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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

G.O. No. 63. ~~Press~~
B.P. No. Mis.

Dated 11-1-1875 ~~196~~ .

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1/63

Proceedings of the Madras Government, Public Works Department, 8th January 1875.

Read the following papers :—

No. 32.

No. 97. *Note by the Chief En r for Irrigation.*

With reference to G. O., No. 34, e 4th August, the correspondence as per margin is submitted for the information of Government.

To Chief Engineer and Manager, Madras Irrigation and Canal Company, No. 27, 11th Aug.
From do. do., No. 101, 24th August.

2. This correspondence was intended to deal primarily with the subject of the charge to be made by the Company for water supplied for irrigation purposes to Government tanks, and it was suggested by me that the demonstration of the proper price might best be effected in connection with the quantity of water for which, when applied to rice cultivation, a certain price had been fixed. This latter price would, it appeared to me, rule at least approximately all other charges for irrigation water.

3. The Chief Engineer and Manager, Madras Irrigation and Canal Company, seems to have considered that the Board of Revenue desired experiments to be tried with a view of ascertaining what water is required for the cultivation of an acre of rice under the canal, but this is a mistake. From time to time the particulars of experiments conducted in connection with Government works of irrigation have been sent to Mr. Latham for information, and it was thought that somewhat similar investigations under the Company's canal would afford definite information on this very important subject. However, no such investigations have been made, and the consideration of the subject of the price to be charged for water supplied to Government tanks must be based, it would appear, on other data than those which might have been obtained from experiment. Nevertheless it may be remarked that it would be desirable to undertake at least such investigations as can be attempted without much trouble and expense. It is suggested therefore that the actual water-supply from a few of the Company's distribution sluices should be gauged; that arrangements should be made for ascertaining also the surplus discharged from the lands watered by such sluices, which may be done no doubt in the selected localities without much difficulty; and that the difference should be taken as the water-supply actually utilized, and be compared with the acreage irrigated. The ascertainment of the quantity, weight, and value of the crops matured would also be easily effected, and then there would be some data to go upon in determining the value of the water-supply upon the basis of the results produced by it.

4. If G. O., Revenue Department, of the 13th September 1873, No. 984, be referred to, it will be seen that Major Oakes, when Acting Chief Engineer for Irrigation, proposed that 1 rupee for 1,440 cubic yards should be the charge for filling or supplying Government tanks, but the Government considering that this rate would be somewhat unfavorable to the Company substituted 1,000 cubic yards as that to be supplied for 1 rupee. Since then, so far as I am aware, no new evidence bearing on this subject has been adduced, but in paragraph 16 of the Order on the new Rules it is said that this charge seems a heavy

one. As there are no data which have been shown to be reliable for determining with any degree of exactitude the value of the water, only such an approximation to its *cost* as may be possible can be here brought forward as a guide to a decision.

5. The cost of the water depe

1*st*, upon the outlay on the works of the canal;
2*ndly*, upon the quantity of water rendered available.

First, as to outlay.—The accounts rendered to this office show that the Indian outlay up to November 1873 had amounted to Rupees 151,67,121, to which will have to be added the Home expenditure, which has not yet been brought into the Indian accounts. The works also are not yet fully completed. The original capital of one million sterling and the loan capital of £600,000 have both been nearly expended. I am not in a position to show at this moment what the accumulated interest amounts to, but it is a very large sum, and it is pretty certain that the addition on this account will, before the accounts shall have been finally adjusted, have raised the total cost of the supply to two millions sterling.

In estimating the annual cost of the supply it would seem to be necessary to take 10 per cent. on outlay as the gross return required to yield a fair interest on that outlay. Consequently £200,000 or 20 lakhs a year would be the gross income needed.

Secondly, as to water-supply.—The canal is designed to carry 400,000 cubic yards of water an hour, which is equivalent to 288 millions of cubic yards a month. Until recently the canal was allowed to take water from the river during seven months—June to December inclusive; now, when there is more water than is needed for the Kistna, the supply may be continued. Looking, however, to the fact that a second crop can at best be grown on but a very limited scale, and making allowance for the circumstance that a full supply is not obtainable from the Toombudra throughout the whole period of even seven months, it would not seem to be prudent to estimate the season's supply at more than $288 \times 7 = 2{,}016$ millions of cubic yards. Two thousand millions for 20 lakhs would make the price of 1,000 cubic yards just 1 rupee.

The above calculation supposes the canal to carry and distribute the full supply of 400,000 cubic yards an hour, and it is necessary to remark that up to the present time it has not conveyed and probably could not carry that quantity, and that consequently the real cost of the water on the average for 20 years or so will be considerably higher than that above deduced.

So far as I am able to judge, therefore, the *prima facie* evidence appears to indicate that 1 rupee per 1,000 cubic yards is not too high a charge for water supplied to Government tanks from the Company's canal.

6. With regard to the other subject on which the Government have expressed an opinion, viz., that the water-rates generally are too high, the consideration involved appears to be rather whether a reduction of rate would produce better financial results than

G. O., Revenue Department, No. 830, paragraph 9, 3rd July 1874.

whether the charges are out of proportion to the increased net value of the crops obtained by the irrigation of the lands. This must, under present circumstances, be a matter of conjecture, and unfortunate[ly] the present time seems to be one at which it would appear to be hardly des[irable] to try to introduce further changes than those which have been provided f[or by] the new rules. There is the patent fact, it is true, that with certain high ra[tes] irrigation under the canal has not been popular, but the deduction from this fact that unpopularity is due solely or principally to these rates it would be difficult to establish. In the next place those rates, if they were obstructive to the extension of irrigation, have been very materially modified already, and the new rules may of themselves, without further reductions, produce a marked change in the direction desired. Moreover, if the proper effect of these rules is to be ascertained, of course it will be necessary not to let it be imagined that further modifications are in contemplation. If it be thought that other changes are likely to be introduced shortly the new rules will be almost without practical results. Lastly, were the canal under the entire control of the Government, it would be optional with them to act promptly in any direction thought desirable, but as the consent of the Company to alterations of water-rates is necessary, the obtaining of which consent may be a matter of difficulty, and require time and discussion in order to secure it, it would seem to be prudent to give the new rules a fair trial, and to ascertain their effect with some degree of certainty, before pressing more strongly on the consideration of the Board of Directors the opinions which have already been brought under their notice, regarding which as yet they have [not] communicated their views and have not indeed had time to do so.

CAMP, PALAMCOTTAH, 15*th October* 1874.

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

No. 98. From J. H. LATHAM, Esq., Chief Engineer and Manager of the Madras Irrigation and Canal Company, to Lieut.-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Kurnool, 24th August 1874, No. 101.

Rule VI., Clause 9.

I HAVE the honor to suggest that before trying further experiment the questions to be settled by such experiments should be clearly fixed. If the Board of Revenue want further experiments let them be asked to state, (1) what they wish to prove, and (2) that they will accept the experiment as proof of it.

2. The experiments of the last fifteen years, so far as you have kindly sent me the results, seem simply and amply to bear out the practical deductions of the previous 2,000 years, as given in Colonel Foord's book.—See my Reports to the Board of Directors for September 1866 and September 1867, etc. A supply to be stored in a tank for an acre of paddy must be reckoned at 2·8 cubic yards of water per hour, and if run from a sluice 1·8 cubic yards of water per hour will suffice, tank and sluice being near the fields. This assumes nothing, practically speaking 36 inches of water will raise a crop of paddy of 72 days average irrigation nett, and if tanks become in time more dish-shaped, I do not suppose that the second

figure (1·8) would be diminished by more than 0·05 by bringing this into account. Do the Board of Revenue want these figures got more accurately, or do they wish your queries in paragraph 2 to be answered from these figures?

3. If they wish the figures more accurately ascertained, I will gladly carry out the necessary experiments under the canal. It is of no use putting such cultivation under a smaller staff than a tindal on Rupees 25 and two peons on Rupees 6 each, for each plot. I suggest that the Collector be asked to secure four plots of 50 to 100 acres each of good old dry land, nicely together, one plot in each sub-division, and be authorized to rent it for five years. The water should be measured close to the field in order to eliminate all the variations of absorption, diversion, etc., in the channels between the sluice and plot, and if there be no indigo vat there, one might be built specially suitable for measuring, which is best done by discharge at a fixed head through a number of similar apertures, which can be separately measured and gauged beforehand. The effect of cultivation, manure, and silt upon the absorption of the water in each successive year could thus be tested; and the experiment *should* pay its expenses. Each plot must be well fenced, and the necessary huts must be built.

4. If the Board assent to the figures, but require to have them applied to answer the queries in paragraph 2, it seems to me that the revenue officers should be best able to answer the queries. Their experience is above a century old, and covers all India. What rices are best to grow, or most likely to be grown, and the number of days' water they need, and the average yield under the Government tanks, the filling of which is in question, are surely questions capable of a sufficiently accurate answer without further experiment. If it be thought well to test the yield, the ryots would have no objection to any plots being cut and threshed out in the presence of the Deputy Collector and an Engineer, and many could be so done, and the produce weighed in one day.

5. Generally, I have little doubt that if the Company placed a gang of reapers and threshers under an Overseer having the proper measures and weights, and offering to reap and thresh paddy fields *gratis*, he would be able to ascertain the number of measures of grain, the weight per measure, and number of bundles of straw, in a very sufficient way on all kinds of ground, and under every variety of situation.

6. I quite agree with you, differing, I believe, from the Revenue Board, that the value of the water is the true basis for the water-rate, and not the resistance offered by the ryots. Yielding to the latter can only be justified if the resistance be from misapprehension or distrust, and is even then but a poor and dangerous remedy. So long as land doubles and trebles in value directly it is brought under the canal, the water-rate cannot be considered too high.

7. I will mention that 1,000 cubic yards of water supplied to a tank may be worth 10,000 supplied directly, by keeping the crops under the tank alive for a few days till a rain refills the tank. By clause 8 the Collector may at any point of a tank cultivation call upon the canal to mature the then growing crops. That clause and the following one are his only rules for getting canal water supplied through a tank, not unavoidably interfered with by the canal.

3/63

No. 99. ORDER THEREON, 8th …nuary 1875, No. 50.

IRRIGATION, No. 17.

of opinion that the rate of 1 rupee per … cubic yards should be the quantity to … lency desires that the assent of the Boa… modification of the rules may be obtained.

2. The Chief Engineer and Manager … will be requested also to obtain and to … views of his Directors on the subject of t… to the opinion expressed by the Board … the papers communicated to him with G. …

(True E… xtract.)

His Excellency the Governor in …ouncil after a full consideration of the …guments in the foregoing papers is …nd cubic yards of water supplied to … Clause 9, is excessive, and that 1,440 …e supplied for 1 rupee, and His Excel…rd of Directors of the Company to this … at an early date.

…, Madras Irrigation and Canal Company, … submit as early as may be possible the …he water-rates generally, with reference … of Revenue and by the Government in …O., No. 34, of the 4th August 1874.

C. Spankie Colonel, R.E.,
Secretary to Government.

To the Chief Engineer for Irrigation.
" " and Manager, Madras Irrig…tion and Canal Company.
" Revenue Department.

Exd. S. T. Austin.
Spare Copies

No 74
Revenue Department
Govt. of [1875] Madras.

PUBLIC WORKS.

To

THE CHIEF ENGINEER FOR IRRIGATION.

&c, &c., &c.

Dated January 8th.

Read. —a-9.

Encl.

G., O., 8th January 1875, No. 50.

JANUARY.

Nos 97-99

911

Madras Irrigation and Canal Company.—Issuing certain instructions on the subject of the rate to be charged by the Company for water supplied for irrigation purposes to Government Tanks.

No 63
Comm.d to the
Board of Revenue
11 Jany/75

14 Feb. Board of Rev. Dec. 15 Jany