

(1) Number of pages _____

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	2503	Press
B.P. No.		Mis.
191-192		
Dated	13-10	1951.8.73

Not to be folded or roughly handled

No 644.

Memorandum

In accordance with the instructions contained in G.O. No. 2173 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 Aicut on the Cortiliar at Tamarapantham; and 2nd 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 Tank, while later in the season the necessity for reconstructing a considerable portion of the bund of the

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

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 reconstruction 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.

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

18"	1.12
21"	1.16
23"	.63
	2.24

about half a
million gal.
-lows per day.

About 33 Millions
of C. gr. = 5346
Millions of
Gallons.

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' 5", 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 2½ feet above the old Calingulah 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

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 any thing 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 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 received, and what the supply accomplished; to compare also the

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

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.

G.O. W^o. 2229
dated 9th Sep.
September 1873.

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 $\&c$ 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 six 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

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

- 1st water evaporated and absorbed,
- 2^d — 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. These weirs should be placed at some distance from the rear end of the sluice tunnels, so as to allow the disturbed

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 Monegars 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 $\frac{1}{10}$ th of an inch up to the maximum allowed which will not be very great. Or, when the discharge

discharge is measured by area
of sluice opening a table and
instructions adapted to the cir-
cumstances 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 chan-
nel 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 as 3 Cubic yards
per acre per hour, equivalent to 2.25
C.yds per second for 100 acres. The
monegars should be instructed,
whenever the consumption exceeds

2 C.yds

2 C.yds 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 afford-
ing a sufficient supply to the crops,
and, as the distribution arrangements
become more perfect, waste should
gradually be reduced to a mini-
mum. The Range Officer should
make himself thoroughly acquainted
with

with all the channels under the
Tanks in order that he may be
able to instruct and control the
monegars: 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. —

Fort Saint George
17th September
1873 —

Whitcomb Smith Col. R.E.
Chief Engineer for Irrigation.

To The Secretary to Government
Public Works Department.

P.O. 1843 Department
 No. 444
 From No. 5168.
 The Chief Engineer for
 Irrigation
 To The Secretary to Govt.
 P.W.D.
 Dated 17th }
 Dispt. 20th } September
 Received 20th } 1873.
 Reports on the sub-
 ject of increasing the
 supply of water in the
 Red Hills Tank.
 Copy
 A.G. 173
 Sep 24 1873
 No 2503-13 act 72

No 2503 P.W. Dept
 Proceedings of the Madras Govt.
 Read the following

From
 The Chief Engineer
 for Irrigation } (H. No 6449/17- Sept 1873)

and copies of the same
 to be distributed to the
 various officers of the
 Department of the Public Works

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

Is there no work
 of absolute securing
 measures against the
 deficiency now
 apprehended?
 (high level)
 Is the functioning of the
 sluice (referred to by
 Col. Mallins) being
 redress? And if so, ought
 not the water of the R.H.
 Tank to be applied

Chief Engineers' Memo-
-randum.

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 Cholaneram.

It is manifestly of
great importance that
these works on which
between £120,000 and
£130,000 have been
spent should be very care-
fully managed and turned
to the best account. The
works have been hitherto
left

less efficient than, it is
hoped, they will shortly
be, from leakage under
and slips at, the Reser-
voir bunds and as
full supply has not
been as yet retained,
while the means of
bringing water from the
Cortilliar have been
much curtailed by acci-
dents to the Ancient
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

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 attain-
ment of the objects for which
the Government undertook
the extensive works in-
cluded in the Madras
Water Works project, and
the formation of these
great reservoirs.

14. 19/9/73
LMM

14. 19/9/73

607
Dr Chingleput
Ch. Engr. Irri.
President Municipal Corp.
Ras. Dept.
S.C. super 18/10/73
23/9/73

Cp. 5168
Govt. of 1873 Madras.
PUBLIC WORKS.

1. The District Engineer
Chennai

Dated

Recd.

Encl.

G. O. 73 *Act* 1873 No. 2503.

Nos. 191 & 192

Red Hills Tank.

Passing orders in Memo
by the Chief Eng. for
the reporting on
the subject of increasing
the ^{quantity} of water
in the Red Hills
Tank.