it would be far better to collect water by surface collection, I have the honour to report, for the information of Government, that the estimate for a surface collection prepared by the Jail Superintendent, referred to by Mr. Martin in his letter contained in G.O., No. 1451 W., † dated 27th May 1891, was only for a six months' supply for 1,000 men at 5 gallons a day. I have lately been all over the ground and find that the collecting surface can easily be doubled in size. I have directed the Superintendent to have an estimate prepared for a very much larger collecting surface and larger reservoirs. When ready, I will submit it to Government for sanction. It appears to me now, as it did a year ago, to be the only means of getting a good water-supply for the jail.

2. I made inquiries as to whether the proposed scheme of raising the Cauvery water to a reservoir on the rock, and thence by pipes into the town of Trichinopoly, could be extended to the jail, but the District Engineer thought that it could not be done as the jail is on such high ground.

* Communicated with G.O., dated 8th July 1891, R. No. 715, Judicial Department.

† Communicated with G.O., dated 2nd July 1891, No. 1306, Judicial Department.

Transferred to the Local and Municipal Department, with reference to the Honorable Member's remarks.

(Signed) A. BUTTERWORTH,
Ag. Under Secretary.

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31*st August* 1891.

No. 762.

Referred to the Sanitary Engineer for report as to whether the scheme proposed by him for supplying the town cannot be extended also to the jail, and, if so, at what additional expense.

(By Order.)

Fort St. George,
16*th September* 1891.

(Signed) N. S. BRODIE,
Ag. Assistant Secretary.

To the Sanitary Engineer.

From J. A. JONES, Esq., MEM. INST. C.E., F.R.S.E., Sanitary Engineer to Government, to the Chief Secretary to Government, dated Fort St. George, 1st October 1891, No. 1371.

In reply to your memorandum, dated 16th September 1891, No. 762, referring to me the consideration of the question as to whether the Trichinopoly water-supply scheme cannot be extended to supply the jail, I have the honour to report that it is quite possible to do so and that without necessitating any increased lift at the pumping station.

2. A branch to the jail can be taken from the branch which is intended to supply the Railway (Junction) station and Sepoy lines adjacent and will pass along the Pudukóta road direct to the jail. The branch will consist of 5,000 feet of 4-inch and 5,750 feet of 3-inch pipes with the necessary valves, fittings, &c., and the water will be delivered at the rate of 15,000 gallons daily or 15 gallons per head (and during 6 hours at double this maximum rate) and at a pressure of about 10 feet at the jail. The necessary hydraulic gradient demands these sizes of pipe and no reduction can be made in this respect.

3. To the Trichinopoly scheme there are already three contributors, the Jail department will be a fourth, and it is only right that it should bear a proportion of the cost of the scheme. The supply to the jail is so small that in some cases, it has been difficult to arrive at the exact proportion payable by the Jail. The following statement shows, as nearly as can be calculated, what proportio that will be and by comparing this statement with the original statement (*vide* para raph 36 of my letter printed along with G.O. of 4th May 1891, No. 671 M., Local nd Municipal) it will be seen that the inclusion of the jail is advantageous, to a small extent, to all the original subscribers :—

—	Town.	Railway.	Sepoy Lines.	Jail.
	Rs.	Rs.	Rs.	Rs.
Infiltration works	22,922	2,547	1,069	382
Engine and boiler house	10,927	4,334	1,817	532
Engine, boiler and pumps	67,031	26,550	11,150	3,269
Pipes	1,77,585	20,720	8,700	2,000
Valves and fountains	15,185	1,769	740	180
Laying pipes	21,724	2,532	1,063	255
	3,15,374	58,452	24,539	6,618
Contingencies, at 12½ per cent.	39,626	7,368	3,091	832
	3,55,000	65,820	27,630	7,550
As against previously	3,58,000	69,000	29,000	..

4. As regards pumping charges, the Municipality will not benefit by the inclusion of the jail, but the other two contributors will, as the jail will now share in lifting the town's water the extra 40 feet (*vide* paragraph 33 of my letter above referred to).

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5. The pumping charges will be modified as shown below :—

—	—	Previously. Daily.	Previously. Annually.	Now. Annually.
		Rs.	Rs.	Rs.
Town	900,000 gallons, 105 feet, at 10 annas per 1 million	59	21,500	21,500
	gallons, 1 foot high	35·6	9,000	..
	142,000 gallons, 145 feet		4,000	
Railway	900,000 gallons, 40 feet	..	..	13,410
Sepoy lines	157,000 gallons, 145 feet			
Railway	900,000 gallons, 40 feet			
Sepoy lines and Jail	The Rs. 13,410 will be divided as follows :—			
	Railway 129/157 =	..	..	8,542
	Sepoy lines 15/157 =	..	..	3,587
	Jail 13/157 =	..	..	1,281

This will represent a saving annually to—

	Rs.
Railway, of	458
Sepoy lines, of	413

6. The cost of the works which will appertain to the jail alone will be as follows :—

	Tons.		Rs.
5,000 feet of 4″ pipes	39·10	at Rs. 125 =	10,000
5,750 feet of 3″ „	34·15	at Rs. 15 =	1,200
	74·5	=	250
Add for deviation in weight and breakage	5·5	=	175
	80·0	=	20
Laying and jointing pipes, at Rs. 15 per ton, 80 tons, at Rs. 15		=	11,645
Five 4″ valves complete		Total ..	1,455
Five 3″ „		Add 12½ per cent. ..	
One branch pipe, 9″ × 4″		Grand Total ..	13,100

Nothing has been put in the estimate for distribution works inside the jail ; their cost will be small and they can be arranged for at any time.

7. The total cost of the works will therefore be represented by a payment of Rs. 20,650 and an annual expenditure of Rs. 1,280. The two sums together represent little more than 6 annas per 1,000 gallons of water to be supplied.

In connection with this matter, I would refer Government to my No. 1288, dated 18th September 1891, in connection with the supply to Coimbatore Jail. I feel assured that it will be better to provide a supply by an extension of the town water-works than to depend on such an unsatisfactory and doubtful source of supply as a gathering area will be.

From the Agent, South Indian Railway, to the Consulting Engineer for Railways, dated Trichinopoly, 15th September 1891, No. 1458.

Your No. 1154 of the 17th ultimo, I have the honour to state that I am not prepared, for the reasons stated in the following copy of a report which I have received from the Acting Chief Engineer, to accept, on behalf of the South Indian Railway Company, the terms proposed in Mr. Jones' modified scheme for the supply of water at Trichinopoly :—

"In the water-supply scheme as first proposed and estimated by Mr. Oldham, the quantity of water to be supplied to the Railway Company was 100,000 gallons, and as the whole of the supply for Town, Railway and Military requirements was to be raised to the same height, a charge proportional to the quantity of water required for each section was the proper division of the estimate. The quantity provided per head of population was then fixed at 10 gallons and as the estimate framed by Mr. Oldham for construction and working showed that the supply to the Railway by a joint scheme could be obtained at a less cost than by the Railway carrying out their own work, the Chief Engineer gave his opinion in favour of the joint scheme. As Mr. Jones now points out that the reservoir project was much under-estimated, it is most probable that Mr. Logan would have adhered to his original decision in favour of the Railway carrying out their own work had the work been then estimated to cost 4½ lakhs of rupees.

"The proposal of Mr. Jones for direct pumping affects the cost of working, and as sufficient power must be maintained to pump up to 145 feet instead of 105 feet as required for town purposes, his argument that the Railway and Cantonment should pay for the extra cost of pumping is a fair one. I do not agree with him, however, that the Railway should be called upon to pay a proportionate portion of the initial charge for the extra cost of enlarging the pipes and other works to provide 15 gallons a head to the town. This supply has nothing to do with the Railway. The town supply might have been fixed at 20 gallons or more and the same argument would have applied.

"The Railway require 100,000 gallons a day and for this is prepared to pay, but if the cost of the joint scheme makes the figure to be paid by the Railway Company more than we could carry out our own separate supply for, the only inducement for joint action is done away with.

"My own opinion is that the Railway Company had much better carry out their own water-supply. Several years have already been wasted. In March 1888 the approval of the Board was obtained to the expenditure of Rs. 58,000 for a direct supply from the Cauvery and if this had been put in hand, we should have had by this time an unfailing source to draw from. The discussion on the town scheme may continue for years and the prospect of a good supply of water to the Junction station indefinitely postponed."

From the Consulting Engineer for Railways, Madras, to the Agent, South Indian Railway, dated Madras, 23rd September 1891, No. 1376.

In continuation of my letter, No. 1373, dated 22nd September 1891, I have the honour to suggest if it would not be possible to arrange for the water required by the Railway being delivered by the Municipality into a small reservoir at a height of 105 feet above the pumping station, the Railway making its own arrangements for lifting the additional 40 feet required for the Railway service. As such an arrangement would possibly enable existing pumping appliances to be utilized, and a storage reservoir only 40 feet × 40 feet × 10 feet would hold a day's supply, the cost of this scheme might be less than a separate arrangement. The plan now suggested, at any rate, appears more desirable than that put forward by Mr. Jones, where, in addition to the heavy first cost, the Railway have to pay apparently Rs. 5,824 a year for raising Municipal water. It is presumed that, under this scheme, the Railway would only pay according to consumption proportion pure and simple.

From the Agent, South Indian Railway, to the Consulting Engineer for Railways, dated Trichinopoly, 28th October 1891, No. 1685.

Your letter No. 1376 of the 23rd ultimo, I forward, for your information, the following copy of a report which I have received from the Acting Chief Engineer, in which I concur ;—

"I enclose a copy of the estimate for the separate water-supply from the river Cauvery, amounting to Rs. 57,742; but to this I find, in later correspondence, Rs. 2,000 were added to carry the take-off from the Cauvery beyond the confluence of the Kodamurty, making the total estimate Rs. 59,742—in round figures Rs. 60,000. I have gone through the figures of this estimate. The rate put down for piping is too low and the estimate would have to be increased by Rs. 9,000, making a total of Rs. 69,000.

"What I meant to convey in the paragraph of my letter referred to by the Consulting Engineer is that, as the cost of machinery and pumping to raise the 900,000 gallons to the 142 feet height will be greater than that for the supply of 600,000 gallons, I do not agree that the extra cost of raising the 300,000 gallons 142 feet should be charged to the Railway.

"There are no details of the estimate for direct pumping the 600,000, but taking the same proportions as per the estimate for 900,000 gallons, the capital cost to the Railway should be about Rs. 60,000 and the working charge Rs. 7,200 per annum. This latter figure does not, I understand, include interest on the capital expenditure and would have to compare with the working expenses as given by the Locomotive Superintendent of Rs. 3,750 per annum. So that, working expenses above what we could ourselves do the work for with our own separate supply. to join Mr. Jones' scheme, the Company would be put to an annual charge of over Rs. 5,000 for

"The suggestion of the Consulting Engineer that we should take the Municipal water at the 105 feet level and do the rest of the pumping ourselves would, if carried out, be a satisfactory one, but I cannot say whether the Railway Company could accept it until I know what the price per 1,000 gallons delivered by the Municipality would be. The existing pumping station at the Wyacondan could be utilized by the construction of a cistern to hold a day's supply. The Locomotive Superintendent's estimate for pumping from the Wyacondan channel is Rs. 2,500 per annum and 7½ per cent. in the estimate of Rs. 69,000, less the cost of the new tank at Trichinopoly which, in any case, must be constructed, amounts to Rs. 4,150.

"The cost of the pumping 100,000 gallons 105 feet high, at 10 annas per million gallons, one foot high, amounts to Rs. 2,400.

"If, therefore, the Municipality will supply us with 100,000 gallons a day at the Wyacondan pumping station at a cost not exceeding Rs. 6,500, it would be a no more costly arrangement to the Railway Company than that our scheme would be, viz. :—

	Rs.
Pumping from Cauvery	3,750
Seven-and-a-half per cent. on expenditure of Rs. 69,000	4,975
Total ..	8,725"

No. 968.

Submitted to Government with reference to G.O., No. 1409 R., dated 19th June 1891.

2. The report by the Sanitary Engineer on the revised scheme for the Trichinopoly water-supply was referred to the Agent, South Indian Railway, and that officer, acting on the advice of the Officiating Chief Engineer, is not prepared to accept the modified proposals.

3. The question of Railway participation in the scheme is dependent on whether the cost of joint action is more or less than that of the separate arrangement, and as the proposals of the Sanitary Engineer would throw an additional annual charge of more than 5,000 rupees on the South Indian Railway, they cannot be accepted.

4. I gather from Mr. Jones' report that he considers the Railway should derive no benefit from the reduced cost per foot-gallon resulting from the adoption of a direct pumping scheme, but on the contrary the Railway should bear the extra cost of a 15-gallon over a 10-gallon supply. With these conclusions, I cannot agree. If the foot-gallon cost of the whole scheme is reduced, surely all the participators should share the advantage, and it must be remembered that if the Municipality are spending more on their own supply, they are getting 50 per cent. more water for the extra expenditure. The increase in supply from 10 to 15 gallons per head is solely for the advantage of the Municipality, and although very desirable, there is no reason why any portion of the additional cost should be borne by the South Indian Railway. It would also appear that if the first cost of the 15-gallons scheme is estimated at Rs. 69,000 for the Railway share, some reduction must result by adopting the 10-gallons per head supply. With regard to the distribution of proportionate charges,

the Railway share under "Pipes" and "Laying pipes" appears to be calculated on consumption proportions. This division seems hardly equitable when it is remembered that the Municipality requires a considerable length of the distributary piping, from which the Railway obtain no service, the latter requiring only a main pipe.

5. The weak point in Mr. Jones' scheme is the needless lifting of the Municipal water through a height of 40 feet. The only party to the joint arrangement who could possibly derive any advantage from the lift is the Municipality, to whom the extra head would be useful in enabling the water to be delivered at a greater pressure. Using Mr. Jones' basis of calculation, the Railway would have to pay annually Rs. 5,783 for raising Municipal water and Rs. 3,308 for their own supply.

6. Having in mind the advantages that should accrue to all parties in the joint scheme under suitable conditions of design and division of charges, I suggested to the Agent, South Indian Railway, a proposal to take delivery of the Railway water at a height of 105 feet. I now learn that, provided the cost of such an arrangement does not exceed that of the separate scheme, the Railway Company offer no objection. The working expenses, interest charges, and first cost of the different scheme to the Railway contrast as follows:—

—	Direct pumping 15-gallons supply.		Direct pumping 10-gallons supply.		Separate Railway scheme.		Scheme taking delivery at 105 feet.	
	Capital cost.	Annual charge.	Capital cost.	Annual charge.	Capital cost.	Annual charge.	Capital cost.	Annual charge.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
First cost	69,000	..	57,500	..	69,000	..	55,000	..
Working expense	..	9,000	..	7,000	..	3,750	..	4,900
Interest at 7½ per cent.	..	5,175	..	4,312	..	5,175	..	4,125
Total annual charge ..	..	14,175	..	11,312	..	8,925	..	9,025

In this statement the first cost of the 10-gallons supply has been taken proportionately from the 15-gallons estimate, interest charges have been added, and the figures of the last scheme based on pure consumption proportions and figures derived from letter, No. 1685, dated 28th October 1891, from the Agent, South Indian Railway.

7. From the statement it appears that the annual costs of the separate scheme and the one suggested by me are about the same. Such being the case, I consider a separate scheme decidedly preferable. The disadvantage of the Railway supply being dependent on a double system of pumping and the chance of friction between the participating parties is done away with. In addition, it is probable that, in actual working, the difference in annual cost would be more accentuated than is shown in the statement, and that less delay would occur in providing the Railway with a very necessary water-supply.

8. I consequently recommend that the South Indian Railway withdraw from the joint scheme, and undertake the provision of a separate supply.

MADRAS,
3rd November 1891.

(Signed) W. V. CONSTABLE, Capt., R.E.,
for *Consulting Engineer for Railways.*

No. 4933 C.

Transferred to the Local and Municipal Department, with reference to G.O., dated 4th May 1891, No. 671 M., in view to these papers being referred to the Sanitary Engineer for remarks.

(Signed) W. H. COAKER, Lieut.-Col., R.E.,
Joint Secy. to Govt., P.W.D., Railway Branch.

7th November 1891.

372/10

No. 1006.

Referred to the Sanitary Engineer for *very early* remarks.

(By Order.)

(Signed) N. S. BRODIE,
Ag. Assistant Secretary.

FORT ST. GEORGE,
10th November 1891.

To the Sanitary Engineer.

From J. A. JONES, Esq., MEM. INST. C.E., F.R.S.E., Sanitary Engineer to Government, to the Chief Secretary to Government, dated Fort St. George, 19th November 1891, No. 1741.

In reply to reference No. 1006, dated 10th November 1891, I have the honour to reply as follows.

2. The suggestion made by the Consulting Engineer for Railways that the Trichinopoly scheme might be so modified that the water should be delivered to the Railway Company at a pressure due to the lift of 105 feet, which is the lift required for the town alone, was considered by me when drawing out the scheme and the reasons why I did not put this alternative scheme before Government were—(1) that the scheme would be slightly more expensive to the Municipality, (2) that the Sepoy lines near the Railway station also demanded the higher lift, and (3) that it was advisable, for many reasons, to avoid a second pumping station, staff, &c.

3. But in view of the possible withdrawal of the Company from the scheme, I think everything ought to be done to secure the Company's co-operation and that the scheme, with the double pumping station, is more economical for the Railway will be shown in the following remarks.

4. Should the Railway withdraw, Government have still to consider the supplies to the Military lines and the Jail which, I shall presume, throughout this report, will now be a party to the scheme and which inclusion (*vide* my No. 1371 of 1st October 1891) would reduce the Railway Company's and Military contribution even without the reductions which it will be shown can still be effected.

5. As the Sepoy lines and Jail require the higher lift, I propose that the Railway Company should, under the arrangements now to be detailed, still have its water delivered 23 feet above rail level at the Junction station and I will show that this can be done at almost the cost which the Consulting Engineer, in his No. 968, dated 3rd November 1891, paragraph 6, anticipates would be the cost of delivering the water at the reduced level available with the lift of 105 feet at the Cauvery. If my figures are accepted, I trust the Railway Company will find it still possible to remain co-partners in the scheme.

6. As other two bodies, besides the Railway Company, have to be supplied, I propose that the second pumping station should still be a Municipal one.

7. It has been assumed, it is thought, by the Consulting Engineer that the Railway Company, if the town water was delivered with head due to the lift of 105 feet, would require to lift only the extra 40 feet, but the lift will be more than this. The rail level near the Wyacondan channel, according to the datum assumed in our plans, is 378·00 and it may be assumed that the water in the reservoir proposed to be constructed can be maintained at a level of 374·00. The level to which the water must be raised to deliver it to the Railway at 23 feet above rail level at the Junction station (and this lift is necessary for the Jail and Military supplies) is 434·00, so that the lift at the Wyacondan channel, where the subsidiary pumping station will be placed, will be 60 feet and not 40 feet. It might be remarked that in such case the original lift of 105 might still be reduced, but the water must be delivered with pressure for the portions of the town north of the Wyacondan subsidiary pumping station, where a ridge has to be crossed.

8. On such basis then the following calculations have been made:—
The supplies required to be pumped at the Cauvery are—

	Gallons.		Hours.
Town	900,000	in	24
Railway	100,000	„	24
Military	42,000	„	24
Jail	15,000	„	24
Total ..	1,057,000	„	24

and the maximum supply demanded $= \frac{1,057,000}{2} = 528,500$ gallons in six hours, or 1,469 gallons per minute, and the horse-power required will be—

$$\frac{1,469 \times 105 \times 10}{33,000} \quad .. = 47$$

Add 80 per cent. .. = 37

Total .. 84

keeping one engine in reserve, three engines of 42 horse-power = 126 horse-power, at Rs. 600 = Rs. 75,600.

The cost of these engines will now be distributed in exact proportion to the supply demanded as the lift is the same for all parties or in the proportion of—

—	Town.	Railway.	Military.	Jail.
Proportions	900	100	42	15
Cost	Rs. 64,370	Rs. 7,150	Rs. 3,000	Rs. 1,080

At the subsidiary pumping station the amount to be pumped will be—

	Gallons.		Hours.
Town*	109,440	in	24
Railway	100,000	„	24
Sepoy lines (one set only)	21,000	„	24
Jail	15,000	„	24
Total ..	245,440	„	24

$\frac{245,440}{2} = 122,720$ gallons in six hours, or 340 gallons per minute.

The horse-power required at the subsidiary station will be—

$$\frac{\text{Gallons. } 340 \times \text{Feet. } 60 \times \text{Lb. } 10}{33,000} \quad .. = \text{say } 6$$

Add 80 per cent. .. .. = „ 5

11

but say 12 horse-power, and three engines of 6 horse-power would be required, costing Rs. 10,800.

The cost is distributable in the following proportion, viz., that of consumption—

—	Town.	Railway.	Military.	Jail.
Proportions	109·4	100	21	15
Cost	Rs. 4,830	Rs. 4,390	Rs. 930	R 650

* Note.—There are eight fountains placed on Railway branch, and it is for the supply of these that the Municipality has to pay at the second pumping station.

The total cost of the machinery to each party will then be—

—	Town.	Railway.	Military.	Jail.
Main pumping station	Rs. 64,370	Rs. 7,150	Rs. 3,000	Rs. 1,080
Subsidiary	4,830	4,390	930	650
Total ..	69,200	11,540	3,930	1,730
As compared with amounts in statement in my letter, No. 1371, dated 1st October 1891.	67,031	26,550	11,150	2,369
Increase or decrease ..	+ 2,169	— 15,010	— 7,220	— 1,539

The following will be, under the new condition, the cost of pumping:—

—	Main station. Gallons daily.	Main station. Rupees annually.	Subsidiary station. Gallons. daily.	Subsidiary station. Rupees annually.	Total annually.
Municipality	900,000	21,900	109,440	1,591	Rs. 23,491
Railway	100,000	2,433	100,000	1,460	3,893
Sepoy lines	42,000	1,021	21,000	306	1,327
Jail	15,000	365	15,000	219	584

and as compared with the statement of cost of pumping in letter above quoted—

—	Municipality.	Railway.	Military.	Jail.
As above	Rs. 23,491	Rs. † 3,893	Rs. 1,327	Rs. 584
„ in letter No. 1371 of 1st October 1891 ..	21,500	* 8,542	3,587	1,281
Increase or decrease ..	+ 1,991	— 4,649	— 2,260	— 697

Some changes are also necessary in the size of the pipes. Why that is so is exhibited in the tracing of hydraulic gradients as revised and sent for information. The extra details of the cost is shown in the appendix; this falls on the Municipality.

9. An addition has to be made on account of a small reservoir near the Wyacondan and new pumping-house. I have not taken the cost of these out in detail. I do not think, however, anything but a well is required to receive the water, whence it can be pumped again, and this I calculate can be erected for Rs. 2,500. The cost of the pumping-house will be about Rs. 3,500. The total of these amounts to Rs. 6,000 and these are divisable in the proportion of—

—	Town.	Railway.	Military.	Jail.
Proportions	1,094	100	21	15
Cost	Rs. 2,675	Rs. 445	Rs. 513	Rs. 367

I gather from Colonel Coaker's remarks in paragraph 4 of his letter that he has omitted to note that the difference between the real cost of the 10-gallons scheme of Mr. Oldham and the new 15-gallons scheme is very little. Owing to the fact of under-estimation of cost and to the incorrect principle on which the original amount debitable to the Railway was calculated, it might seem that the Railway gain no

	Rs.
* This in original scheme was	9,000
† As now proposed	3,893
Decrease from original scheme	— 5,107

benefit under the conditions of an increased supply; but that is not so, because the works under Mr. Oldham's plan would, as shown, have cost almost as much and the pumping lift would have been 180 feet against 145 feet under my original scheme and against 105 + 60 = 165 under the one I am now suggesting.

10. Nor are Colonel Coaker's suppositions correct in regard to the debits under pipes and laying pipes. The Company were not charged with any portion of any main except that through which their water is to pass. That the debit was a very reasonable one may, I think, be said because the Railway Company calculates the cost of their own pipe at Rs. 21,009 while my debit was (Jail not included) Rs. 20,900. The Agent in his No. 1685, of 28th October 1891, quotes the Chief Engineer who says that Rs. 2,000 should be added to carry the off-take beyond the confluence of the Kodamurty river (where our proposed pumping station is situated) and that the rate put down for piping is too low and that the estimate would have to be increased by Rs. 9,000. My only fear is therefore that I have not debited a large enough proportion of the cost of the piping to the Company who certainly, in this instance, gain by co-operation.

11. As to the other items in the estimates, I do not think it will be wise to make any reductions in the size of the pump-house, nor of its anticipated cost; if there is any saving, the Company would benefit eventually. There are no changes in the debits as to piping, which remain the same size, except in some instances where an increase will fall on the Municipality.

12. The general results are that the Company will now be asked to pay Rs. 17,377 less for capital cost and Rs. 5,107 less per annum, while the shares of the Military and Jail are also decreased.

13. The whole cost of the scheme is also decreased, but unfortunately that of Municipality will be slightly more.

14. A revised estimate is sent and is exhibited in detail in Appendix I (1), while in I (2) and I (3) are exhibted the former estimates in my letters Nos. 251 and 1371, respectively.

15. In conclusion, I would point out that the Company are urgently in need of the water and that if the Municipalty delay in commencing the work, the Company may yet withdraw. In G.O., dated 4th May 1891, No. 671, it is stated that the Municipality had to meet an expenditure of Rs. 3,100 more than was originally anticipated. This will unfortunately be still further increased as follows:—

	Rs.
Proportion of initial cost to be borne by Municipality	3,66,435
Deduct half-grant by Government	1,83,217
	1,83,218
Deduct savings available	15,500
	1,67,718
The yearly sum required to clear off this amount in 30 years with interest at 4¼ per cent. will be	10,297
Add proportionate working charges	23,491
Total annual cost to the Municipality ..	33,788
Deduct (Rs. 31,213 — Rs. 3,100—*vide* paragraph 39 of Sanitary Engineer's letter No. 251, of 8th April 1891, embodied in G.O., dated 4th May 1891, No. 671 M., Local and Municipal) ..	28,113
Increased cost of scheme as compared with Mr. Oldham's scheme ..	5,675

This need not form any bar to beginning the scheme as the greater part of the annual expenditure is for pumping charges which can be reduced by affording a reduced supply to the town; in fact, if the Municipality were only to deliver 10 gallons per head to begin with they can easily arrange to meet the expenditure. I trust, therefore, Government will able to sanction the scheme at an early date and that the arrangements now proposed will be satisfactory to the Company and the other bodies concerned.

Enclosures.

APPENDIX I (1).

Scheme proposed in foregoing report.

—	Town.	Railway.	Military.	Jail.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.
	22,922	2,547	1,069	382	..
		4,334	1,817	532	..
Infiltration works	10,927	2,445	513	367	..
Engine and boiler house—	2,675			1,080	..
Main		7,150	3,000	650	..
Subsidiary	64,370	4,390	930	* 2,000	..
Engines and pumps—	4,830	20,720	8,700	..	..
Main	1,77,585	..	..	180	..
Subsidiary	5,078	1,769	740	255	..
Pipes	15,185	2,532	1,063	..	..
Additional cost	21,724	..	..		
Valves and fountains	424	..		5,446	..
Laying pipes			17,832	680	..
Additional cost	3,25,720	45,887	2,229		
	40,715	5,736		6,126	..
	3,66,435	51,623	20,061		4,44,245
Contingencies, at 12½ per cent.	..	..	..	..	
Total ..					

* This is without the piping which is to supply the Jail and solely for the use of the Jail—*vide* my No. 1371, dated 1st October 1891.

APPENDIX I (2).

Vide my letter No. 251, of 8th April 1891 (Original scheme).

—	Town.	Railway.	Sepoy line.
	Rs.	Rs.	Rs.
	23,253	2,583	1,084
	11,046	4,622	1,942
	67,256	28,692	12,052
	1,79,327	20,900	8,778
	15,337	1,787	750
	21,944	2,557	1,073
Infiltration works			
Engine and boiler house	3,18,163	61,141	25,679
Engines, boilers and pumps	39,837	7,859	3,321
Pipes			
Valves and fountains	3,58,000	69,000	29,000
Laying pipes		4,56,000	
Contingencies including establishment, at 12½ per cent.			
Total ..			

APPENDIX I (3).

Vide my letter No. 1371, of 1st October 1891 (Original scheme, but with Jail included).

—	Town.	Railway.	Sepoy lines.	Jail.
	Rs.	Rs.	Rs.	Rs.
	22,922	2,547	1,069	382
	10,927	4,334	1,817	532
	67,031	26,550	11,150	3,269
	1,77,585	20,720	8,700	2,000
	15,185	1,769	740	180
	21,724	2,532	1,063	255
Infiltration works				
Engine and boiler house	3,15,374	58,452	24,539	6,618
Engines, boiler and pumps	39,626	7,368	3,091	832
Pipes				
Valves and fountains	3,55,000	65,820	27,630	7,550
Laying pipes		4,56,000		
Contingencies, at 12½ per cent.	3,58,000	69,000	29,000	..
		4,56,000		
As against previously				..

ORDER—dated 30th November 1891, No. 2113 M., Local and Municipal.

With the first of the letters read above, the Chairman of the Municipal Council, Trichinopoly, submits proposals for defraying the cost of the scheme of water-supply sanctioned in the second Government order read above. It is now, however, proposed to modify the arrangements approved of in that order with a view to the inclusion of the Jail in the general plan and to meet the objections taken by the South Indian Railway Company to the scheme and to the distribution of its cost between the participants. According to the modified scheme now submitted by the Sanitary Engineer in the last letter read above, the cost will be redistributed as follows:—

	Capital outlay.	Working charges per annum.
	RS.	RS.
Municipality	3,66,435	23,491
Railway Company	51,623	3,893
Military Department	20,061	1,327
Jail	6,126	584
Total ..	4,44,245	29,295

The arrangements proposed seem to be satisfactory, but as they differ considerably from those previously submitted, the papers will be communicated to the various bodies and departments concerned in continuation of previous orders. It is observed, from paragraph 6 of the endorsement by the Consulting Engineer for Railways, transferred with the fourth letter read above, that the cost of a separate scheme for the Railway Company, as now contemplated, will be Rs. 8,925 per annum, while the share debitable to the Company under the revised scheme submitted by the Sanitary Engineer will be Rs. 7,765 only per annum. This scheme should, therefore, be considered at a very early date by the Railway Company and its decision communicated to Government as soon as possible.

2. The proposals now made entail a considerable increase in the outlay to be met from Municipal funds, but the Sanitary Engineer is of opinion that this need not form any bar to the execution of the scheme, as arrangements may be made for supplying the town at first with only 10 gallons of water per head of population, instead of 15 gallons per head. Mr. Jones does not state what would be the saving to the Municipality under these conditions, nor whether it is possible, while delivering the smaller quantity of water to the town, still to supply the full quantity to the Railway, Military lines and Jail. The Sanitary Engineer will furnish the necessary information with regard to these points.

3. Turning to the financial part of the question, so far as the Municipality is concerned, it is clear that the cost of the scheme, when in full working order, cannot be met from Municipal funds under present conditions. In the circumstances now stated, the Government will be prepared to increase the grant-in-aid from Provincial funds to Rs. 2,22,000 and the share of the capital cost debitable to the Municipality will thus be reduced to Rs. 1,44,435. As pointed out by the Collector, the Council should be able to meet Rs. 31,400 of this from the accumulated savings of the two years preceding the commencement of operations. The amount remaining to be borrowed will thus be Rs. 1,13,035 or, say, Rs. 1,10,000, the balance being met from general revenues in the course of executing the work. The annual charges involved by the scheme will thus be—

	RS.
Service of loan (30 years at 4¼ per cent.)	6,555
Working charges	23,491
Repair of pipes	5,000
Total ..	35,046

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Against this the Municipal Council and the Collector have, from time to time, submitted proposals which may be summarized as follows:—

Sources of increased income.	Amount. RS.
1. Extra revenue from revision of house and land taxes, completed November 1890	5,400
2. Water-tax on portions of the town supplied	10,500
3. Extra income from markets	4,000
4. Slaughter-house	1,000
5. Saving in existing water establishments, &c.	2,000
6. General revenues	3,300
7. Extension of profession-tax to the last three classes of the schedule.	2,000
Total ..	28,200

It thus appears that there will be an annual deficit of at least Rs. 6,846 which can only be met by increased taxation for which legislation will be necessary. The question of revising the arts-tax schedule will be considered when the Act is amended, but the imposition of octroi duties, as suggested by the Council, cannot be permitted. Final orders relative to the execution of the scheme will issue when the information called for in these Proceedings has been furnished and the decisions of the Military Department and of the Railway Company on the questions referred to them have been received.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Chairman, Municipal Council, Trichinopoly,
" Public Works Department, through the Collector.
" Military Department.
" Judicial Department.
" Sanitary Engineer, Railway Branch, with one enclosure returned.

Exd. P. L. Pereira.

Govt. of {1891} Madras.

LOCAL AND MUNICIPAL.

Issued

Recd. Encl.

G.O., 30th Nov. 1891, No. 2113 M.

NOVEMBER.

Water-supply.

Passing orders on the distribution of the cost of the extended — scheme of Trichinopoly now proposed by the Sanitary Engineer.

Re 3037 W 13-11-91 ✓
" 2842 W 26-10-91 ✓
" 866 D 11-9-91 ✓
" 451 D 25-6-91
" 2852 W 13-9-88
" 2352 W 26-8-89
" 809 D 3-9-89
" 810 D 3-9-89
" 2711 W 27-9-89
" 1610 W 9-6-90
" 1998 W 13-11-90
" 457 W 17-2-91
" 413 D 19-6-91
" 4201 C 23-9-91 ✓
" 1823 R 8-8-91
" 3018 R 17-12-91 ✓

372/10

MILITARY DEPARTMENT, 1ST FEBRUARY 1892, No. 698.

GOVERNMENT OF MADRAS.

MILITARY DEPARTMENT.

Cantonments—Water-supply.

Read the following papers:—

No. 1. *Proceedings of the Madras Government, Local and Municipal Department; dated 30th November* 1891, 2113-*M.*

ABSTRACT.—Passing orders on correspondence embodying revised proposals of the Sanitary Engineer, Madras, in connection with the Trichinopoly water-supply scheme.

No. 7242.

Referred to His Excellency the Commander-in-Chief for favour of remarks, through the Controller of Military Accounts, with advertence to Proceedings of Government, No. 4807, dated 28th August 1891.

(By Order.)

(Signed) H. R. HOPE, Brigdr.-Genl.,
Secretary to Government.

FORT ST. GEORGE,
17*th December* 1891.

To the Quarter Master General.

No. 2. *From Colonel A. G. HUTCHINS, for Quarter Master General, Madras Army, to Brigdr.-Genl. H. R. HOPE, Secretary to Government, Military Department; dated Ootacamund, 7th January* 1892, *No.* 43-*B* (*Cantonments —Water-Supply*).

In returning reference order No. 7242, of 17th December 1891, I am desired to state that the Commander-in-Chief is glad to observe from the correspondence recorded in Proceedings of Government, No. 2113-M, of 30th November 1891, that the charge proposed to be debited to the Military Department for the supply of water to troops at Trichinopoly, both initial and annual outlay, is considerably less than that formerly intimated, and His Excellency trusts that the sanction of Government may be obtained for the outlay, seeing how very necessary it is that the troops should be furnished as early as possible with a pure water-supply, cholera having recently appeared in the lines of the 3rd Light Infantry at Trichinopoly.

2. It has already been pointed out in this office letter, No. 1623-B of 16th June 1891, para. 2, as recorded in Proceedings of Government, No. 4807 of 28th August 1891, that no permanent reduction of the present regiment at water establishment is feasible.

No. 3. *With report from Controller of Military Accounts; dated 19th January* 1892, *No.* 32-*G.*

No. 4. *Telegram from the Secretary to the Government of Madras, Military Department, to the Secretary to the Government of India, Military Department, Calcutta; dated Fort St. George, 21st January* 1892, *No.* 424.

My 4808 of 28th August last regarding Trichinopoly water-supply.

Under revised scheme which will be submitted shortly, provision of Rs. 20,061 on account of initial outlay and Rs. 1,327 on account of annual expenditure will be necessary in military budget, 1892–93, in lieu of sums given in my above-quoted letter.

No. 5. ORDER THEREON, 1st February 1892, No. 698.

The foregoing correspondence will be forwarded to the Government of India, in continuation of Proceedings of Government, No. 4807, dated 28th August 1891, and telegram No. 424, dated 21st January 1892, above recorded.

No. 6. *To the Secretary to the Government of India, Military Department; dated 1st February* 1892, *No.* 699.

(True Extract.)

Brigdr.-Genl.,
Secretary to Government.

To the Quarter Master General.
" Controller of Military Accounts.
" Local and Municipal Department.
" Public Works Department, for information

Exd. T. K. Narayana Aiyangar.

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P. W. CURRENT No. 115-6

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Govt. of {1892} Madras.
MILITARY.

To

THE QUARTER MASTER GENERAL,
&c., &c., &c.

No. 372 W d/6 February 1892

B

Communicated to the Subs Govt VI. Circle for information

5.5.c

Dated February, 1st.

Issued

Encl 1 (45 c)

Recd. 4-2-92

Encl.

G.O., 1st February 1892, No. 698.

OWB
6-2-92

FEBRUARY.
Nos. 1—6.

Cantonments—Water-supply.

Trichinopoly water-supply scheme.—Correspondence embodying revised proposals of the Sanitary Engineer, Madras, in connection with the —, forwarded to the Government of India.

S.S. VI Circle
with copy of encls
2. Chief Engr's no. 2-92