M.R.O. 1—20,002—12-8-55.

(1) Number of Pages 6

(2) Date of repair 11.4.1976

(3) Initials of the Referencer

MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

G.O. No. / B.P. No.	109	Press / Mis.

Dated 18th October 1873 196 .

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department,
13th October 1873.

No. 191. Read the following memorandum from Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 17th September 1873, No. 644 :—

In accordance with the instructions contained in G. O., No. 2,173 F, of the 29th August 1873, the Red Hills and Cholaveram Tanks were visited on the 15th instant in company with the District Engineer, Chingleput.

2. The works which have been in progress, first at the anicut on the Cortiliar at Tamarapaukam, and second on the upper supply channel, both of which suffered greatly from the floods of November 1872, prevented full advantage being taken this year of the small freshes, which have been frequent in the Cortiliar, to send down water into the Cholaveram and Red Hills Tanks, while later in the season the necessity for re-constructing a considerable portion* of the bund of the Cholaveram Tank allowed of the transmission to the lower reservoir of all the water it contained above the large sluice sill, but unfortunately rendered it requisite to limit the supply which could be admitted from the Cortiliar. The re-construction work at the Cholaveram Tank is making good progress, and in a few days, should there be water in the Cortiliar, it will be possible to allow the Cholaveram Tank water to be raised between 2 and 3 feet; and, as the sluices at the head of the channel to the Red Hills Tank will be kept entirely open, whatever water may be received will be at once passed on.

Vide endorsement, No. 407, of the 5th July 1873.

* 1,100 feet.

3. At present the water in the Red Hills Tank is, as regards the supply of Madras, very low, and the fears of the President of the Municipality as to this supply ceasing altogether for a time are not unwarranted, though it may be hoped that a timely small fresh in the river will remove all risk of this. The depth of water on the sill of the lowest pipe of the Municipal sluice was yesterday 2 feet inches; and though a considerable supply can be drawn off with the water at this level, the discharge would diminish very rapidly as the level fell. The tank has a very large quantity of water in it, but the method of distribution adopted by the Municipality required that the sluice should be placed on a high level, and so, though the water in the tank is nearly $2\frac{1}{2}$ feet above the old caliagulah crest level, and, perhaps, 6 or 8 inches below a full level which was but seldom attained, there is some risk of Madras being left without a supply from this source. It appears to be clear from the water returns that, had none of the works been damaged last year, and had the tank bunds not shown signs of instability, enough water would have been retained and have been so far supplemented by the small Cortiliar freshes, as to have given at this time a depth of several feet above the present level, but it must not be forgotten that, as yet, but a very little extension of cultivation has taken place, and that, if this reaches anything like the area which has been assumed, it will, even in ordinarily good seasons, result that at about this time of the year, or perhaps earlier, the Red Hills Tank water will be as low or lower than it is

About half a million gallons per day.

About 33 millions of cubic yards, equal to 5,346 millions of gallons.

now. The tank is to hold so many millions above the Municipal off-take, and all this quantity, including additions thereto during the season, is to be made use of; hence it follows that at times no water will be left.

4. It is certainly not at all improbable that there has been a larger quantity of water consumed for irrigation than was necessary. There is no direct evidence either one way or the other, and hitherto there have been no means of introducing measurement of the quantity used and comparing it with the area under irrigation or, as would be proper and is very necessary, of restricting the issue of water to the area known to require it. Water returns are furnished to this office at short intervals by the District Engineer and on one or two occasions remarkable differences of level have caused references to be made for explanation, and it was pointed out to Colonel Moberly some time since that it would be requisite to ascertain what water these tanks, and that at Chembrambaukam, received, and what the supply accomplished; to compare also the results under one tank with those under another. Really this ought to be done in the case of all important tanks, but that is not at present practicable; a commencement must be made with a few, and with none more necessarily, or so conveniently, as with these three, on which so much money has been spent, from which as yet the returns are very small.

5. The District Engineer of late has, however, had far too much on his hands to admit of his giving his personal attention to details of this nature, and yet without that attention a fair start cannot well be made. The damage sustained by irrigation works at the end of the last calendar year has occasioned much additional work, added to which he has been for some months without any officer in the Mount Range in which these works are situated. He has had more work than he could get through, and many things which ought to have been done have necessarily been left undone.

6. A revised Conservancy Establishment has just been sanctioned for the Chingleput District, and there should now be no difficulty in arranging for the keeping of such registers of water levels, etc., as may be required, and these arrangements should be made at once. Colonel Moberly should then, as soon as possible, prepare tables of the quantities of water held by each tank for each 6 inches of depth; these can only be approximate, as the contoured levels are at intervals of a yard, but they can be obtained with some approach to accuracy by seeing the ratio of increase of capacity to increase of depth, and interpolating accordingly. In the next place a statement of water receipts and expenditure will be necessary, and the latter will have to be capable of being accounted for by

G. O., No. 2,229, dated 9th September 1873.

1*st*.—Water evaporated and absorbed;

2*nd*.—Do. used.

7. The measurement of water discharged by the sluices for irrigation and for town supply can most conveniently be made at small weirs constructed for the purpose in rear of the several sluices. At the Municipal sluice no doubt the Engineer in charge will devise arrangements, the accuracy of which can be tested; and at the tank sluices, small weirs should be built having a considerable length of crest, which latter should have an iron edge and, where possible, there should be a clear overfall, though this is not essential. Those weirs should be placed

at some distance from the rear end of the sluice tunnels, so as to allow the disturbed water to settle, and thus admit of the head passing over the weirs being accurately measured. The actual measurement of this head should be made in a cylinder having free communication with the water, but only through small holes, so that the surface inside may be quite still.

8. It will be necessary that returns of cultivation should be sent weekly from all villages irrigating under the tanks. The Tank Monigars will be the proper persons to whom to send them, by whom after regulating the sluices accordingly they will be transmitted to the Range Officer. For each sluice a table will be prepared showing the discharge for each depth on the measuring weir from one-tenth of an inch up to the maximum allowed which will not be very great, or when the discharge is measured by area of sluice opening a table and instructions adapted to the circumstances should be provided. The arrangements for distribution to the several villages are as yet very imperfect, and nothing appears to have been done for providing for the irrigation of new lands. It follows that the consumption of water will be greater than it need be when every channel and branch channel has its proper regulating dams or sluices, and that these should therefore be constructed as soon as may be practicable. For the present the supply per acre may be allowed to be as high as a maximum of 3 cubic yards per acre per hour, equivalent to 2·25 cubic yards per second for 100 acres. The Monigars should be instructed, whenever the consumption exceeds 2 cubic yards per acre per hour, to inspect the irrigation and to ascertain what wastage is going on. They will soon know where surplus running to waste is to be looked for, and the supply to that block or section of the cultivation can then be diminished accordingly. The actual regulation by the tank establishments should be confined to the heads of channels appertaining to a single village, and all regulation below that should be managed by the Village Officers. With the aid of the Revenue Inspectors there will probably be no difficulty in preventing any considerable waste while affording a sufficient supply to the crops, and, as the distribution arrangements become more perfect, waste should gradually be reduced to a minimum. The Range Officer should make himself thoroughly acquainted with all the channels under the tanks, in order that he may be able to instruct and control the Monigars; the Revenue Survey Maps will be of great service in obtaining this knowledge, and with these and a statement of lands under each channel, effective regulation will soon be quite practicable.

No. 192. ORDER THEREON, 13th October 1873, No. 2,503.

IRRIGATION, No. 15.

ORDERED that this memorandum by the Chief Engineer for Irrigation be communicated to the District Engineer, Chingleput, with a view to immediate measures being taken for the efficient regulation of the supply to irrigated lands under the Red Hills, Cholaveram, and Chembrumbaukum Tanks, the former tanks to be taken up first.

2. These Proceedings will likewise be communicated to the Revenue Department, in order that every assistance may be given by the Revenue Inspectors and Taluq Officers generally in carrying out the arrangements necessary to prevent

waste, and at the same time ensure a proper distribution of a sufficient supply of water.

3. In communicating these papers to the President of the Municipal Commission of Madras, that Officer will be requested to arrange for the accurate measurement and record of quantities of water drawn off from the Red Hills Tank at the Municipal off-take, and copies of the register should be sent weekly to the District Engineer for incorporation in the general statement of water expenditure. Mr. Loch's attention will also be called to the observations contained in paragraph 3 of the Chief Engineer's memorandum.

4. The Governor in Council desires that all departments and officers concerned will do all that is practicable to prevent waste of the water stored in the reservoirs at the Red Hills and Cholavaram. It is manifestly of great importance that these works on which between £ 120,000 and £ 130,000 have been spent should be very carefully managed and turned to the best account. The works have been hitherto less efficient than, it is hoped, they will shortly be, from leakage under, and slips at, the reservoir bunds, and a full supply has not been as yet retained; while the means of bringing water from the Cortiliar have been much curtailed by accidents to the anicut and head works and to the supply channel, which were designed with reference to floods, the level of which was determined on the best data then available but which has been very greatly exceeded, thereby causing serious damage. These defects are in course of rectification, and His Excellency looks to the District Engineer of Chingleput, and to the Chief Engineer for Irrigation, to take care that nothing is left undone to prevent accidents for the future, and to ensure the attainment of the objects for which the Government undertook the extensive works included in the Madras Water Works Project and the formation of these great reservoirs.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

To the District Engineer, Chingleput.
,, Chief Engineer for Irrigation.
,, President of the Municipal Commission, Madras.
,, Revenue Department.

Order Thereon 18th October 1873 No. 109
Communicated to the Board of Revenue,
in view to the necessary instructions being
issued to the Collector of Chingleput
from Extract
S. R. Salyall
Sec. to Govt.

Exd. E. C. Shunker
Spare Copies.

Cdt. F [1873] Madras.

PUBLIC WORKS.

To

THE DISTRICT ENGINEER, CHINGLEPUT

&c., &c., &c.

Dated. October 13*th*.

Read. *Encl.*

G. O. 13*th October* 1873, *No.* 2,503.

OCTOBER

Nos. 191-192

18 Oct 1873

Mis 109

Red Hills Tank.—Passing ordres on memorandum by the Chief Engineer for Irrigation reporting on the subject of increasing the quantity of water in the Red Hills Tank.

With Order