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MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	2706.	Press
B.P. No.		Mis.
Dated	9-10-	1876
		195

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Note by the Chief Engineer for Irrigation

Encls 17

The inefficiency of the irrigation under the Bayana weir has been the subject of much correspondence and the unhealthiness of the locality in which it is situated together with other causes have prevented the completion until recently of estimates for remedial measures. The latest G.O. on the subject is that of the 9th January 1875, N^o 53, para 3.

2. A review of the circumstances and the instructions given to the District Engineer in connection therewith will be found in the

N^o 626-10 June 1875

Memo as per margin, and upon the latter the arrangements now submitted for sanction have been based. Formerly the water of the stream which drains some 40 square miles of country was diverted into

the irrigation channel by a "banda kutta" which apparently was a dam of earth. This dam breached periodically and in 1857 a masonry weir was substituted; unfortunately in the design no provision was made for under or scouring sluices, the stream bed and the channel silted up and repeated complaints of the difficulties under which the cultivation laboured were made.

3. The undersigned is not sanguine that very much good will result from the alterations proposed. They will remedy certain very palpable defects, but they will not suffice to make direct irrigation, without adequate storage of water in tanks, from a very small catchment basin at all reliable. The ayacut area is reported to be

Government land	acres 2,743
Udindari - do - "	2,425
Total	5,168

vide statement dated 5th April 1876 furnished by Collector.

At first it was reported that there were but very few tanks, but Mr. S. of Majors Beatty No 848 has modified this statement.

and the cultivation in recent years has been; Eneli 1280 (1870-71) acres 273⁹/₂ 220⁵³

" - 1281 - " - 410⁹/₂ 134¹³⁴

" - 1282 - " - 467⁹/₂ 235²³⁵

The ayacut is altogether out of proportion to the water supply, and to the way in which this small part of it is utilized. Possibly one-fourth of the ayacut might be irrigated with moderate success, but even so much is doubtful.

4. In the Proceedings Board of Revenue, on which G.O. No 2290 of the 18th August 1874 was passed, it is shown that according to usage Government had to arrange for the maintenance of the "Banda kutta", half the cost of repairs being recovered from the "Udindas" and apparently the substitute for that dam having been found inefficient some Rupees 1000 annually have been paid to

the Zemindar to compensate him for the loss of revenue. What the repairs of the "Banda Kattu" used to cost does not appear to have been stated, but the reasons for proposing the weir were laid before Government and reviewed in Ex. M. C. No. 1227 of the 21st July 1856, and the estimate was sanctioned in Ex. M. C. 3rd January 1857, No. 9.

5. The arrangements proposed are

1st to raise the crest of the ancient 3 feet weir in such a way as to obviate the necessity for temporary raising yearly.

2nd to insert a set of undersluices to keep down and clear away accumulation above the weir, and to reduce the silting in the supply channel.

3rd to construct a sluice at the head of the supply channel.

Impus 1849

Impus 2582

Impus 500

Impus 10,880

13,020

vide para 3 of
memo. No. 628.

4th to build a substantial hut for the laccars.

5th to improve the main channel and branch channels Nos. 2, 4 & 5. The improvement of branch channel No. 1 has also been estimated for, but is considered by the District Engineer unnecessary as the villagers state that there has never been any cultivation under this channel or under No. 3, and the fall of No. 1 shows it could never have been of much use.

6. Some modifications of details are it is considered desirable, but looking to the extreme unhealthiness of the place and to the great length of time which it has taken to get these estimates prepared the undersigned recommends that if the Government decide to undertake the improvements, sanction should be given to the estimates as indicating sufficiently accurately.

The probable cost of the works, and that in carrying them out the subjoined remarks should be attended to.

1st In inserting the underslices alterations to only half piers need be provided ^{weir} at the two ends and no cutwaters need be allowed in rear. The District Engineer has designed special gear for working the shutters, and though it might be made to answer it is thought that, as alterations would be difficult to carry out at this out of way place, it will be better to arrange for working each shutter independently from the crest of the weir, access to the crest of the weir being provided by an iron vertical ladder let into the face of the wing walls. The shutters can be opened or closed in a few minutes when necessary, and the distance to be traversed by the ladders will be

so very small that no practical difficulty will be experienced and the gear can be effectively protected by covering in the space between the bars carrying it. Nothing but the square head of the screw rod need be above the plane of the crest.

2nd The crest is to be raised 3 feet and in the estimate the wings are intended to be raised 1 foot only and this is insufficient for with the raised crest the wings would be only 8 feet above its level, and Mr. Martin states that with by no means a very heavy fall of rain 6 feet of water went over the weir in 1874, and the roadway of the head sluice is proposed to be placed 3 feet higher or at 11 feet above the raised crest. Again, if the area of the drainage basin be 20 square miles the maximum flood discharge

will probably not be less than 6000 cubic feet a second and the length of the weir being 60 feet the depth of water passing over would then be about $9\frac{1}{3}$ feet, so that the wings should be raised 4 feet at least or to 11 feet above crest level. The weir crest is now 11 feet above the 1st apron. It is stated to be built on rock and as it has stood for nearly 20 years it may be assumed that the intended increase of height will not affect its security.

8. 1st Site: - A site plan has been furnished and probably the exact position selected has been determined upon inspection of the ground, but an actual cross section at the site is not given on the sheet, of cross sections, the first C.S. being at 440 yards below the head.

2nd Design: - The level of the roadway will do. The sufficiency of the foundations is doubtful for the channel was originally intended to be

excavated to 4 feet below the present crest of the weir, and though it has silted up greatly there is probably no firm soil above that level, and the bottom of the foundations is shown at only 6 inches lower. There is no apron in front and an apron 6 feet in width beyond the cutwaters seems to be essential, the soil being noted to be alluvial. The front wings are longer than is necessary. Straight splayed wings 15 feet in length will be ample if they are to be 6 feet high at outer end, and the returns may then be 10 feet long. The vents should have ^{beam} stone lintels. It is inconvenient to place the shutter groove flush with a vertical face wall. The latter should have a face batter of 1 in 6 and the shutter will then have a proper clearance. The rear wings are 6 feet longer than is necessary. These modifications will probably cover the additional

masonry which may have to be put into the foundations. The cut stone flooring need not be more than 1 foot thick if the stone and work be good. Beyond the rear retaining wall there should be an outer rough stone apron 12 feet wide, and the slopes of the earth work at the wing returns front and rear should be revetted for a length of a few feet.

9. The necessity for good shelter is clear. With every precaution it may be difficult to keep the men free from fever. The men should be inhabitants of one of the neighbouring villages.

10. The work to be done has been clearly indicated on the sections, from which it will be seen how utterly inefficient these channels must at present be. It is recommended that the smaller estimate of Rs 10,880 be sanctioned.

Rs 10,811

11 Work ought to be commenced in January next and it is desirable that the under sluices should be constructed as early as possible so that small freshes may be passed through them. It will be advisable therefore to allot Rs 5,000 from the Reserve under M. D. W. for the current year's expenditure, and to provide the balance of the estimate in the Budget of 1877-78.

12. It is not ascertainable from the papers what the amount recoverable from the Zemindar will be, for it is not shown whether he contributed to the cost of the weir. If not the cost of the improvements to the weir and of the paccars but will probably be chargeable to Government, but the reexcavation of the channel and the provision of a head sluice therefor will, it is supposed, be divisible

equally between the Zemindar and Government. The returns on outlay to be expected are the saving of about Rupees 1000 annually in compensation to the Zemindar, and perhaps a not greatly differing amount of revenue on Government lands.

If, therefore, the proposed arrangements succeed in securing a fair supply of water the results will be satisfactory.

13. The inadequacy of the storage available has been referred to above. The District Engineer has submitted a sheet of surveys of these tanks, and has estimated their contents at their area by half their greatest depth. It is considered that one third that depth is a much safer multiple. There are eleven tanks and whichever estimate of capacity be taken the storage is very small, viz under 1 million cubic yards in one case, and under $1\frac{1}{2}$ millions in the other, and supposing only one third

of the total supply need be stored the tanks would only render safe some 750 acres of irrigation at most.

Dotacamund }
28th Sept. 1876 }

Wm. Mullins St. Colonel Lt.
Chief Engineer for Irriga.

To
The Secretary to Govt P.W.D.

P.W.D.
1907
7302

to
The Chief Eng. for Engrs
The Secy. to Govt.
P.W.D.

Dated 28 Sept 76

Encl 17

N: 205-W.

Bayana Calicigulak - Godavery
District - Note submitting arrange-
ments for improving the condition of the
irrigation under the — and re-
commending for sanction the Esti-
mate for Rs. 1584

1211

O.L. Shet 40 Sept

E. I. Form No. 22.

No 2706

Public Works Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 9 Oct 76
Read the following

Note by the Ch. Engr. for Engrs
N: 205-W of 28 Sep 76

The present in-
efficient condition of
the irrigation under
the Bayana weir having
been frequently reported
and measures for its
improvement strongly
urged, the best means
of effecting the desired
improvements have been
investigated with, as a
result, the submission
for sanction of estimates
amounting to Rupees
1584 for works which have
been fully described in

5/5
This work is to be done
by the Government
and the estimate for
the same is Rs. 1584
which is the amount
of the estimate for
the improvement of the
irrigation under the
Bayana weir.

the state by the Chief Engineer for Irrigation and papers therewith transmitted for consideration.

2. The area under the weir is

Government land acres	2743
Almudary—do	2425
Total	<u>5168</u>

but it is considered improbable that the water supply could ever suffice for this, and the Chief Engineer for Irrigation thinks about one-fourth only is likely to be successfully irrigated, and if so, the cost of the improvements contemplated will be about 12 Rupees an acre, a very large outlay. On the other hand Government

1730
are being annually a sum stated to be about 1,000 Rupees in compensation to the Zamindar, and though no particulars have been given of the loss of revenue on Government land this also must be considerable. In Faisla 1280 to 1282 the greatest extent of Government land cultivated was 235 acres.

3. The investigations have been attended with many difficulties owing to the unhealthiness of the locality in which the works are situated, and now that definite information has been obtained as to what is required, any further delay would clearly be

undesirable. The best
working season commences
in January, and His Grace
the Governor in Council
resolved to sanction the
estimate, to place at the
District Engineer's disposal
from the Reserve Surplus
5000 for the expenditure
of the current year, and
to direct the balance of
the estimate to be pro-
vided for in the Budget
of 1877-78.

4. The remarks of
the Chief Engineer for
Irrigation on the details
of the works should
be attended to.

5. The question of the
amount to be contributed
by the Zamindars will
be referred to the Revenue

Department for con-
sideration.

b. The particulars
of this sanction which
has been registered as
N^o. 163. I of 1876-77 will be
as follows:-

Irrigation

Ordinary Agricultural

Original Works

Improvements to irrigation
under Rayana weir.

Surplus 15,811

and the work will be
carried out by the
P.W.D.

Aug. 2/10
G.H.K.

J. G. Sadanay
Collector - do
C. E. P. D. with Original Enclosures
Ex. P. L. B.
Recd. Sept. 1

Sept. 11-76

7-3-86 II

7302
Govt. of Madras.
PUBLIC WORKS.

To Mr. N. S. Godavari

Date

Issued

Recd

Encl.

G. O., 9th Feb 1876, No.

277

Nos.

Hand in file
2-11-76

Engagement under the

Baranx Near Godavari

87- Passing orders in
note by the Chief Engineer
for angr submitting Co.
to state for improving
the condition of the